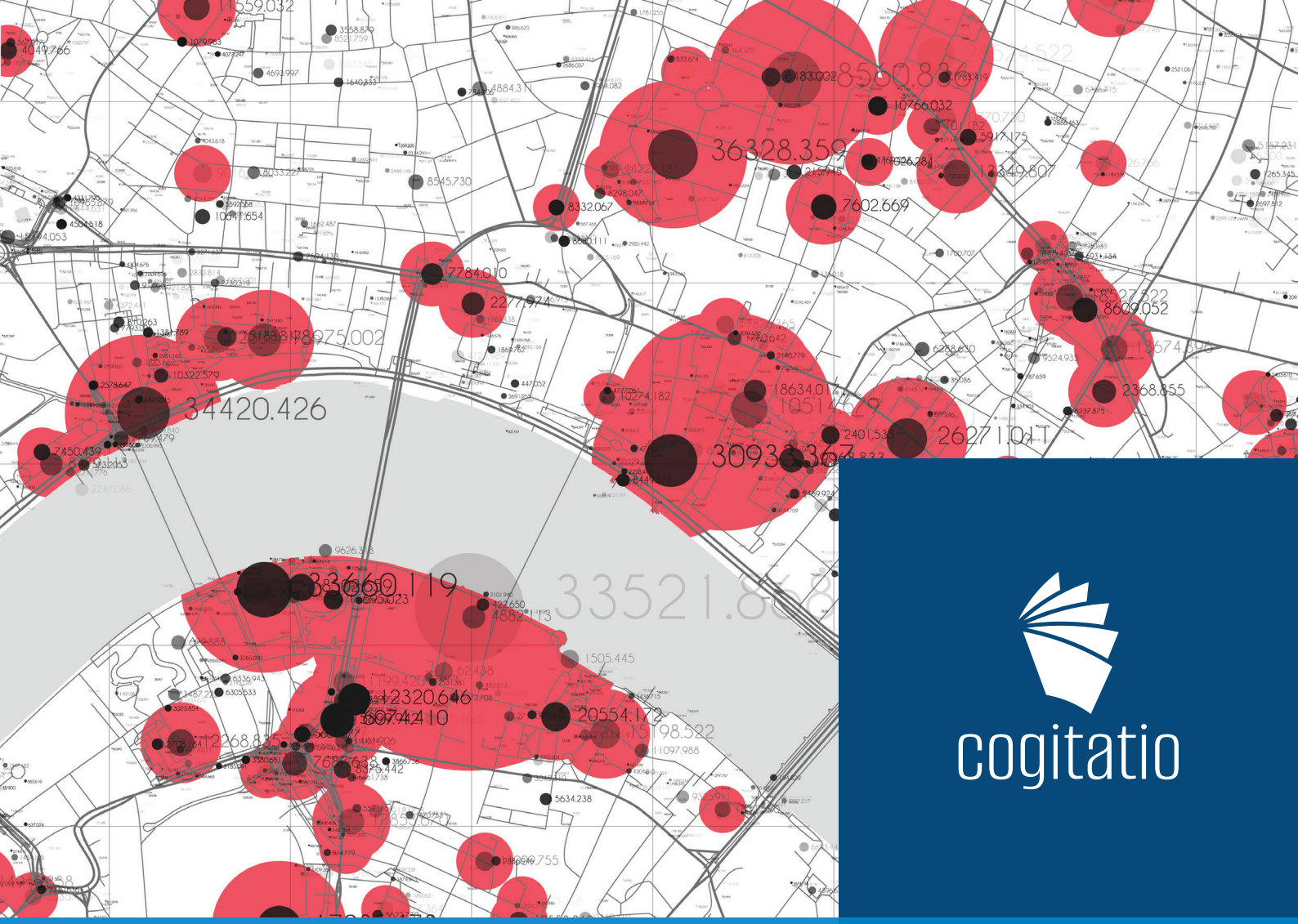

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Paola Sartoretto (Jönköping University)

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Table of Contents

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2026 • Volume 14 • Article 11980
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EDITORIAL

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Counter Data Mapping as Communicative Practices of Resistance

Sandra Jeppesen [1] and Paola Sartoretto [2]

[1] Media, Film, and Communications Program, Lakehead University, Canada
[2] School of Education and Communication (HLK), Jönköping University, Sweden

Correspondence: Sandra Jeppesen (sandrajeppesen@lakeheadu.ca)

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Abstract

This thematic issue shares research that critically analyzes counter-mapping undertaken by community groups who appropriate, collect, and utilize counter-datasets to unveil and reshape spatial realities. The articles consider a range of multidimensional sociotechnical cartographic practices, including the politics embedded in various uses of representation, visualization, interactivity, and cartographic imaginaries, framing counter data mapping as communicative practices of resistance. They deepen our understanding of how counter-mapping can be understood as a sociotechnical communicative practice through which communities inhabiting marginalized and vulnerable positions have collectively mobilized the affordances of mapping technologies to both visibilize and contest the root causes and consequences of marginalization. Scholars here consider how counter-mapping is embedded in notions of spatiality and relationality, probing dimensions of analysis that include data sourcing, objectives, capacities, processes, collaborations, ownership, strategic invisibility, and so on, providing evidence of the emerging importance of sociotechnical multidimensionality in the production and cartopolitics of community counter-maps.

Keywords

counter-mapping; digital media activism; sociotechnical practices; spatiality; marginalized communities; data activism; cartography; cartopolitics

1. Introduction

Digital counter-mapping has emerged as a new form of digital media activism over the past decade, with intense proliferation initiated during the pandemic and persisting through to today (Jeppesen & Sartoretto, 2023). In counter-maps, the narratives framed by hegemonic state and corporate maps are contested through resistant mapping including data appropriation, reappropriation of big data sets, community-owned datasets,

and more (Milan, 2017). Counter-data mapping includes the redrawing of maps by marginalized groups to reveal hidden inequalities and challenge the cartocracy of hegemonic maps (Kent, 2020) while sometimes also supporting calls for intersectional justice, expressing a community's needs and demands (Alderman & Inwood, 2021).

This thematic issue shares research that critically analyzes counter-mapping by community groups who use data to unveil and reshape spatial realities, considering their multidimensional sociotechnical practices including the politics embedded in various uses of representation, visualization, interactivity, and cartographic imaginaries (Jasanoff & Kim, 2015). In this context, data-driven counter-mapping is understood as a sociotechnical communicative practice through which communities inhabiting marginalized and/or vulnerable positions collectively mobilize the affordances of available mapping technologies to address the causes and consequences (Milan & Treré, 2020). Scholars here consider how counter-mapping is embedded in notions of spatiality and relationality, probing dimensions of analysis that include data sourcing, objectives, capacities, processes, collaborations, ownership, and so on, providing evidence of the emerging importance of sociotechnical multidimensionality in the production and politics of community counter-maps.

2. Multidimensional Social Practices in Relation to Technologies

When considering sociotechnical practices and imaginaries, it is typical that scholars focus on the technical aspects with less attention paid to social practices. Several of the articles collected here offer a nuance to this tendency, focusing on sociotechnical practices of mapping with an emphasis on how mapping can reconstruct and be reconstructed by social mapping practices.

Calvo and Treré (2025), in their consideration of the data mapping of the grassroots online group Frena la Curva in Spain, have found that the maps developed by activists to visualize community needs also served as springboards to facilitate community conversations. They therefore figure mapping as a situated process in which tensions and interpretive practices play out, rendering community values and counter-mapping imaginaries visible and pertinent through "cartographies of negotiation" that may express solidarity and resistance via community maps and the negotiated social practices of producing them.

Social practices engaged in while using mapping technologies were also relevant in the two articles from Brazil, both focusing on decolonization through counter-mapping. Carvalho (2026) has worked with community groups in São Paulo to develop processes of community mapping in the urban periphery. Like Frena la Curva in Spain, the case studies presented by Carvalho engaged in participatory mapping with community members to capture their diverse ideas with respect to space and spatialization. Together they mapped their own territories in a dialogical process, deepening their collective understanding of their neighbourhoods and thus also contributing toward solving local problems such as improving urban planning and policy outcomes, mitigating environmental and climate impacts, and developing community skills and agency.

Also focusing on a participatory mapping project, Indigenous Emergency in Brazil, Sartoretto and Martins (2025) bring an explicitly non-media-centric approach, which contests the centrality of the technical, to the analysis of decolonial counter-mapping practices that include resistant data appropriation and collaborative cartographies for self-representation and visibility, fostering collective political action. Moreover, they note

how decolonial counter-mapping practices are generative of not just maps but also Indigenous-led communicative citizenship based on deep community knowledge of both communication strategies and political action, with important social impacts.

While the above articles focus on the dimensions of social justice via participatory communicative mapping of land-based territories, Torp-Pedersen's (2025) article uses maps of bodies of water to explore human rights, including the right not to drown when migrating from one country to another across waterways. In the case studies explored, counter-mappers used data to render visible those who were not afforded this right and lost their lives, with the maps revealing the culpability of authority neglect.

Ting (2025) explores the social aspects of participatory mapping in the resistant economy in Hong Kong's yellow economic circle, identifying how users put specific businesses on the map of Hong Kong to indicate whether they were supporting the movement or siding with the authorities. They investigated how users could remain both visible in placing businesses on the online map using pins and photos (generative of dissenting spatiality, sociality, and solidarity) and strategically invisible (in anonymizing their own locations and names to provide security from the authorities). While noting the limitations of consumer activism as only one aspect of the movement, this counter-mapping initiative facilitated continued participation in social movements despite policing crackdowns that limited street protest. It illustrates the potential for everyday resistant engagements with data and counter-data mapping.

Also focused on tensions in shifts between invisibility and visibility in both online and offline mapping, Chun and Jeppesen (2026) explore queer social spatialities of offline cruising spaces where queer culture flies under the radar through the counter-epistemologies and curated invisibilities of queer spatiality, looking at affective social relations on dating platforms that both capture and allow for the expression of complex counter-affective relations. Moving through maps and shaping those maps through the movements of cruising, queer affective relations reclaim interstitial spaces and intimacies through counter-mapping and unmapping practices.

Thus, the specific *social* processes and practices, including the community objectives, specific uses imagined for the maps, and relationalities, were key multidimensional contributors to the sociotechnical practices and counter-mapping imaginaries in these papers.

3. Multidimensional Technical Practices in Relation to Socialities

Technology-oriented practices shape and are shaped by collective knowledge that transcends the technologies to which it relates. When it comes to counter-mapping, grassroots knowledge has territorial, historical, and political aspects that foreground technical practices. This collectively and locally grounded knowledge is seldom made visible in media and communication research which tends to have a predominantly technocentric approach. Articles in this thematic issue pay attention to this research gap and address how socially centered aspects of grassroots knowledge production relate to the technical practices that underpin counter-mapping.

Gómez Márquez, Garzón Díaz, and Oviedo Curbelo (2026) explore how counter-mapping practices relate to environmental activism and the territories in Uruguay. The authors recognise the need to create social maps

centered on local knowledge about the territory as a key element in sustainable development and mobilize participatory mapping to co-create Mapa Verde, a platform that connects youth environmental initiatives with society.

McKee (2025) also looks into counter-mapping practices during the Covid-19 pandemic among grassroots groups in Argentina, Brazil, Canada, and the United States, comparing these maps with hegemonic actors such as governments and academic institutions. McKee discusses the tendency toward oversimplification among hegemonic maps in comparison to the intersectional, nuanced storytelling practices of grassroots communities, demonstrating the public pedagogy potential of counter-mapping. Both contributions evidence the critical aspects of grassroots knowledge applied to mapping technologies.

Other contributions in this issue explore resistant interactive mapping practices that recast the relations between communities and the territories where they live. Xu and Chen (2025) discuss how young people in China tap into the affordances of social media platforms such as Baidu Maps, Xiaohongshu, and Douyin to articulate bottom-up forms of navigating and experiencing urban spaces. They argue that commercial platforms can be purposefully and tactically appropriated by citizens to write back to cities that are being "rewritten by code." Xu and Chen also identify authority as a site of contestation, aiming to escape algorithmic control by engaging in city walks and digital storytelling. They explore a key paradox of counter-mapping platforms which engage in a process of aestheticization, monetization, and commodification, often recuperating the resistance aims of the counter-mappers themselves.

Similarly, Alderman and Inwood (2025) interrogate the territorial aspect of enslavement memories in the United States, exploring how Black Lives Matter activists engage in communicative processes to reclaim place names and the memory of Black resistance against racial oppression and white supremacy. In these cases, local knowledge is mobilized in technical practices that reconfigure the appropriation of space by groups who are less publicly visible.

Lastly, Romano, Schueler, Kerby, and Beraldo (2026) present the concept of platform-mediated proximity as a framework for counter-data mapping. The authors scrape data from the platform TKGO, an archive that collects TikTok geographic metadata, to produce a topographic map of prioritized recommended videos in different locations. This is a unique resource for activists, journalists, and researchers looking into the geographies of cross-national trends, as well as content moderation and promotion.

4. Conclusion

Thematic issue contributors have amplified ongoing scholarly and activist dialogues to deepen our understanding of how counter-data maps have been used within communities to construct new social realities and technical practices that support communities in advocating for social justice. Moreover, to address gaps in the literature, we have foregrounded the important work of communities (including sociotechnical practices, imaginaries, and epistemological frameworks) from lower-income countries and other marginalized communities underrepresented in the scholarly literature.

The thematic issue raises further fundamental questions regarding the importance of community-engaged and participatory counter-mapping. How do communities address barriers to access in order to develop the

resources, skills, and capacities to collect, analyze, and interpret data from their own subject-positions, enabling them to address the inequitable distribution of power evident in hegemonic maps and data used for social control? What are the key sites of contestations of power structures in online and offline maps and how can feminist, queer, Black, Indigenous, and other map-makers continue to make interventions that strategically (in)visibilize their communities to keep themselves safe, healthy, thriving, empowered, and liberated? How can counter-mapping serve as an activist tool that amplifies the voices of those rendered voiceless, as we have argued earlier, while contesting capitalist power regimes of technification, data extraction, misinterpretation, invisibilization, and other forms of data power and cartocracy (Kent, 2020)? Finally, how can community activists engage in the cartopolitics of map-making (van Houtum, 2023) for liberatory ends that do not simultaneously reify and reinscribe the dominant power imbalances in normative practices of cartography?

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Conflict of Interests

The authors declare no conflict of interests.

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About the Authors

Sandra Jeppesen is professor of media, film, and communications and the Social Justice Studies MA at Lakehead University, Canada, social justice lead in the Research Centre for Sustainable Communities, lead researcher of the Media Action Research Group, co-founder of the Smart[er] Cities Research Network, and Lakehead University distinguished researcher award winner (2025).

Paola Sartoretto is associate professor in media and communication at Jönköping University, Sweden, director of the international MA programme Sustainable Communication, and co-founder of the research networks Smart[er] Cities and ComuTTe (Communities, Technologies and Territories).

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ARTICLE

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Cartographies of Negotiation: Data and Pandemic Mapping in the Frena la Curva Initiative

Dafne Calvo [1] and Emiliano Treré [2,3]

[1] Department of Language Theory and Communication Sciences, University of Valencia, Spain
[2] Department of Communication Sciences, University of Santiago de Compostela, Spain
[3] School of Journalism, Media and Culture, Cardiff University, UK

Correspondence: Emiliano Treré (emiliano.trere@usc.es / treree@cardiff.ac.uk)

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Abstract

The Covid-19 pandemic spurred social movements to prioritise solidarity and collective responses. In this context, counter-maps emerged as a form of data activism aimed at illuminating aspects of the crisis often overlooked in dominant representations. This article investigates the Frena la Curva initiative, which used an online forum and a collaborative map to visualise needs and offers of assistance across Ibero-American countries during the pandemic. Drawing on digital ethnography—including website analysis, map examination, and interviews with activists—the study explores the role of mapping in understanding the pandemic and representing diverse human experiences. We argue that maps became central tools for deliberation among data activists, combining practical functions with symbolic significance for social action. To conceptualise this dynamic, we introduce the notion of "cartographies of negotiation," which highlights the tensions, values, and interpretive practices that shape internet-based maps. This concept foregrounds the distinction between maps as objects and mapping as a situated process. We draw on technocentric and social justice frameworks to examine how activists navigate between technological possibilities and structural constraints, and how their cartographic practices generate new forms of visibility, solidarity, and resistance.

Keywords

Covid-19; counter-maps; data activism; digital communication; Frena la Curva; pandemic maps; social justice

1. Introduction

The Covid-19 pandemic compelled social movements to adapt, combining traditional protest strategies with grassroots networks for mutual aid (della Porta, 2020). These efforts reflect a drive to sustain social cohesion

and seek collective solutions. Solidarity in emergencies typically relies on social justice values, mutual recognition, and organisational adaptability (Smith, 2009). Historically, solidarity has played a central role in combating epidemics by mitigating their impact and controlling infections (Castañeda et al., 2011). The pandemic became a catalyst for mobilising civil society and grassroots data practices for two main reasons. Firstly, the pandemic has generated a substantial data influx, facilitated by high technological penetration and the development of various applications for infection monitoring and tracing (Zhou et al., 2020). Secondly, the nature of the pandemic, with its restrictions on traditional forms of organisation and its simultaneous global and local societal impacts, has spurred technological adaptation (della Porta, 2020; Mendes, 2020).

Maps proliferated at the intersection of data abundance, evolving cartographic technologies, and societal crisis (Micheli et al., 2020; Rosenkrantz et al., 2021). Utilised by diverse stakeholders—including health professionals, citizen scientists, and journalists—and serving various purposes such as managing public services, tracking infections, and identifying risk areas, maps have become a prevalent form of pandemic representation (Gleeson et al., 2022; Mooney & Juhász, 2020). Governmental institutions and tech corporations have proposed using GPS data for social distancing enforcement and infection tracking, raising concerns among activists about privacy infringement and civil liberties (D'Ignazio & Klein, 2020; Kitchin, 2020).

In response, activists have endeavoured to create new narratives about the pandemic through geographic representation (Bowe et al., 2020; Pase et al., 2021). Crowdsourcing platforms enabled communities to share localized knowledge of impact during the crisis (Mulder et al., 2016) while expanded geolocation and territorial data visualisation tools have aided in identifying citizen needs and questioning official data. These platforms have facilitated mutual aid efforts, raised awareness about societal realities, and encouraged the exploration of alternative perspectives (Fenner, 2020).

During the Covid-19 crisis, activists have employed maps to organise social action and identify mutual aid initiatives, shaping alternative pandemic narratives. These counter-maps, often created collaboratively, have served as instruments for solidarity, visibility of personal experiences (Bowe et al., 2020; Criado et al., 2020; Pase et al., 2021), and critical elements for understanding civil society values and interpretations during the crisis (Kent, 2020). However, the use of such maps also raises concerns about the potential reinforcement of stereotypes and increased visibility of certain forms of violence (Fenner, 2020), highlighting the dynamic and negotiable nature of their utility and impact.

We propose the concept of "cartographies of negotiation" to capture how internet-based maps serve as sites of friction and meaning-making, reflecting competing perspectives, values, and power dynamics within data activism. It constitutes a situated analysis of pandemic maps within the broader media ecosystem and an exploration of their capabilities and limitations in fostering solidarity during times of social crisis. Our research addresses unanswered questions about the meanings and underlying motivations of the counter-maps that have emerged during the pandemic.

We use technocentric and social justice not as mutually exclusive types but as heuristic orientations that co-exist and are negotiated in practice. A technocentric orientation foregrounds the affordances of platforms and visual design, treating the map as an artefact capable of scaling visibility and coordination. A social justice orientation foregrounds mapping as practice, situating cartographic work within uneven

capacities, pre-existing networks, and relations of care. Rather than a binary, our argument is that activist mapping during the pandemic typically involves a co-presence of both orientations—often within the same initiative and even the same actor. Cartographies of negotiation names this empirical hybridity: the ongoing work through which activists align ends (what should be made visible), means (data, platforms, validation), and publics (who can contribute, interpret, and benefit) under conditions of constraint and urgency (Crampton, 2001; Kennedy & Hill, 2018; Milan & van der Velden, 2016; Ślosarski, 2023). Figure 1 summarises this analytical framework by positioning technocentric and social justice orientations across the distinction between map and mapping.

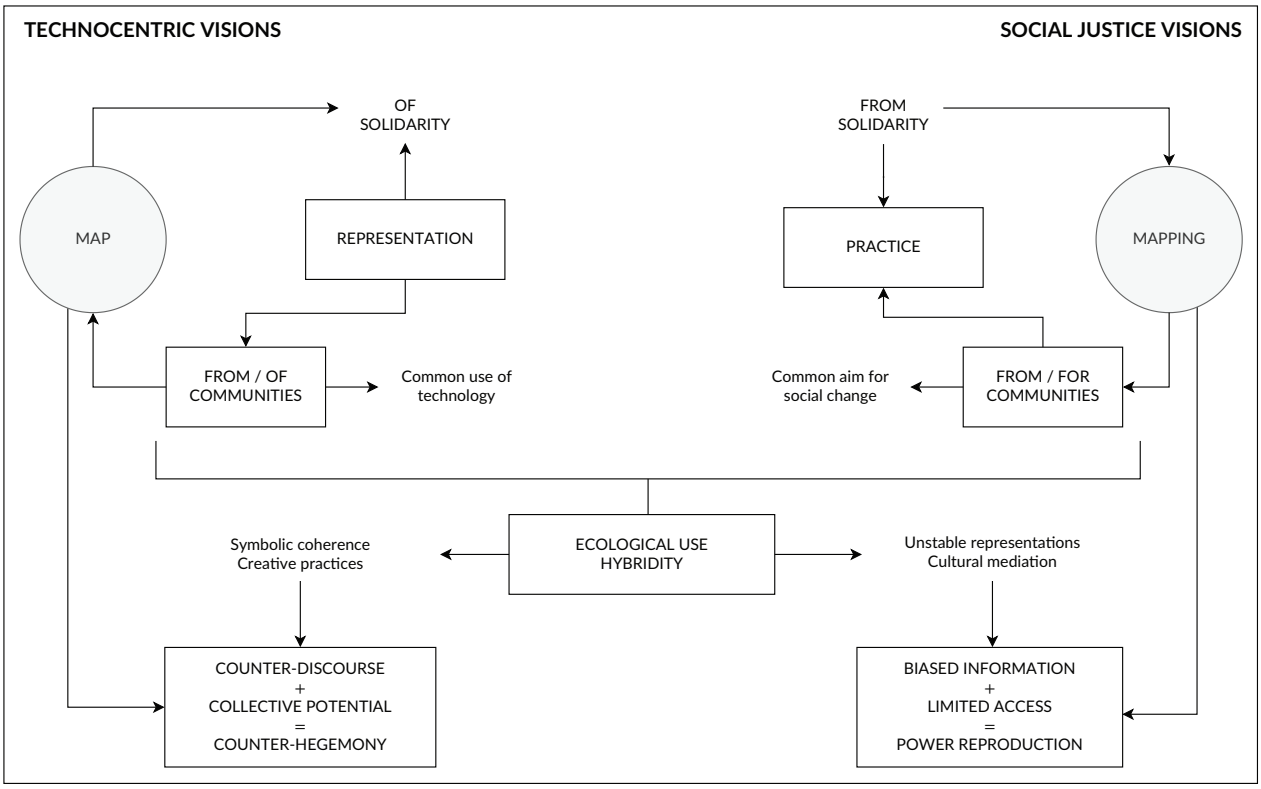

Figure 1. Technocentric and social justice visions in counter-mapping.

To pursue our aim, we connect critical cartographic scholarship with contemporary debates on data activism, recognising that the prominence of big data in everyday social processes also shapes mapping practices and cartographic visualisations. While the notion of "data arenas" (Ślosarski, 2023) highlights the contested nature of data infrastructures and "counter-mapping" (Peluso, 1995) emphasizes resistance to hegemonic geographies, our concept of cartographies of negotiation builds on these by foregrounding the hybrid, processual, and context-sensitive character of mapping as a communicative practice shaped by negotiation between technocentric and social justice visions.

More specifically, given that maps embody specific visions of technology and social order, our inquiry delves into the intentions and objectives of the Ibero-American organisation Frena la Curva (Flattening the Curve, hereafter FLC). We aim to discern the interpretations of reality and the expectations for change held by the activists who created and managed the initiative's maps. This project holds particular significance as it implements a similar solution—territorial visualisation of data on needs and aid—across various countries in

Europe, Latin America, and the Caribbean, providing insights into the local nuances of a global issue. Ultimately, this endeavour allows us to shed light on the multifaceted, holistic, and dichotomous nature of the practices and imaginaries associated with data. To guide our exploration, we pose three research questions:

RQ1: Which values do activists associate with maps?

RQ2: Which roles and centrality do they attribute to maps for mutual aid during the pandemic?

RQ3: Which affordances and limitations do activists identify with maps?

This article is structured as follows. First, we conceptualise counter-mapping and position it as a form of data activism. Subsequently, we elaborate on the findings derived from a digital ethnography of FLC's websites and maps, and interviews with local activists. This approach synthesises insights into their technological imaginaries and repertoires of action regarding technology. Based on the empirical evidence, we conclude that maps functioned as a solidarity artefact with their usage integral to hybrid collective action. For activists, maps primarily served as spaces for ongoing negotiation between the perpetuation of existing inequalities and the potential for appropriating the significance of the pandemic. This dual nature is strongly influenced by an interpretation that views maps as inseparable from mapping as uses and associated practices.

2. Maps, Data, and Representation

Technological innovations play a significant role in shaping contemporary societal identity and symbolic meanings. In this context, data act simultaneously as agents and mediators of social life (Ślosarski, 2023). Data activism encompasses grassroots practices arising from the interaction between civil society, technologies, and information (Milan & van der Velden, 2016). Data activists view technological artefacts as public concerns and engage with digital infrastructures by requesting, digesting, contributing to, modifying, and contesting data (Schrock, 2016). Research has identified two primary branches of data activism: reactive and proactive (Milan & van der Velden, 2016). The former resists the extractive logics and control systems of datafication, while the latter harnesses technological tools to reimagine the role of data for societal benefit. In this landscape, maps are central to proactive data activism (Gutiérrez, 2018) as they visualise data to offer intuitive, spatialised, and actionable knowledge. In doing so, they promote transparency, accessibility, and emotional engagement from civil society (Kennedy & Hill, 2018).

Maps operate within what Ślosarski (2023, p. 10) calls a "data arena": a space of visible, contentious, and cooperative interactions. They construct contingent representations of social worlds (Renzi & Langlois, 2015). While grounded in geography, maps are shaped by the epistemologies of their makers (Dizon, 2020). Their supposed universality often masks their authorship, making it essential to interrogate how natural and cultural phenomena are represented and which narratives are privileged or excluded (Cartwright, 2009). Critical approaches to mapping examine how power relations structure cartographic representations of human experience (Crampton, 2001; Pearce, 2008). Over the past decades, mapping has evolved from a neutral geographic tool into an instrument to visualise and politicise social practices (Cosgrove, 2008). This shift has been deeply informed by feminist, decolonial, and critical epistemologies which frame maps as tools of situated knowledge production. In response to the representational crisis, social geography has promoted action-oriented mapping to address social inequalities (Pain, 2003).

Adopting a collaborative approach transforms maps into artefacts of community self-recognition, enabling negotiation with dominant narratives and representation of territorial realities and everyday needs (Poole, 2003). The term "counter-mapping," coined by Peluso (1995), originally referred to indigenous resistance to government land-use plans. It has since been extended to describe practices that challenge dominant geographies and power structures (Harris & Hazen, 2006). It has been widely adopted in activist and academic contexts as a mode of emancipatory knowledge production (Counter Cartographies Collective et al., 2012, p. 461).

Multimedia and digital tools have radically transformed cartographic practices (Roth, 2021). Platforms like OpenStreetMap and Ushahidi have proliferated, enabling collaborative map-making through GPS tagging, crowdsourcing, and satellite imagery (Gutiérrez, 2018; Poole, 2003). These tools facilitate low-cost, low-code map generation that overlays user-contributed data onto geographic baselines, with interactive features such as zoom, filters, and embedding (Mooney & Juhász, 2020). Our study investigates pandemic-era mapping to understand how activists use technology to visualise crisis—and where these representations fall short.

As knowledge infrastructures, maps encapsulate multi-layered social, political, and technological dynamics (Gutiérrez, 2018). A key analytical distinction is that between map (as object) and mapping (as practice) which together express how activists conceptualise, generate, and circulate data (Ślosarski, 2023). Finally, we situate mapping practices within the dual technocentrism and social justice frameworks. This dialectic reveals the tension between an emphasis on technological solutionism and the critical engagement with inequality, exclusion, and voice (Crampton, 2001; Pearce, 2008). These perspectives coexist within data activism, shaping the values, possibilities, and boundaries of counter-mapping today.

3. Data and Methods

The Covid-19 pandemic presents a compelling context for exploring data activism. Emerging amidst widespread technological integration, social movements were compelled to adopt innovative organisational and protest strategies adapted to the constraints of the moment. This period also prompted a rethinking of mapping tools: Location data became essential for tracing contagion while physical isolation shifted much social activity to digital platforms. FLC originated in March 2020 in Spain, supported by the Open Government Laboratory of the Government of Aragon.

Initially conceived as a citizen-driven platform (https://frenalacurva.net) for disseminating key information and coordinating responses to community needs, the initiative rapidly expanded. Within days, a mapping interface was launched to visualise the growing data pool. The project soon gained traction across Europe (e.g., France, Poland), Latin America (e.g., Argentina, Chile, Ecuador), and the Caribbean (e.g., Dominican Republic, Guatemala). As the pandemic unfolded unevenly across regions—varying in intensity, impact, and institutional response—mapping initiatives offered a window into the global scope and local specificities of the crisis. We selected FLC over other local (e.g., Xarxes de Suport #Covid19, Laguntza) or sectoral initiatives (e.g., Emergencia Antirracista, Listado de Producción Agroecológica) because of its dual nature as an information platform and its rapid international expansion. This combination makes it particularly suitable for analysing mapping practices that reveal the tensions, values, and interpretive processes shaping internet-based cartographies, here conceived as cartographies of negotiation in contrast to other institutional dashboards or mobility tracking maps focused on infection control.

Previous research on FLC has examined the collaborative role of technology and social networks (Criado et al., 2020), acts of solidarity and mutual aid (Martínez, 2020), and the mediating influence of maps (Pase et al., 2021). Building on these studies, our research contributes in two key ways. Methodologically, we extend the inquiry through fieldwork across multiple initiatives, each embedded in a distinct geographical context. Theoretically, we centre our analysis on the imaginaries underpinning these organisations, arguing that specific perspectives shape their data practices. Our research unfolded in two phases and combines digital ethnography with semi-structured interviews. We closely analysed 15 websites and 13 maps from 17 countries in the first phase. We examined textual content and visual elements (such as tables, graphs, and infographics) to identify markers of the cultural ethos informing each initiative. Data collection and review occurred between February and March 2022.

In the second phase, conducted between April and May 2022, we conducted 15 online interviews with FLC members from 14 countries. These individuals had played key roles in the initiative either as creators or as coordinators of core tasks. Using a semi-structured protocol, we tailored questions to each interviewee's profile and national context while ensuring consistency across four thematic blocks: (a) introductory inquiries; (b) general mapping approaches; (c) creation, dissemination, and use during the pandemic; and (d) cartographic interconnections. In total, we gathered 1,109 minutes of recorded interviews in Spanish (approximately 18.5 hours) which we analysed to extract key themes, challenges, working definitions, and contextual differences.

Table 1 provides a comprehensive overview of the initiatives within the FLC framework, encompassing 37 projects across Europe, Latin America, and the Caribbean. However, the scope of our study was limited by two main factors. First, some websites were inaccessible due to broken links or the absence of Spanish-language content during the research period. Second, not all groups with functional websites responded to our interview requests. These challenges underscore the complexity of accessing and documenting decentralised, crisis-born initiatives. Founded under the exceptional circumstances of the Covid-19 emergency, many of these projects operated in precarious conditions. The proliferation of diverse

Table 1. Initiatives of FLC and their participation in the study.

Initiative	Country	Platforms (link)	Interview	Interviewee (date, duration)
FLC Argentina	Argentina	Map: https://ar.mapa.frenalacurva.net/views/map Web: https://argentina.frenalacurva.net	Yes	Virginia Brarda (12/04/2022, 01:28)
Bolivia Solidaria	Bolivia	Map and Web: https://boliviasolidaria.org.bo	Yes	Judith Apaza (21/05/2022, 01:25)
Segura a Onda	Brazil	Web: https://seguraaonda.com.br	Yes	Leonardo Brawl Márquez (03/05/2022, 01:20)
FLC Chile	Chile	Map: https://cl.mapa.frenalacurva.net/views/map Web: https://frenalacurva.cl	Yes	Gonza Reyes (09/05/2022, 01:19)
FLC Colombia	Colombia	Map: https://co.mapa.frenalacurva.net Web: https://colombia.frenalacurva.net	Yes	Luis Hernando Aguilar (20/05/2022, 01:36)

Table 1. (Cont.) Initiatives of FLC and their participation in the study.

Initiative	Country	Platforms (link)	Interview	Interviewee (date, duration)
FLC	Costa Rica (Central America)	Map: https://ca.mapa.frenalacurva.net/views/map Web: https://costaricafrenalacurva.net	Yes	Bárbara Roverssi (21/04/2022, 00:58)
FLC Ecuador	Ecuador	Map: https://ec.mapa.frenalacurva.net/views/map Web: https://ecuador.frenalacurva.net	Yes	David Racines (28/05/2022, 00:42)
FLC República Dominicana	Dominican Republic	—	No	—
Collectif Citoyen	France	—	No	—
La Red	Germany	—	No	—
FLC Guatemala	Guatemala (Central America)	Map: https://ca.mapa.frenalacurva.net/views/map Web: https://www.frenalacurva.org.gt	Yes	César Pérez (21/05/2022, 01:14)
FLC Honduras	Honduras	Map: https://app.powerbi.com Web: https://www.frenalacurva.hn	Yes	Sandra Elizabeth Gomez Ventura (12/05/2022, 01:38)
FLC México	Mexico	Web: https://mexico.frenalacurva.net	Yes	Rosa Cristina Parra Lozano (19/04/2022, 01:24)
FLC	Panama (Central America)	Map: https://ca.mapa.frenalacurva.net/views/map	No	—
Wendá	Paraguay	Map: https://mapa.wenda.org.py/views/map Web: https://wenda.org.py	Yes	Cristhian Parra (13/05/2022, 01:03)
FLC Perú	Peru	Map: https://bellavista.ushahidi.io/views/map Web: https://frenalacurva.org.pe	Yes	Jimena Sánchez Velarde (14/04/2022, 00:47)
FLC Polonia	Poland	—	No	—
Achata a Curva	Portugal	Map: https://pt.mapa.frenalacurva.net/views/map Web: https://achataacurva.com	No	—
FLC España	Spain	Map: https://es.mapa.frenalacurva.net Web: https://frenalacurva.net	Yes	Pablo Ruiz Múzquiz (12/05/2022, 01:01) Marianna Martínez (12/04/2022, 01:57)
Acá Estamos	Uruguay	Map: https://uy.mapa.frenalacurva.net/views/map Web: https://www.acaestamos.uy	Yes	Andrea Apolaro (23/05/2022, 01:08)
FLC Venezuela	Venezuela	Map: https://frenalacurvave.ushahidi.io/views/map	No	—

local communities in response to the pandemic speaks to a remarkable civic resilience, but also suggests that this momentum may not necessarily translate into sustainable structures once the immediate threat has passed.

Our methodological approach draws on digital ethnography, combining the analysis of websites and maps with interviews conducted with key activists. It does not include sustained in-person participant observation or usage analytics which were impracticable during lockdown conditions and beyond our research aims. The analysis focuses on how activists interpret maps and mapping, the values they attach to them, the roles they ascribe in mutual aid, and the affordances and limits they experience, rather than measuring behavioural uptake or community outcomes. This boundary reflects the study's focus on meaning-making and activist practices, triangulated through interviews and online cartographic traces. The approach suits our theoretical contribution, which conceives mapping as a situated communicative practice shaped by negotiation under constraint (Counter Cartographies Collective et al., 2012; Crampton, 2001; Milan & van der Velden, 2016).

4. Findings

4.1. Maps as a Space for Solidarity and Civic Engagement

FLC activists conceived maps as alternative spaces that diverged from visualisations produced by governments and mainstream media. These maps were born from the inventive spirit of social movements during the pandemic and are closely aligned with the values of the activists who created them. References to solidarity and mutual aid were pervasive in project descriptions, exemplified by statements such as: "At present, only a few days since the first cases of contagion, we're witnessing the emergence of numerous spontaneous acts of solidarity. This underscores a civic resilience that embodies the best of our society" (FLC Colombia, web). In this sense, solidarity emerged as the central value linked to mapping practices, revealing the social justice frameworks' foundations in the development of these tools.

The identification of civil initiatives emerged from grassroots efforts intertwining conceptions of maps as representations and practices. In the case of Wendá, one of the categories was titled "offers of help and other citizen initiatives" which illustrates that mutual aid was not only about individual willingness to help but also embedded in broader collective efforts. Activists thus understood maps not only as expressions of solidarity but also as instruments to catalyse broader and more complex dynamics within social movements. As one interviewee said:

> I noticed there was solidarity, but it wasn't reflected on the map. It was through social media posts, comments, conversations among people, groups, even that lady on Facebook, you know? So, in essence, the map was a step forward in that direction. (Acá Estamos, interview)

This perspective connects maps with broader processes of civic engagement, moving away from a view of maps as inherently civic artifacts.

This dynamic gave rise to dual forms of recognition among data activists. On one hand, they recognised fellow social movements mobilised to support citizens, reflecting a shared commitment to social justice. On the

other hand, they acknowledged each other as technologically adept peers organising initiatives under crisis conditions. The presence of maps signalled current action, the legacy of prior networks, and the anticipation of future collaborations. In some Latin American and Caribbean countries, maps appeared even before the first local contagions, as Spanish activists worked with counterparts abroad to initiate the project. Uruguay illustrated this question: The initiative Acá Estamos (Here We Are) deliberately distanced itself from the more common label FLC since, at the time of its launch, there were no local infection peaks to flatten. Instead, the map responded to the immediate social crisis triggered by lockdown measures, particularly food insecurity and unemployment. Thus, the values associated with maps were not static but adapted to different contexts. As temporal representations tied to specific needs, their value lay in visualising issues in order to address them. Unsurprisingly, many maps faded from use as the crisis subsided and the needs of affected populations evolved. Their life cycle followed the shifting realities they captured.

These maps thus emerged within a public health emergency that reoriented the work of existing organisations toward urgent, short-term goals. Furthermore, the symbolic power of maps endured beyond their immediate utility. The connection between cartography and solidarity aimed not only to document a crisis but also to imagine ways to resolve it both in the present and in the future. This was evident in projects that adapted to post-pandemic realities or developed longer-term initiatives such as Calle Idea (Wendá) or Hateblockers (FLC Spain), whose slogan was "flatten the hate curve." For data activists, maps became a record of collective mobilisation under pressure. As their informational relevance diminished, these activists turned to new projects, highlighting a capacity for adaptation and creativity beyond any technological tool and maintaining solidarity as a core value over time.

4.2. The Role of Maps in Mutual Aid and Civic Coordination

Maps helped spatially organise human experience during the pandemic. They enabled the identification of locally embedded actors capable of recognising and responding to specific challenges: "The map is my way of capturing the essence of the territory….I can see how a natural phenomenon is affecting things, and I can pinpoint where and when it's occurring" (FLC Mexico, interview). In this way, FLC articulated distinct narratives of the Covid-19 crisis in each locale with maps serving both symbolic and practical roles, making local realities visible while supporting solidarity networks and coordinating aid. This shows how maps gained centrality in mutual aid efforts by linking symbolic visibility with civic coordination.

The Laboratorio de Gobierno Abierto de Aragón (Spain) provided the infrastructure for the first website and map, launched in collaboration with organisations such as the Coordinadora de Voluntariado. From there, Spanish activists drew on personal ties with counterparts in Latin America so that initiatives like FLC México emerged directly from these connections. The development of FLC's maps was made possible by preexisting networks, especially those centred on citizen innovation and shared values. As a result, maps became part of a cyclical process: They promoted civic action by making social organisations visible while also being shaped by earlier relationships. Citizen innovation initiatives played a pivotal role in producing these cartographies, enabling rapid and coordinated responses to the crisis: "We were able to do it effortlessly, without second-guessing ourselves, because there was no tension; the circumstances were simply present. Obviously, this wasn't a fluke. That's just how networks operate through connections and proximity" (FLC Spain, interview). Here, mutual aid is not only represented but enacted through maps, reinforcing their central role in cartographic development and, in broader terms, crisis response.

During the Covid-19 crisis, data activists categorised civil society organisations into two main groups: those providing help and those expressing needs. This division reflected an implicit understanding of how social movement practices and visualisation are intertwined, particularly in relation to opportunities for mutual aid. However, the dual nature of maps, shaped by both temporal dynamics and spatial shifts, posed several challenges. Because maps required constantly updated data, they became inherently unstable representations of the evolving crisis. This instability, in turn, affected access to specific locations and limited the visibility of private domains. For example, domestic violence (i.e., gender-based violence by men against their partners in the household), exacerbated by confinement measures, emerged as a significant concern among activists. In response, FLC members, drawing on their proximity to data activism, turned to censuses to populate their maps with valuable information.

These challenges underscore that mutual aid maps were dynamic artefacts whose role in citizen organisation lay in their ability to adapt to evolving realities. Still, the use of secondary data sometimes introduced gaps, depending on what was available. Cultural mediators also played a crucial role in the creation of maps by contributing local knowledge. Their importance was reflected in specific map categories such as FLC Ecuador and FLC Peru (see Figure 2) or in the "need with intermediation" category used in FLC Chile and FLC Venezuela. These examples illustrate the blurring of boundaries between online and offline spaces as the initiative, despite operating entirely online, sought to address needs grounded in specific physical locations.

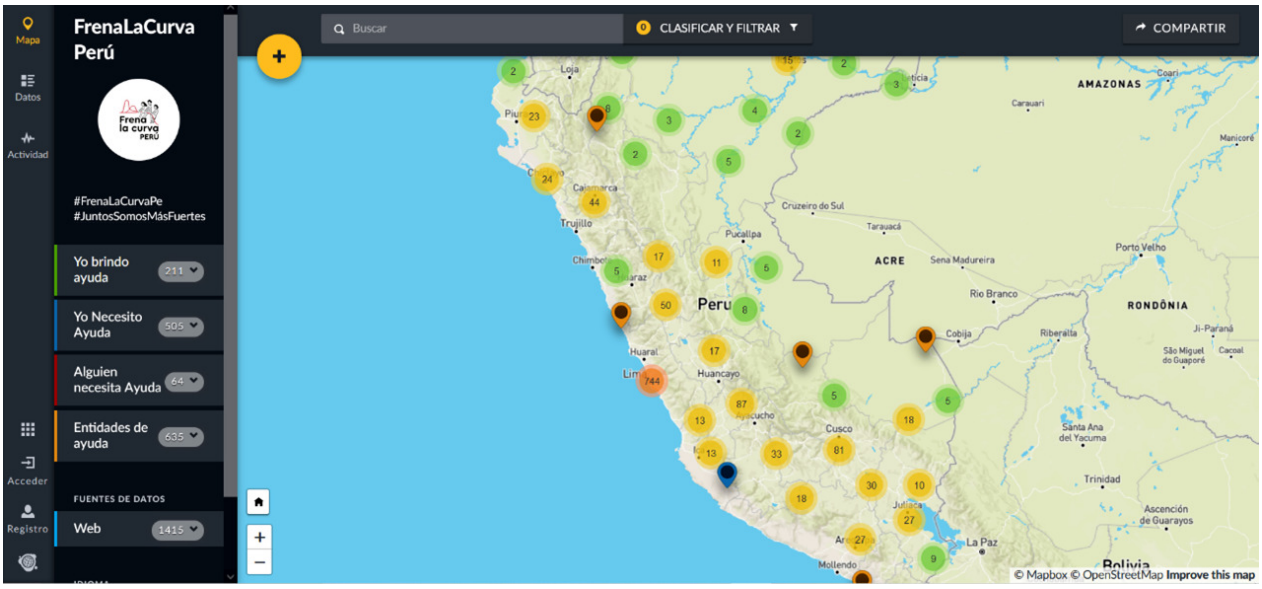

Figure 2. Map of FLC Peru with the category "someone needs help" labelled in red. Source: Ushahidi (2022).

Thus, the mapping process implied a process of cultural translation so that maps played a role in adapting local contexts of mutual aid in digital infrastructures. The online nature of FLC's practices required navigating technological tools and creatively adapting to social distancing policies. Instant messaging groups and video conferences became the primary means of organization, with maps serving as a central component of the initiative's activities. Local projects also used websites and forums to coordinate assistance, offering broader frameworks for managing aid and articulating the initiative's underlying ideals and discourses. As with Ushahidi, the coordination tools were similar across initiatives, typically relying on instant messaging apps (such as WhatsApp for FLC Venezuela) and online video conferencing platforms (such as Zoom for FLC Costa Rica). In practice, not all aid was coordinated through maps.

That is, while maps played a central role in FLC's public communication, they coexisted with other digital artefacts, articulating a broader and more complex ecosystem of mutual aid practices. The pandemic also revealed a hybrid reality that blurred physical and digital space boundaries. Bodies and territories extended into online environments, transforming lived experiences into data. Activists recognised the critical role of digital platforms in identifying and surfacing needs. One interviewee noted, "Mexico is heavily engaged with Facebook culture. Therefore, anything that doesn't exist on Facebook is practically imperceptible" (FLC Mexico, interview). Social networks not only helped disseminate maps but also enabled the collection of data to populate them. Initiatives such as Achata a Curva used online forms like Google Forms to gather information for later inclusion. The tools employed across FLC initiatives evolved in response to the specific demands of each territory, challenging activists to adapt creatively. Mapping also required developing strategies to access informal, face-to-face spaces and digital environments. In this context, maps emerged as constructed artefacts that imposed some coherence on an otherwise fragmented and continually shifting reality.

4.3. Affordances and Limitations of Activist Mapping Practices

The local initiatives, aware of the specific values associated with different digital platforms, predominantly relied on Ushahidi to build their maps. Some activists were already familiar with the platform which facilitated its rapid adoption. As one interviewee explained, "When we began implementation, one of our core team members, a systems developer, proposed utilising the Ushahidi platform for humanitarian mapping" (Bolivia Solidaria, interview). Ushahidi functioned as a ready-made program integrated into the cartographic process. However, its original purpose—mapping post-election violence in Kenya—had to be reinterpreted in each new context. Activists highlighted its key advantages: real-time updating, multimedia support, and collaborative editing. Its adoption reflected an underlying commitment to decentralised information flows and a notion of shared ownership. These affordances revealed activists' preference for collaboration in a distributed manner but also their dependence on pre-existing technological models.

In addition to recognising the affordances of maps, activists emphasised their limitations, with access barriers emerging as the most common concern. These barriers often required technical skills and spare time, posing a significant challenge during the pandemic when digital literacy and availability were unevenly distributed. To address this, initiatives published explanatory documents and videos in public and private online repositories. For instance, the Bolivia Solidaria map included a message inviting participation and providing instructions for adding information. As previously explained, many local initiatives relied instead on web pages and forums dedicated to connecting offers and needs. For instance, Segura a Onda opted against using maps and instead organised aid through a forum structured around territorial divisions (see Figure 3). These platforms provided the infrastructure for logistical coordination, debating mapping practices, and articulating the values behind them. The initiative reported difficulties in finding someone knowledgeable in map usage who could efficiently and reliably develop the map using Ushahidi. This demonstrates that while maps had important affordances, activists also sought alternatives when their limitations became evident. As such, online spaces became key arenas where data activists discussed the role and limitations of cartographic tools.

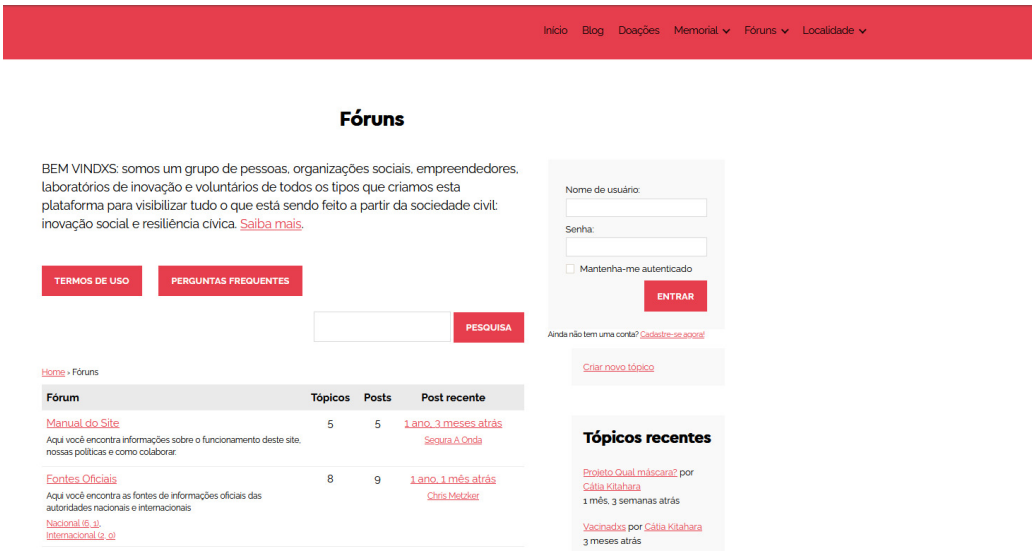

Figure 3. Segura a Onda's forum. Note: The page also has a blog section dedicated to the self-expression of activists. Source: Segura a Onda (n.d.).

While the advantages of Ushahidi were familiar to most activists, they were less accessible to the broader public for whom the maps were intended. Access issues also limited the maps' visibility which compromises their capacity to disseminate aid. Activists noted that minority groups (e.g., women, racialised communities, and people with low socioeconomic status), in particular, were less likely to use the maps, highlighting how technical limitations often pointed to broader structural inequalities. As a result, although the platform effectively organised pandemic-related information, it often fell short in engaging communities with its representations.

These challenges reveal how technological barriers and social justice concerns were inseparable. Bodies, technologies, and territories interacted in distinct ways across different initiatives, shaping cartographic processes and outcomes. Building trust was central to participation, as one activist said, "It's not just a matter of a few months before they trust you and feel comfortable seeking you out and using the tools you were trying to provide them" (FLC Costa Rica, interview). In many cases, the data featured on the maps was curated directly by the activists themselves. This centralisation allowed them to ensure accuracy, prevent the exposure of sensitive data, and validate contributions according to shared principles.

At the same time, the temporal and fragmented nature of social realities made some phenomena difficult to capture cartographically. For example, platforms like Acá Estamos hosted forums discussing psychological support or educational assistance that did not require specific geographic references. This underscores how the utility of maps depended on context and how they were embedded within complex social dynamics, especially during a pandemic that blurred physical and digital boundaries. Then, despite the digital nature of mapping initiatives, physical territory remained a crucial influence. The categories used across platforms reflected different understandings of the pandemic and its challenges. For instance, FLC Spain initially proposed four core categories: "own need," "need with intermediation," "offering," and "available service." In Latin America, however, these categories were adapted to reflect local realities, introducing terms such as "entrepreneurship" (FLC Honduras), "products and services" (Wendá), and "local suppliers" (FLC Colombia), demonstrating the necessity of context-sensitive approaches to mapping.

Here, the limitation lay in the risk of reproducing external models, reinforcing the need for localised, participatory approaches. This process of adaptation also sparked debate around language and representation. An illustrative example was the use of the word “chincheta” (meaning “map pin”) for external communications in Latin America. This term was commonly used in Spain but not widely in other regions. Some activists criticised the uncritical transfer of mapping frameworks from one region to another, calling instead for locally grounded models. As one interviewee remarked:

> I reckon a different kind of mapping could have emerged that’s actually useful for our area. Technology could be a boon for our territory, but not if it’s based on that model. We need to create our own model that springs from local needs and is developed accordingly. (FLC Costa Rica, interview)

The data presented on maps sometimes clashed with political systems, particularly during the pandemic, when some political leaders rejected scientific consensus and downplayed the severity of the virus. As highlighted in interviews with FLC Mexico and Segura a Onda, these discrepancies created a sense of urgency among activists to circulate accurate information in the face of conflicting narratives. At that time, the two countries were led by officials who publicly downplayed the severity of the pandemic: Andrés Manuel López Obrador in Mexico and Jair Bolsonaro in Brazil. Maps shaped alternative understandings of the pandemic and often carried subversive potential by challenging dominant discourses. However, this subversive intent coexisted with a paradox. While aiming to counter hegemonic narratives, activists also acknowledged that the process of creating maps could reproduce biases in representation.

In countries where press freedom was restricted, mapping practices faced additional constraints. This was evident in the case of FLC Venezuela, where only one node could be created (see Figure 4). In such settings, maps became tools for challenging state inaction and drawing attention to unmet material needs. They helped hold governments accountable during the pandemic and revealed the tensions between official discourse and grassroots perspectives. Still, activists recognised that the act of mapping was not free from inequality. Internal dynamics within social movements also shaped how maps were used and what they

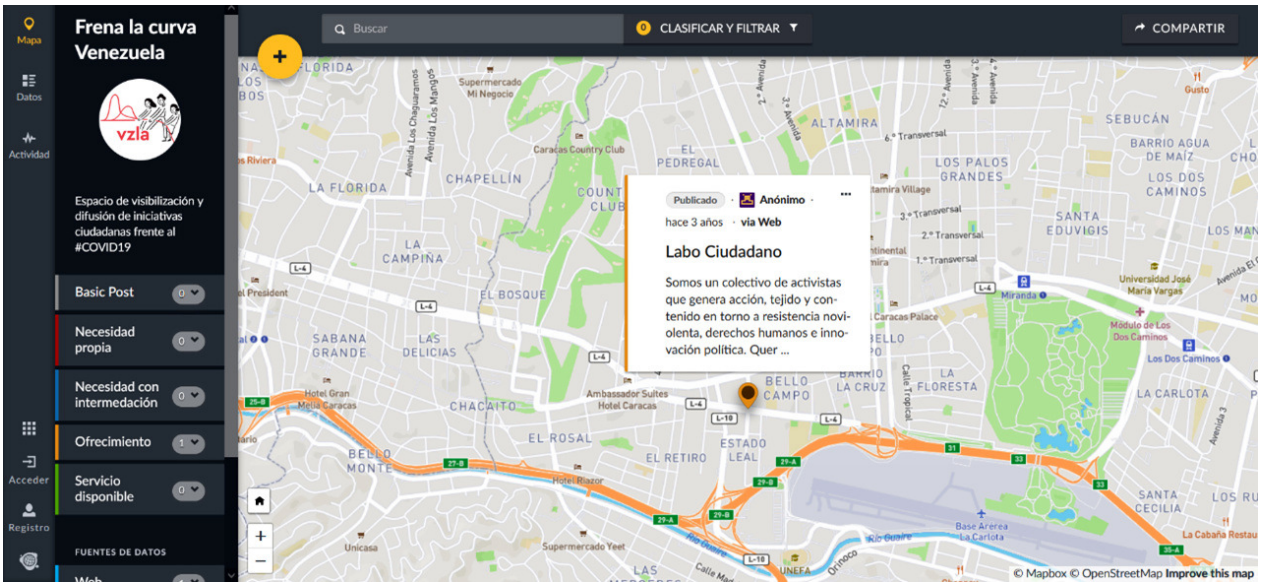

Figure 4. Map of FLC Venezuela with only the “offering” category’s node selected. Source: Usahidi (2022).

could represent. These limitations emphasised that maps were inseparable from broader technological, social, and political dynamics.

5. Conclusion

Maps have emerged as essential tools for understanding the Covid-19 pandemic (Roth, 2021), helping to make visible a range of human experiences and narratives shaped by the crisis. While maps offer accessible and broadly comprehensible visualisations, debates about their meaning and use depend on the practices behind their creation. The use of shared data and internet-based tools enables wider engagement with these visualisations, with each map reflecting a specific relationship between data activists and the territories they represent. This interplay reveals data's material and symbolic dimensions (Ślosarski, 2023).

This article has investigated the role of maps during the Covid-19 crisis by focusing on the case of FLC, a project that produced pandemic representations across multiple locations. Through this case, we have gained diverse perspectives on how maps can address global issues while reflecting local nuances. Our fieldwork showed that debates about maps also involve broader reflections on mapping as a process which, as previous studies have shown, carries embedded values and interpretive frameworks (Cartwright, 2009; Pearce, 2008). We understand maps as spaces of negotiation among data activists and we have aimed to develop this idea throughout the article.

Maps require imagination and creativity, both in their design and interpretation. Their usefulness is highly contextual with emergencies demanding specific actions at specific times. While maps serve symbolic functions, their practical applications are equally important. Activists often associated maps with solidarity, understanding them as tools for representing civil society organisations engaged in addressing urgent social needs (RQ1). Consistent with key literature on counter-mapping, activists described maps as both sources of knowledge and instruments of action (Counter Cartographies Collective et al., 2012; Harris & Hazen, 2006).

Yet the social processes they depicted were not always immediately visible. Maps became instruments of mutual recognition among organisations whose effectiveness depended on preexisting networks grounded in shared values and the capacity to respond to crisis. In this sense, recognition was both a goal and a condition for maps to function effectively. Mapping became both a result of, and a means for, representing collective action. Activists played a specific role in using data and technology to mobilise responses while participating in broader social movements shaped by the pandemic.

Maps were also part of a larger media ecology (RQ2). Their creation and circulation depended on the availability of digital technologies and platforms, shaping their meaning and impact. Websites, for example, helped contextualise maps by framing their objectives and guiding interpretation. Social media platforms played a critical role in gathering data, mobilising participation, and spreading awareness. These digital environments allowed maps to circulate widely but also highlighted the information's instability. Activists' relationships with physical territory increasingly extended into digital spaces, where data about those territories were produced and shared.

Despite these innovations, maps also faced clear limitations. Activists found them valuable for making aid visible and for identifying needs in real time (RQ3). However, maps also served unanticipated functions such

as becoming instruments of counter-discourse and resistance to official narratives that downplayed the pandemic or restricted expression. Still, many challenges remained. Accurately portraying the complexities of lived experience proved difficult, especially under constraints of data availability and accessibility. These tensions raised ongoing questions about how to represent territory and how to address the risks of centralisation in mapping processes.

Within a social justice framework, activists remained critically aware of the risks of reinforcing inequality through technological practices. The spread of mapping tools prompted reflection on who had access to create, use, and interpret them. Latin American activists, in particular, questioned the validity of importing solutions from other contexts, aligning with decolonial approaches to data activism. These reflections underscored the importance of engaging critically with both maps and the technologies behind them. Such critical engagement, however, does not eliminate the underlying inequalities that shape technological systems and social structures. Future research should further examine power dynamics within activist networks, especially in cases where social justice and decolonial concerns are not foregrounded.

In this study, we have proposed the concept of "cartographies of negotiation" to describe how maps act as data arenas where meaning is constructed through practices and representations. Especially during the pandemic, when digital integration intensified, maps became expressions of specific group values and viewpoints. The contrasting perspectives of technocentrism and social justice offer useful frameworks for analysing online mapping practices. These frameworks also help to distinguish between maps as objects and mapping as a process (Figure 1).

The technocentric perspective sees the map as a symbol of solidarity, an artefact that represents unity through technological means. In contrast, the social justice perspective views mapping as a practice grounded in mutual aid, shaped by situated knowledge and lived experience. While the former focuses on the potential of technologies to enable social change, the latter foregrounds the constraints and inequalities that structure technological access and use. Both perspectives are essential for understanding maps as spaces of negotiation as they render visible the tensions, compromises, and possibilities embedded in mapping practices.

Yet our findings do not ask readers to *choose* between technocentric and social justice perspectives. They show how both operate together with shifting emphasis across contexts and over time. This co-presence, along with the practical work of reconciling it, is precisely what we call cartographies of negotiation. Read in this way, Figure 1 functions not as a typology but as a visual aid to the negotiated and co-present orientations observed across the cases. While numerous mapping initiatives emerged during the pandemic—such as the Johns Hopkins Covid-19 dashboard, national mobility tracking visualisations, and regional health heat maps—FLC differed in purpose and structure. Rather than visualising contagion or enforcing control, it foregrounded solidarity, mutual aid, and civic coordination. Situating our analysis in relation to these more technocratic cartographies underscores the specificity of FLC as an activist mapping project driven by values of care and collective responsibility.

By coining the term cartographies of negotiation, we have sought to capture these tensions and highlight maps' dual role as both tools and terrains of struggle. In moments of crisis, such as the Covid-19 pandemic, maps are never neutral. They are shaped by the values of those who produce them, the infrastructures that

support them, and the political contexts in which they circulate. While our analysis focuses on a single platform, this approach also opens possibilities for examining how similar negotiations emerge and unfold across other contexts and mapping practices. Understanding this layered complexity is crucial for analysing past efforts and imagining how future mapping practices might contribute to more inclusive, just, and responsive forms of data activism.

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Conflict of Interests

The authors declare no conflict of interest.

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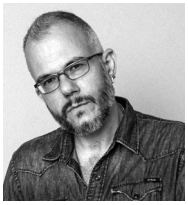
About the Authors

Dafne Calvo is an assistant professor in journalism at the Universitat de València. A member of the Mediaflows research group, she has participated in six national projects, published over 40 articles, and co-authored the books *Periodismo Digital* (2024) and *Bulos y Barro* (2025).



Emiliano Treré is ATRAE distinguished researcher and member of the Novos Medios research group at the University of Santiago de Compostela where he leads the DataECO project. He is also reader at Cardiff University and co-director of the Data Justice Lab. His award-winning books include *Hybrid Media Activism* (2019) and *Algorithms of Resistance* (2024).

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ARTICLE

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Participatory Mapping as a Tool for Social Justice and Mobilization in Brazilian Informal Settlements

Carolina Monteiro de Carvalho

Department of Geography, University of Victoria, Canada

Correspondence: Carolina Monteiro de Carvalho (cmonteirodecarvalho@uvic.ca)

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Abstract

Participatory mapping's main aim is to represent the community's voice. It stimulates a powerful social mobilization that provides support for better and more efficient urban policies and social inclusion of marginalized populations, especially in Global South countries, such as Brazil. Our main urban challenges, such as poverty, inequality, and social injustice, are aggravated by climate change. The marginalized populations are often excluded from the decision-making process for planning our cities, which creates a mismatch between urban planning and the real demands of citizens. This article assesses how participatory mapping in informal settlements in Brazil can help to collect data from citizens that can make a difference in better local urban planning through prioritizing their demands and bringing to light their real concerns. Also, this article seeks to show how participatory mapping can provide products that improve communication between stakeholders and society reinforcing the need for urban planning improvements. Three case studies are presented, developed in São Paulo and Guarulhos informal settlements, with citizens' perceptions about their urban life conditions, highlighting inequalities such as environmental racism, gendered perspectives, and social injustice, as well as potential solutions and specific areas for interventions. The three study cases provided citizens a space to speak and to be heard, to identify problems and concerns in a deprived environment through community mapping and look for solutions and alternatives for better urban scenarios together. Also, this article highlights the importance of the development of an urban agenda, putting the periphery in the center of the decision-making process through participatory mapping and communication products development.

Keywords

Brazil; informal settlements; participatory mapping; social mobilization; urban planning

1. Introduction

Cities are facing increasingly complex and interconnected challenges, with serious environmental, social, and economic consequences that affect the health and well-being of citizens. The climate emergency and its impacts, as well as the challenges of poverty and inequality in cities of the Global South, are examples that burden cities, especially peripheral areas. São Paulo is the largest city of Latin America (located in the state of São Paulo), with more than 16 million inhabitants and 950 km² of urban area, and is part of the Metropolitan Region of São Paulo, connecting and exchanging resources and also socioenvironmental impacts with other bordering municipalities (Zimmermann et al., 2023). The city's socio-spatial dynamics are characterized by intense migration and inequality, spatial segregation, and uneven development, connected to environmental issues such as air and water pollution, lack of access to water and energy, and others due to fast and unplanned urbanization. The urbanization and economic investments weren't followed by suitable infrastructure planning, resulting in areas with more investments and infrastructure and areas with less (the peripheral areas). Urban–rural migration dynamics also contributed to population growth and the consequence is an expansion of peripheral areas and informal settlements which brings less resilience and more vulnerability to cities and citizens (Pasternak & Bogus, 2004; Prefeitura de São Paulo, n.d.).

The precarious conditions of peripheral areas, coupled with geographic exclusion, unemployment, and limited access to education and healthcare, further impact the lives of residents. To tackle these challenges, it is necessary to focus on understanding the citizens and the territory. According to Santos (2005), territory is not only the geographic space but also the actions and experiences that citizens have there. Analyzing urban territories helps us understand how people live, which is essential for developing fairer communities and creating better futures with suitable resources. To this end, specific participatory methods are required, such as participatory mapping. This article describes the application of participatory mapping in three informal settlements located in southeast Brazil and how the mapping process and products helped the community to show its voice and its demands in different ways that can support a more inclusive city planning. Also, this article seeks to highlight how participatory mapping can contribute, shape, and improve communication between social actors towards better communities, prioritizing peripheral areas. These case studies were selected because they were developed in different informal settlements in São Paulo state and on different time scales and produced diverse and impactful communication products that can show the citizens' demands/priorities and support better planning when considered by urban planners.

Participatory mapping can be seen as a vehicle for community communication. For example, Albagli and Iwama (2022) mobilised communities as protagonists in mapping and managing the risks of floods and landslides resulting from the impacts of climate change by combining social cartography and participatory geographic information systems. Akbar (2021) also describes case studies with innovative approaches, such as collaborative spatial learning, to strengthen public participation practices towards the SDGs and sustainability in Indonesia, among other examples that will be described further in this article. Moreover, these and other researchers corroborate that the primary goal of participatory communication methods (such as participatory mapping) is to support the expression of local people's knowledge, needs, priorities, and decisions through effective participatory and communication processes (International Fund for Agricultural Development, 2010). The mapping process, for instance, can facilitate communication between community members and other stakeholders (such as city planners) through the process itself and through co-created products that could range from articles, reports, booklets, videos, and flyers to presentations in

city events, websites, documentaries, and social media posts. These products help to educate the wider society towards community planning and can better connect citizens with other social actors involved in the planning.

2. Theoretical Framework

2.1. Peripherical Areas and Social Exclusion

Unplanned urbanization and the consequent increase in pressure on cities to accommodate new citizens through migration processes result in the expansion of peripheral areas and overloads in the urban dynamics, for example, transportation, jobs, basic resources availability, and basic infrastructure (Venter et al., 2021). In the São Paulo metropolitan area, the current urban challenges (disasters, poverty, vulnerability) are increased by the climate change impacts and threaten citizens' health and wellbeing, especially those living in peripheral areas. The city's social, economic, and environmental conditions impact the lives of all citizens but place an even greater burden on these areas that suffer most from environmental degradation and accelerated urbanization that increasingly exacerbates inequalities and segregation, and impacts on health and well-being (Vindigni et al., 2021). The precarious conditions of the periphery, coupled with issues of geographic and social exclusion, unemployment, and limited access to education and healthcare, profoundly affect the lives of residents for years, as Baptista and Santos (2022) state. For example, pollution, the negative environmental impacts of industries, high population density, the presence of high-risk areas, mobility difficulties, improper waste disposal, and violence lead to increased stress, anxiety, illness, and premature death. This is also known as "environmental racism," which is most prevalent in urban peripheries. These regions have higher percentages of ethnic and racial minorities, who suffer more from precariousness, poverty, lack of resources, exclusion, disasters, and the impacts of these factors on their lives (Baptista & Santos, 2022). The concept of environmental racism was shaped by professors Benjamin Chavis and Robert Bullard through research that showed that peripheral neighborhoods, where poorer people and also those belonging to ethnic and racialized populations live, were the neighborhoods that suffered most from environmental degradation and climate change impacts, and its consequences on health and daily life (such as landslides, floods, pollution and contamination of sites, inadequate waste disposal and diseases, and the absence or inefficiency of policies for local development; Ioris, 2009). Peripheral populations are usually excluded from the planning process and decision-making due to geographical exclusion, power imbalances, and structural barriers that lead to a lack of representation. Because of that, citizens live in risky areas, many of them unaware of it, and hundreds of families endure a lack of access to basic resources such as energy, water, or fresh and nutritious food. A just and inclusive urban planning requires citizens' needs as a reference and urban planning should count on specific methods to collect these insights. According to the City Statute in Brazil (Presidência da República, 2001), social participation is an essential condition for just urban planning. To this end, it is necessary to create and employ social participation methods to integrate citizens' knowledge into planning. There are several participatory instruments, and among them, participatory mapping stands out for specific reasons (described later in this article) and connects with community communication—a concept that encompasses all the ways a group of people, connected by a shared location (the urban territory), interact, co-create, and share information through dynamic and participatory methods. According to the United Nations Refugee Agency (n.d.): "Listening and talking to communities is a fundamental part of humanitarian response." The application of such participatory methods is an urgent need.

2.2. Participatory Mapping and Social Mobilization for a More Inclusive Urban Planning

Social mobilization refers to the process of bringing together various stakeholders, including community members, organizations, and government agencies, to work towards common goals (Dunu et al., 2015). In vulnerable peripheries, social mobilization can be a powerful tool for advocating for resources, implementing community-driven projects, and fostering resilience, building cities in a better way for everyone (Carvalho & Jacobi, 2023). Social mobilization involves various methodologies to engage and empower communities, and some key methodologies can be implemented together with the participatory mapping, as described in the study cases, for example:

- Workshops for community map development: These are organized to bring community members together to discuss issues, share ideas, and plan collective actions by developing a participatory map. These gatherings foster a sense of belonging and collaboration to improve local conditions based on citizens' demands.
- Focus group discussions: These are structured conversations with a small group of people to gather in-depth insights on specific topics, and it helps to understand community perceptions and practices besides the co-production of local knowledge.
- Advocacy based on developed participatory products: Mobilizing communities to advocate for their rights and needs through publications, campaigns, and developed community products such as participatory maps, for example. This can influence policy changes (Jordan et al., 2011).
- Capacity building and training: Providing training and resources to community members and urban planners to improve their skills and knowledge in urban development. This empowers the community to take on leadership roles and sustain mobilization efforts previously started. Also, to maintain continuity, to train a few residents to keep mapping and monitoring, ensures that.
- Use of media and communication tools: Leveraging traditional and digital media to disseminate information, raise awareness, and mobilize support. This can include radio programs, social media, websites/blogposts, community newsletters, among other products (Tarcia et al., 2023).
- Partnerships to develop all the above activities: Building alliances with other organizations (e.g., community associations), NGOs, government agencies, and stakeholders to strengthen mobilization efforts, including in the product's development and dissemination.

These methodologies are often used in combination to improve the level of participation, which creates a comprehensive and effective social mobilization strategy that improves the development of communication products and outcomes. According to Arnstein (1969), there are several progressive levels of participation that participatory mapping can help to implement, from tokenism to citizen power, depending on the depth of the process. Participatory mapping aims to engage citizens by creating maps that represent their perspectives, views, and experiences related to a specific territory, promoting an increase on the participation level, from simple consultation to co-creation of knowledge and empowerment. These maps give citizens a voice, serving as vehicles for communicating demands and needs, and can support more efficient urban planning focused on people's well-being. Therefore, it is a method that can help leverage the development of peripheral urban areas and neglected social groups, giving them better levels of participation in the planning and providing them with power (Carvalho et al., 2021; Denwood et al., 2022). Also, participatory mapping and community communication are interconnected processes that empower communities to visualize and share their local knowledge, fostering better planning and development

outcomes. Participatory mapping involves community members collaboratively stimulating community communication by creating maps that reflect their understanding of the area, while communication ensures the results are effectively shared and used for decision-making (McCall, 2003). However, facilitators should be careful with the level of their control over the process, risking the integrity of co-created knowledge by the community only. Also, the appropriate mapping tool should be selected according to the territorial context and citizens' preferences (Laituri et al., 2023).

As mentioned, in peripheral areas and informal settlements, citizens are usually excluded from the decision-making or planning process. Therefore, the planning of the cities must contain ways to include these population demands and perspectives into the development. When we use participatory approaches (and mapping), we are including these populations, highlighting their right to the city and how these people have this right severely violated by being excluded. The "right to the city" is a concept developed by Henri Lefebvre in 1968 and has inspired social movements advocating for the right of all urban dwellers to access, use, and enjoy urban spaces regardless of income, class, or gender. Therefore, these participatory approaches can support the improvement of this perspective for all citizens, promoting the rights of the city. Participatory approaches are essential for enacting the "right to the city," especially through spatial knowledge and knowledge co-production, by empowering citizens to diagnose, shape their urban environment, and have a say in decisions that deeply affect their lives (Ebrahimi et al., 2022). To achieve that, participatory approaches should be used, which allows citizens not only to understand the built environment but also to be part of the decision-making process.

Participatory mapping consists of several tools capable of capturing citizens' perceptions. The result is a map that represents the knowledge of this community. Researchers and city planners can spatialize this information and analyze it with other information using geoprocessing software. In other words, it is possible to have peripheral citizens map their own territory, identifying what types of problems occur and where, and cross-referencing this information with existing information, enriching the urban territorial knowledge. This makes it possible to highlight the inequalities and impacts that residents experience in their daily lives, in addition to developing more informed proposals and alternatives to overcome local problems in a more efficient way (McCall, 2003; Rainforest Foundation, n.d.). The use of participatory mapping has supported marginalized communities and groups in recognizing their territories and demands, and has resulted in an important instrument of empowerment for social transformations and the construction of better public policies (Carvalho & Jacobi, 2023), helping to identify and prioritize the main demands of peripheral urban areas, legitimizing these needs and being, therefore, an invaluable element to be considered in the urban planning (Gutiérrez-Ujaque & Jeyasingham, 2022). Our cities represent the power relations that reside within them; therefore, when citizens, especially those marginalized, have a voice through efficient means of communication, this entire process can modify and improve such power relations with better outcomes for all (Bassam, 2021).

To illustrate how this method can bring up citizen knowledge, putting excluded populations on the map, the project MapKibera represents this importance. Developed by local young people, the project involved a community digital mapping production showing main issues in the area, such as the lack of water, schools, sewage, and other essential elements and resources. The maps help the local population to manage local crises (e.g., flooding episodes, lack of access to basic rerources or how to manage local waste) and serve as advocacy material to demand basic rights. More information about the project can be found here: https://en.reset.org/map-kibera-the-digital-project-putting-nairobis-slums-on-the-map (Maina, 2025).

2.3. Participatory Mapping to Improve Communication With Society and Planners

Adedokun et al. (2010) state that community development is the process of supporting a community to grow and is done by community engagement. To include citizens in this process, it's necessary to communicate in several ways: to disseminate the importance of the local development for citizens, to mobilize, define priorities, and co-create products for outreach and advocacy. There are several methods that can serve this purpose, and participatory mapping is one of them. According to Bustillos Ardaya et al. (2019), participatory mapping can facilitate communication and social learning, creating reliable material for decisions. Moreover, participatory mapping acts as a powerful tool for social learning. As individuals work together, they exchange information and learn from each other's experiences, building a collective understanding of the issues affecting their community. The maps and data generated through participatory mapping are grounded in local knowledge, making them reliable and relevant resources for decision-making. These materials provide planners, policymakers, and other stakeholders with accurate, context-specific information that can inform the development of targeted interventions and policies. Also, information that is collected through the participatory mapping process is best communicated in a manner that acknowledges the central role of community members. Participatory communication seeks to apply local people's knowledge to promote social change, rooted in dialogue and in the sharing of this knowledge among social actors, and facilitates their empowerment and the exploration and co-creation of new knowledge aimed at addressing situations that need to be improved in the peripheral urban areas. Participatory communication can be used at any level of decision-making (local, national, international) regardless of the diversity of groups involved, with adequate adjustments in the selected tools (McCall, 2003; Kutto, 2014; International Fund for Agricultural Development, 2010).

For example, the collaborative processes described in Wild et al. (2021) enabled the researchers to identify key challenges and solutions in communicating health information throughout the Covid-19 pandemic. Partnering with communities can reduce inequalities in healthcare communication by enabling the development of better strategies for this purpose. This collaboration with the studied communities and the understanding of the cultural context ensures health-related messages are delivered correctly. This approach can be applied to community/urban planning as well.

Participatory mapping can also be a tool for communication and social change for marginalized social groups (Cochrane & Corbett, 2018). For example, it is an effective tool to be applied to marginalized women in gender studies. To meet the demands of specific groups like women, it's first necessary to understand how these challenges impact their lives, whether it's on their physical or mental health, access to education, and/or employment opportunities. Suitable communication channels with marginalized groups are the key (Carvalho & Jacobi, 2023). Finally, participatory mapping can produce a variety of products that help to visualize and communicate community insights and data, such as the community and thematic maps that highlight important features, resources, and issues within their neighborhoods, under specific topics. They can include landmarks, infrastructure, environmental hazards, and areas of social significance for citizens. Thematic maps focus on specific themes such as health, education, transportation, housing, or others. They help to identify and analyze patterns and trends related to these themes within the community and with the input of citizens. Another example is the story maps, a tool that combines geographic data with multimedia elements such as photos, videos, and narratives. They help to tell the stories of the community and provide a rich, contextual understanding of local issues. These main products serve as valuable tools for

communication, territory planning, and advocacy, helping to ensure that urban policies and interventions are aligned with the needs and priorities of the community (Brown & Kyttä, 2018). It's also possible to combine mapping techniques and other participatory approaches (e.g., focus groups) to boost the social engagement and data collection (Carvalho et al., 2021).

3. Case Studies and Methods

3.1. Guarulhos, São Paulo

Guarulhos City was rapidly urbanised with several social and environmental challenges impacting citizens lives (Atlas do Desenvolvimento Humano no Brasil, n.d.). Novo Recreio, an informal settlement located in Guarulhos, has developed from a land subdivision and always had a history of a lack of basic resources. The neighborhood has been served by initiatives, mainly through institutions such as the Clube de Mães Novo Recreio (a local partner NGO), which worked on social assistance and education projects for the local people. Brasilandia, also a case study to be presented in this article, is an informal settlement located in São Paulo city, with a similar origin, being previously rural and transformed into plots of land mostly occupied by northeastern migrants (Prefeitura de São Paulo, n.d.).

This case study was conducted in the Novo Recreio neighborhood, Guarulhos city, São Paulo state (Brazil), located in a region of mountains prone to erosion and landslides, characterising an area of environmental and social risk. Novo Recreio also lacks basic infrastructure such as access to energy, water, and fresh food, putting citizens into great vulnerability (Giatti et al., 2019).

Figure 1. Novo Recreio community.

The participatory activities took place over four months at the NGO Clube de Mães, in 2017, which serves families in the neighborhood and is well-reported in this article (Carvalho et al., 2021). The main goal was to teach participatory mapping basic skills to young people to stimulate a territorial diagnosis through dialogue and the mapping itself to bring information that is not usually accessed. Having this information is crucial

for a better local urban development when this information is correctly presented and communicated to city planners and society. The project began with a presentation for the participants (14–17 years old) focusing on the participatory mapping concept and urban health, and implications in their local context. The main objective was to provide participants with a better understanding of their surroundings and to build knowledge about the importance of mapping the main issues they face in the territory. During the activities, in addition to participatory mapping, other activities were implemented, such as an integrated panel and a community newspaper, to complement the information collected through the mapping since a mixed methods approach is important to collect different aspects of citizens' information. While mapping allows us to geolocate main issues related to the territory, other participatory approaches support the collection of qualitative data that helps to produce a better local narrative. The so-called geonarratives support the acknowledgement of citizens' needs through the participatory maps (Palis, 2023), being therefore a communication outcome.

Regarding the participatory mapping application, sketch maps and scale maps were created to build a territorial diagnosis first. Sketch maps are known as mobilization tools and provide an initial diagnosis of the main environmental and sustainability problems faced. They also enable the participants to think about planning and the future of the region (Toledo et al., 2009). They were drawn by participants and include the main elements of the area, such as streets, houses, and where main issues are located, approximately. The next step was a more curated mapping (with geolocalized points) that can be done using online platforms or paper/pens. In this case, mapping was developed with paper and pen, and participants using pens could allocate on the printed map the main issues discussed in the sketch map phase.

The mapping focus was on social and environmental indicators of urban quality, such as mobility, access to water, energy, and fresh food, waste management, and locations prone to floods and landslides. Once a local diagnosis was obtained, an online platform (Maptionnaire) was used to build a future scenario with proposals

Figure 2. Sketch maps development during the collaborative process implemented in Novo Recreio in 2017.

for local improvements, such as more suitable locations for markets and community gardens, and locations for implementing leisure areas, among other ideas. The Maptionnaire platform was chosen with the intention of bringing one more mapping tool for the participants, aiming to engage them in planning the community's future using an online tool.

During the four to six months of participatory meetings and mapping, the participants went from knowing only basic elements of the territory or knowing the territory where they live but lacking awareness of local dynamics to a state of co-creation of knowledge and opinions, as well as considering and developing proposals for the future. Thus, it can be said that the participatory process promoted this change in state and, over time, produced significant social awareness and opportunities/plans for future mobilization (Carvalho et al., 2021).

Results were presented at two public meetings in local institutions that took place in Guarulhos in 2017 and 2018. The young participants enjoyed being part of a planning discussion about their community and managers also enjoyed the experience of listening to them and discovering their proposals. They were also proud of their maps and how they showed their urban reality. This process also allowed the connection among participants and other social actors.

After the participatory processes had been applied, the material produced was disseminated to the community and to Guarulhos society through workshops, articles, and other publications, such as blog posts on the project website and social media. A booklet was produced, containing the research experience and guidelines for replication in other communities (Carvalho et al., 2019).

3.2. Paraisopolis, São Paulo

Paraisopolis, the second largest informal settlement of São Paulo, also evolved from rural areas and farms and has a strong sense of community (observed when the Covid19 pandemic hit and medical assistance wasn't enough) associated with a lack of basic infrastructure. Volunteers took action to form a committee "against the virus," delivering food, masks, and disseminating information about the disease to help decrease contamination. This initiative was shown in several media articles around the country (Prefeitura de São Paulo, n.d.).

In the case of Paraisópolis, the participatory process, with sketch mapping and printed maps, was part of a Master's dissertation (Santos & Toledo, 2020) that applied action research (Toledo & Giatti, 2015) to better understand the community needs from the perspective of community health agents (CHAs). The mapping activity was chosen because it was considered a powerful tool to support the visualization of local socioenvironmental issues connected to citizens' health and was conducted in three in-person meetings with CHAs from the local basic health unit. This project was also reported in detail in the publication of Toledo et al. (2021). The main objective of mapping was to engage with the CHAs, considering the positive and negative determinants of health in the neighborhood (Santos & Toledo, 2020).

During the three meetings, when the CHAs were working in groups, two maps were produced: one showing elements of the neighborhood that have the potential to improve residents' quality of life and could be used to mobilize the community and inform fairer local urban planning; and another showing elements that negatively impact citizens' health, such as precarious sewage, waste, pollution, flooding risks, housing conditions, and others. This final map served as a local diagnosis and, ideally, should be distributed to the

community to promote greater mobilization. Thus, participatory activities promote greater territorial knowledge which allows for greater mobilization toward citizens' needs. Furthermore, this project was developed with female community agents, and therefore, the mapping approach gained a gender perspective, focusing on the well-being and care of local families. Toledo et al. (2021) concluded that participatory mapping, when applied to women's groups, can serve the purpose of mobilizing the female community and including it in local planning. In this case, it's important to highlight the engagement of health professionals in the development of territorial knowledge in peripheral areas and how this participation can improve communication and provide better community conditions for everyone. Bezerra and Feitosa (2018) also applied the affective maps method as a work tool with CHAs to better understand the territory and improve their work with local families, showing that co-production of knowledge through mapping and publications can support the development of proposals to be connected to policies and planning in the future.

3.3. Brasilandia, São Paulo

Brasilandia has 41 neighborhoods in total, also developed from previous farms and migration dynamics, and it's not considered only one informal settlement but a district with several informal settlements within, lacking basic infrastructure and services (Prefeitura de São Paulo, n.d.). In the Brasilandia community, as part of the event "Dialogues on Socio-Environmental Inequalities: Parallels Between Injustice and Environmental Racism (Brazil–United States)" (promoted by IEE/EACH/USP, Instituto Polis and Instituto Perifa Sustentavel), participatory mapping was applied to a group of participants during a three-hour meeting. The goal of this activity was to engage residents in discussions about the main social and environmental issues they face in their daily lives in the neighborhood. Rather than highlighting problems, they were asked about solutions and new ideas for specific areas in the region. Thus, at this meeting, basic maps were created, also based on the participants' key statements. The maps were created manually and then digitized using the QuantumGIS software.

The meeting was attended by approximately 20 residents and began with an informal discussion group where they could speak freely about the main challenges and problems they face daily in the neighborhood. Subsequently, sketch maps were developed in groups (Figure 3), attempting to identify the problems described in the previous stage as well as proposals for solving the issues discussed. The maps were presented by the respective groups and later digitized. A final report was produced to summarize the dynamics, present the pictures of the maps, the digital map, and also summarize the main local dwellers needs, such as: lack of social projects; precarious housing; few leisure options for children and youth; violence and a sense of insecurity for everyone; poor sanitation, with irregular waste disposal; open sewage; flooding; lack of parks and urban green spaces, and those that exist are poorly maintained; poor and inaccessible transportation ("transportation is not based on reality," according to one of the participants); racism and inequality being faced daily; and social and geographical exclusion (for residents, it is necessary to commute to the city center, for better job and education opportunities). Also, the concept of invisible periphery was mentioned (many participants related a sense of invisibility regarding the city planners and even the city itself).

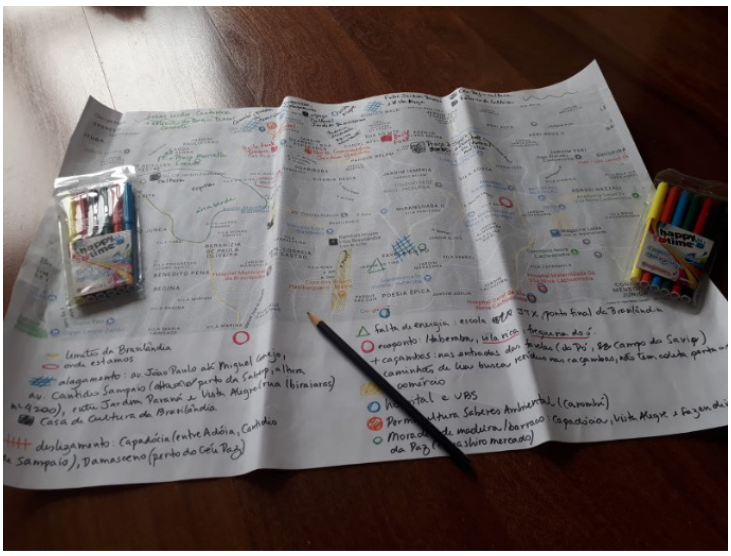

Figure 3. Sketch map produced with citizens from the Brasilandia community, focusing on local problems (sewage, landfill, precarious housing, lack of energy access, and flooding).

This report and maps were presented in public events and also made available online on social media to disseminate the case study (Medium portal from Instituto Perifa Sustentavel). This brief meeting demonstrated that peripheral residents are the most knowledgeable about the challenges of the area where they live, and participatory activities that allow their presence are the most effective means of co-creation of knowledge and of communicating their main demands and perceptions to the wider society.

4. Discussion

These case studies promoted multilevel dialogue, social mobilization and enabled the mapping of citizen perceptions, interests, and practices of marginalized citizens in different contexts and occasions. Participatory mapping allows the inclusion of marginalized groups in the dialogue of planning the community, a key factor to social justice and mobilization. The method used also promotes complete, integrated, and accurate socio-environmental analyses supporting coherence in public policies through the developed products such as maps, reports, social media, and booklets. Table 1 summarizes the case studies' outcomes and the impacts on communication within the community and throughout other stakeholders.

These outcomes are products built by the community that allow community education and fight misinformation which could trap citizens in the cycle of poverty and exclusion. One of the purposes of this article is to show that these outcomes can be connected to the educommunication concept which is the union of education (or social learning) and communication to build knowledge in a participatory way, such as the community maps (Citelli et al., 2019; Tarcia et al., 2023). For example, for Case 1, local workshops were hosted by the city hall so that the planners could learn more about the project. The presentation served as a tool for education and communication for planners; however, there is a need for more integration with urban planning and other sectoral collaborations to get, for example, an implementation of a new green area or a new school for the neighborhood (these are only examples provided by residents). Also, this article highlights the importance of community education and communication, especially in informal settlements, to focus on better urban planning and sustainable development.

Table 1. Summary of the case studies presented and outcomes connected to communication.

	Methods	Outcomes during the participatory process	Impact on communication
Case 1	Sketch maps, community mapping, community newspaper, and online mapping	New proposals for local improvements, such as community gardens, water conservation and storage, rainwater harvesting, renewable energy sources, adequate waste disposal sites, environmental education, deforestation avoidance, and immediate intervention in the mapped areas	Booklets in Portuguese and English, blog texts, scientific articles, local workshops, and lectures open to the citizens (city hall and local institutions, e.g., Serviço Social do Comércio—a local institution that provides services, culture, and education for the community)
Case 2	Sketch maps	Maps representing positive and negative factors that affect citizens' health at a local level	Scientific article for an academic audience containing a step-by-step guide to replicate this research
Case 3	Informal discussion and sketch maps	The main challenges were represented in a previously printed map; proposals were discussed and also included in the map when possible	A report, blog posts, and a presentation at one public event

The mix of different participatory approaches facilitates the definition of proposals for the neighborhood, which are not restricted to the studied location but can also impact municipal policies. Based on the products (e.g., community maps, focus groups) and their potential, one of the recommendations of this article is to better connect participatory mapping and social mobilization with urban planning tools and instruments.

According to Geekiyanage et al. (2023), it is also important to mention that implementing participatory mapping in vulnerable peripheries can be quite challenging due to barriers in community engagement, especially in areas where there is a lack of trust in external organizations or authorities. Building trust and ensuring active participation requires time and consistent effort. Pilot participatory projects can promote support in the dissemination of these methods to local planning and facilitate engagement. Also, resource constraints and lack of local capacity are issues that can hinder the implementation of these methodologies. Adequate funding and skilled personnel are essential for conducting participatory mapping and mobilizing the community. Ensuring the accuracy of the data collected through participatory mapping can be challenging. The data needs to be validated and cross-checked with the community to ensure it reflects the real situation. Considering the mapping activities, continuous engagement and follow-ups are necessary to keep the community motivated and involved in the long term. Even so, when the process runs smoothly within the community, political dynamics and social hierarchies can pose significant challenges in the implementation of the co-created solutions.

All these factors impact the development of communication products as well. Therefore, strategies to overcome the challenges in implementing participatory mapping for social mobilization should be considered in the planning of the activities. For community engagement, building trust within the community is essential, as mentioned previously. This can be achieved by involving local leaders and influencers who are

respected by the community, and this process takes time. In Novo Recreio, the trust building process was developed months before the start of the activities through informal meetings. In the other presented cases, the connections were developed by a researcher or mobilization team with adequate time. In conclusion, regular meetings, open communication, and transparency about the project's goals—what to expect and what benefits can be created—can help in gaining the community's trust and increase active participation. Partnerships with local NGOs, schools, associations, government agencies, and international organizations can be beneficial, providing additional funding, expertise, and people, when possible. Additionally, training community members to take on roles within the project can help in utilizing local resources effectively, ensuring that the project continues over time.

Engaging local cultural experts or community members in the planning and implementation phases can also help in ensuring cultural appropriateness and boost mobilization towards the mapping objectives. To ensure the accuracy of data collected through participatory mapping, it is important to use multiple data collection methods and cross-verify the information. Training community members in data collection techniques and involving them in the validation process, when possible, can also enhance the reliability of the data and ensure the continuation of the process. Providing ongoing support, resources, and training can ensure long-term success and social impact, as well as better communication products.

These cases showed how mapping helped citizens organize their local knowledge and how this knowledge is not known by authorities, policy makers, and city planners. They also demonstrate that participatory processes can provide territorial knowledge, stimulating engagement, and consequently generating proposals for improvements through communication tools. It is also important to connect participatory dynamics to urban planning instruments to ensure that solutions can be implemented. The role of participatory approaches is primarily to create awareness, stimulate dialogue, and mobilize people in prioritizing demands to be resolved or in co-creating better alternatives, but there is a need for a concrete connection with urban planning tools. The case studies described refer to projects that were responsible for mobilizing society and co-creating relevant knowledge, indicating the need to broaden the scope of such projects and connect them to current urban planning tools and people.

5. Conclusion and Recommendations

Participatory mapping contributes to the co-creation of territorial knowledge and thus serves as a basis for formulating more efficient urban policies that are aligned with the demands and needs of citizens. This process involves engaging local communities in the collection and analysis of data about their own neighborhoods, which helps to identify key issues and opportunities from the perspective of those who live there, especially in informal settlements. By involving residents in mapping their environment, urban planners and policymakers can better understand of the unique characteristics and challenges of different areas, if they can access these outcomes and products. This collaborative approach ensures that the resulting policies are fairer and effective as they are grounded in insights of the community. Ultimately, participatory mapping empowers citizens to take an active role in shaping the future of their cities, fostering a sense of ownership and responsibility for their urban environment.

The application of participatory mapping in peripheral areas highlights vulnerabilities that need to be addressed in ways that can support community education and sustainable urban development overall. This

process involves engaging residents in identifying and documenting the various challenges they face daily—such as inadequate infrastructure, lack of access to essential services, and environmental hazards—as presented in the study cases in Brazil. Additionally, participatory mapping draws attention to more complex social inclusion issues, such as the marginalization of certain groups (such as women, children, and the elderly), disparities in resource distribution, spatial inequalities, and barriers to social and economic opportunities. This approach ensures that urban planning is informed, inclusive, and responsive to citizens' needs and demands, promoting a more resilient environment. The participatory activities described here can be replicated in any informal settlement, with contextualized adjustments.

Moreover, it is necessary to create spaces for public participation to make urban planning more inclusive, such as community forums, consultations, and interactive workshops, where citizens can voice their opinions, share their experiences, and contribute to decision-making processes. By involving the community in urban planning, we ensure that the diverse needs and perspectives of all residents are considered, leading to more equitable and sustainable development. Their knowledge and insights are invaluable in shaping a city that reflects the collective aspirations and addresses the unique challenges of its inhabitants.

Finally, participatory mapping helps to improve community communication through its products. By involving residents in the mapping process, these initiatives create valuable tools such as detailed maps, visual representations, and data sets that reflect the community's insights and experiences. These products serve as effective communication tools, facilitating dialogue between community members, urban planners, and policymakers. They help to bridge gaps in understanding, ensuring that the voices of all residents are heard and considered in decision-making processes. The collaborative nature of participatory mapping promotes empowerment among participants, encouraging ongoing engagement and cooperation within the community. Ultimately, these products enhance transparency, build trust, and promote a more inclusive and informed approach to urban development.

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Conflict of Interests

The author declares no conflict of interests.

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About the Author

Carolina Carvalho is an environmental and urban planner and a participatory mapping specialist. She is a postdoctoral fellow of the Department of Geography, University of Victoria, and a researcher at the School of Public Health, University of São Paulo. She is also the founder of the Comunidades Vivas—Mapeamento Participativo (www.comunidadesvivas.com.br).

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ARTICLE

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Indigenous Cartographies in the Covid-19 Pandemic

Paola Sartoretto [1] and Luana Martins [2]

[1] School of Education and Communication, Jönköping University, Sweden
[2] Luiz de Queiroz College of Agriculture, University of São Paulo, Brazil

Correspondence: Paola Sartoretto (paola.sartoretto@ju.se)

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Abstract

For Indigenous populations in Brazil, maps have long been instruments of invisibility. Official maps have historically misnamed and erased Indigenous territories and communities. At the same time, cartographic representations have been a tool of resistance for Indigenous activists. Indigenous communities and organisations have created their own maps identifying territories, peoples, languages, and cultures. These dynamics of contentious visibility intensified during the Covid-19 pandemic when the spread of the virus among Indigenous populations was poorly reported or even absent from hegemonic contagion maps. State negligence, intensified by an authoritarian government hostile to Indigenous populations, threatened the survival of communities around the country who organised collectively to create their own cartographic representations of the pandemic through resistant appropriations of media and data. This article draws on interviews with Indigenous leaders and media activists to discuss processes of data appropriation and resistant cartographies during the Covid-19 pandemic. Findings highlight the use of data and counter mapping strategies for self-representation and political action that must be understood through a non-media-centric perspective, drawing from conceptualisations at the intersection between human geography, communication, and post-colonial theory.

Keywords

Brazil; counter-mapping; Covid-19; data appropriation; Indigenous communication; resistant cartographies

1. Introduction

Disputes over territory have been the backbone of Indigenous resistance worldwide since the emergence of settler colonialism in the 1400s. Thus, knowledge and control over territories are crucial for Indigenous groups in Brazil and granted by the Brazilian constitution of 1988. Ownership and control over Indigenous lands is

crucial to the survival of Indigenous Peoples, which entails social and cultural reproduction. In this context, Indigenous cartography becomes an important counter-hegemonic communicative practice underpinned by ever-developing mapping technologies.

The advent of complex digital geolocation technologies and the datafication of demographic, biological, and geographical information has meant that control over the production and circulation of data is now as important for Indigenous Peoples as is the control of ancestral territories (Ricaurte, 2019). For Indigenous collectives, data is both knowledge and representation. In a continuum of Indigenous communication (Sartoretto & Caffagni, 2022), where Indigenous collectives struggle over self-representation and communicative protagonism, control over data and the practice of counter-mapping is a new frontier of media activism (Jeppesen & Sartoretto, 2023).

The Covid-19 pandemic that unfolded between 2020 and 2022 was particularly challenging for Indigenous populations in Brazil due to the lack of attention from the state to the special needs and rights of these populations in a situation of sanitary emergency. Under the presidency of extreme right politician Jair Bolsonaro, official contagion statistics published by the government were severely underestimated (Articulação dos Povos Indígenas do Brasil [APIB], 2020), not updated regularly, and were not useful for Indigenous populations living outside urban areas. Facing these challenges, the Articulation of Indigenous Peoples of Brazil started a data mapping project in 2021—Indigenous Emergency—to gain valuable knowledge about the spread of the virus among Indigenous communities in rural and urban areas in Brazil. The initiative aimed to map out the development of the pandemic among Indigenous communities in Brazil using a variety of data sources including publicly available official demographic data, geolocation data, as well as data produced by Indigenous collectives. With the support of civil society organisations and researchers, the compiled data could be visualised in maps to trace the spread of the virus among Indigenous areas and link it to the presence of meatpacking facilities. Figure 1 shows how these different datasets—Indigenous lands, meat processing facilities, and Covid-19 cases by municipality—could be plotted to show evidence that the meatpacking facilities were important vectors of contagion to Indigenous communities.

Another map (Figure 2) combines data, metadata, and information to spatialize knowledge about contagion and access to healthcare that could be used to direct specific and relevant efforts to the communities and areas where they were most needed. The map in Figure 1 was regularly updated during the pandemic, and both maps are part of a report available on the Indigenous Emergency website (https://emergenciaindigena.apiboficial.org).

In this article, we analyze and discuss the case of Indigenous Emergency to understand counter-mapping practices within the counter-hegemonic communication continuum (Sartoretto & Caffagni, 2022), aiming to avoid both technology presentism (Virilio, 2010) and one-medium bias (Mattoni & Treré, 2014). Drawing on data from six semi-structured interviews with expert interlocutors, we discuss the varied aspects of mediated visibility for Indigenous communities and their significance for community communication processes in Brazil.

In the following sections, we present a conceptual mapping that includes Indigenous communication, communicative aspects of mapping and counter-mapping, and a discussion about the interplay between technologies, territories, and Indigenous resistance. The theoretical discussion is followed by a methodological overview, a subsequent discussion of findings, and concluding remarks.

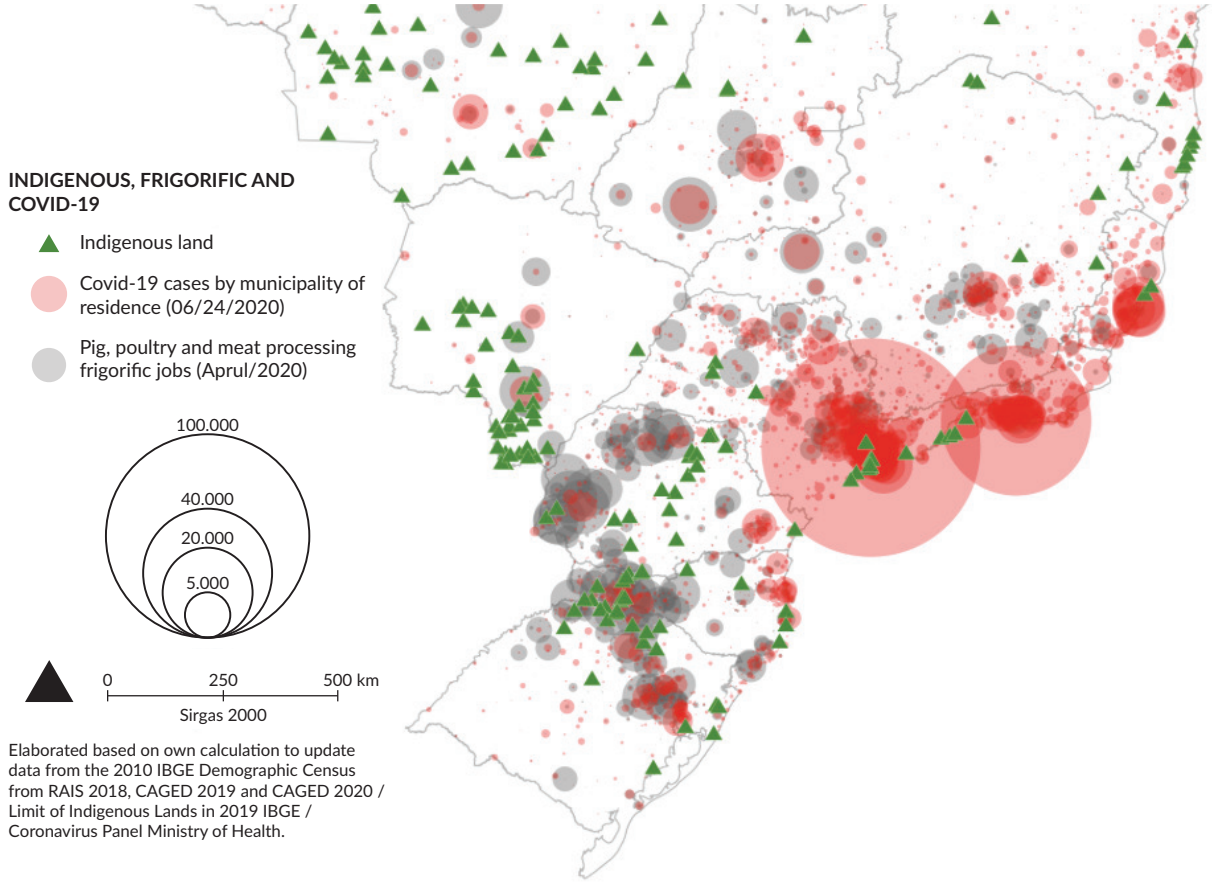

Figure 1. Map of Indigenous populations and meatpacking facilities. Source: APIB (2020).

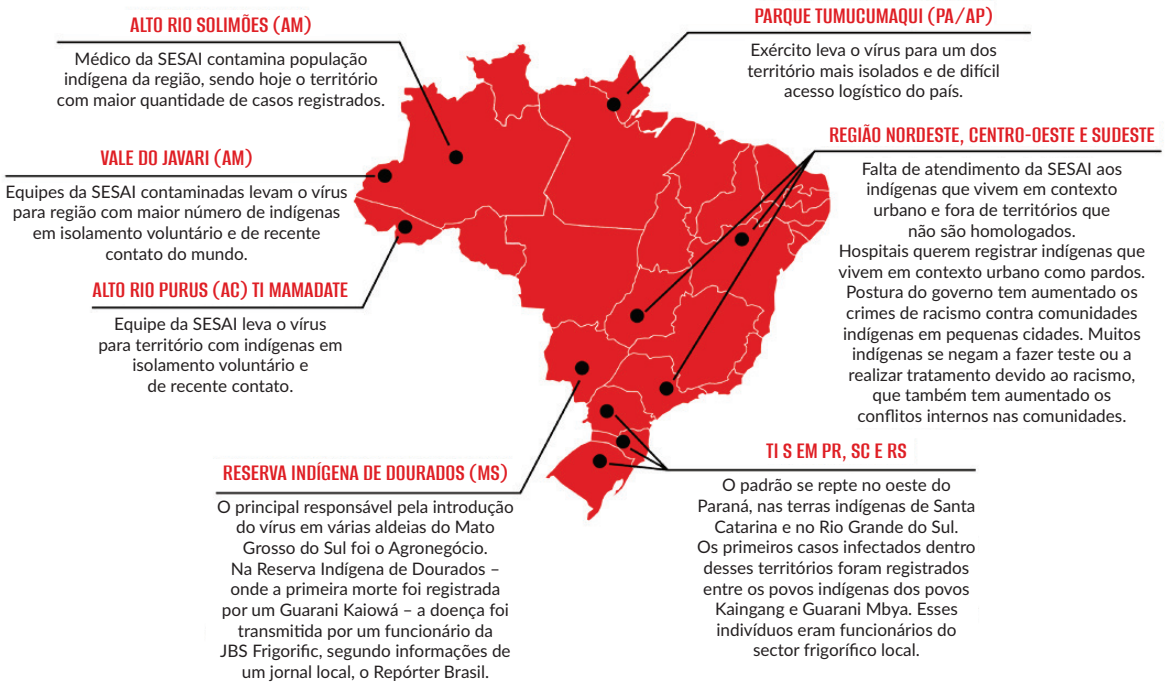

Figure 2. Map relating the contagion to Estate agencies. Source: APIB (2020).

2. Conceptual Mapping

We articulate the conceptual framework to discuss counter-mapping practices among Indigenous collective actors during the Covid-19 pandemic around three epistemological pillars: Indigenous communication; technologies, territories, and resistance; and communicative aspects of mapping and counter-mapping. These conceptual pillars encompass key aspects of Indigenous countermapping and allow us to highlight and discuss the resistance cartographies as a communicative practice of political mobilisation from an Indigenous perspective. Our goal is to highlight the interconnections between communication as a politico-representational practice through which Indigenous collective actors engage in resistance processes oriented toward cultural and territorial rights.

2.1. Indigenous Communication

To understand counter-mapping among Indigenous communities as a communicative practice in a continuum of counter-hegemonic Indigenous communications, it is crucial to sketch a brief map of research on Indigenous communication worldwide, zooming into Latin America and Brazil.

A recent, and somewhat contested (Pruulmann-Vengerfeldt et al., 2013), digital turn (Pandey, 2019; Sued, 2025) in media and communication studies in general and in studies of Indigenous communication in particular, often erases the decades long history of Indigenous media appropriation that intertwines with the consolidation of Indigenous movements as national and transnational political actors (see Salazar & Córdova, 2019). Research on Indigenous communication, including Indigenous media, emerged as a transdisciplinary field in communication research, drawing on disciplines such as anthropology, political science, and media studies. We engage particularly with the Latin American branch of Indigenous communication research and the understanding of Indigenous communication as both political participation and self-representation. While doing this, we acknowledge that the categories Indigenous communication and Indigenous media are not unproblematic, as they risk flattening out the ethnologic and ethnic variety of Indigenous Peoples worldwide. Nevertheless, for didactical purposes, we resort to the terms Indigenous communication and Indigenous media to refer to communication efforts and media artefacts collectively produced by Indigenous Peoples.

Research on Indigenous communication in Latin America has been growing recently after having been overlooked for decades (see Costa, 2010; Pereira, 2010), but it is mostly focused on uses and affordances of media, rarely engaging with social movement scholarship. The emergence of systematically produced Indigenous media and artefacts—which function as community media content—relates to the development and widespread use of audiovisual technologies that facilitate amateur production, dating back to the 1980s (see Ginsburg, 1991, p. 92). Over 30 years ago, Faye Ginsburg (1991, p. 95) argued that due to its small-scale and localised character, the existence of Indigenous media was "politically and economically fragile." She highlighted the absence of a more robust theoretical development about Indigenous audiovisual practices connecting it to a positivist anthropological view of the camera as a "window on the world" instead of a creative tool in "the service of a new signifying practice" (Ginsburg, 1991, p. 93) and pointed out that Indigenous communities in Australia were interested in issues of power regarding who controls the production and distribution of imagery (p. 96).

In line with this culture centred and politically conscious understanding of Indigenous media, Magallanes-Blanco (2015, p. 201) argues that Indigenous video is "an instrument for cultural and political activism, articulating alternative perspectives on the relationship between humans and nature and highlighting exploitation that leads to land dispossession and environmental degradation." Reflecting about the development of Indigenous filmmaking since the 1980s, Salazar and Córdova (2019, p. 141) see Indigenous media as a "project of world making" through which communities articulate ancestral knowledge to imagine planetary futures which relates to Ana Suzina's (2023) argument about the circularity of Indigenous communication in which future imaginaries are constantly constructing in a dialogue with the past.

Indigenous media is often discussed in terms of a Faustian dilemma (Ginsburg, 1991; Rodríguez & El Gazi, 2007) that contraposes the possibility of new ways of expression afforded by technologies with the threat of assault on culture and ancestral knowledge. In short, this is a dilemma between cultural life and epistemicide which has sparked much discussion beyond disciplinary boundaries. In this sense, Ginsburg (1991, p. 104) argues that Indigenous filmmaking are practices of cultural mediation "across boundaries" directed to the "mediation of ruptures of time and history, taking of lands, political violence, introduced diseases, expansion of capitalist interest and tourism, and unemployment coupled with loss of traditional bases of subsistence."

Later, the appropriation of ICTs by Indigenous communities resulted in a strong field of practice and production of situated knowledge, particularly by Indigenous activists, scholars, and thinkers (Duarte, 2017; Pereira, 2010). Rodríguez and El Gazi (2007, p. 460) also reject the Faustian dilemma as an analytical category to think about Indigenous Peoples' appropriation of ICTs. The authors propose a twofold argument: Considering first that Indigenous People's should not be equated with a singular subject that either adopts or rejects technologies in order to make generalisable claims about all Indigenous communities, they suggest instead Salazar's (2004) concept of media poetics as an analytical tool to examine how ICTs are re-created in their interaction with specific social and cultural relations.

A process of adaptive resistance is observed beyond digital technologies and is also applied to social technologies in a broader sense such as in the adaptation of decision-making structures to Indigenous communities' horizontal convivial relations (Santi & Araújo, 2022, p. 100). Also relating to the Faustian dilemma, Sartoretto and Caffagni (2022) argue that Indigenous communication in Brazil operates with dual goals of cultural representation and structural change and it is not possible to ignore or isolate any of these aspects. These long-standing discussions about Indigenous communication that include the inception of media among Indigenous Peoples converge in the argument that technological appropriation cannot be dislocated from the cultural, social, political, historical, and geographical context in which it happens.

Indigenous visibility is another significant field of research the intersects with Indigenous communication, with a particular interest in processes of recognition and representation (Fraser, 2009) articulated through varied media including literature (Feroz, 2024), cinema (Hearne, 2012), journalism (Ryan, 2016), and social media (Farrell, 2021). These discussions have a non-media centric perspective (Morley, 2009), attending to Morley's call to place "technological changes in historical perspective" (Morley, 2009, p. 114). With Morley, we argue that Indigenous visibility cannot be separated from its material dimension which includes territories and social reproduction.

Considering this international trajectory of research on Indigenous communication, it is possible to position contemporary discussions (Cantley, 2025; Duarte et al., 2019; Kukutai & Taylor, 2016; Walter, 2018) in a historical continuum of varied practices and processes of Indigenous resistance and political protagonism. Not ignoring or obscuring the diversity and particularities of Indigenous Peoples worldwide, as argued by Rodríguez and El Gazi (2007), we can highlight the continuities in the ways in which Indigenous Peoples become the protagonists in the process of technology appropriation in varied ways as practices of representation and political participation that aim for collective action and political autonomy.

2.2. Technologies, Territories, and Resistance

Indigenous struggle for culture and territory is a prominent topic in the contemporary political agenda in Latin America largely due to the articulations and political mobilisation of Indigenous Peoples in several Latin American countries and regions. Conceptions and understandings of progress and development are constantly imposed on Indigenous Peoples and their territories, which includes using and trespassing on Indigenous lands for mining, building infrastructures such as dams and roads, and gaining access to rivers often showing disregard for Indigenous cosmovisions about the inseparability between humans and the territories where they live.

Indigenous knowledge production is anchored in multifaceted Indigenous cosmovisions (Milhomens, 2022, p. 26) that converge in an intrinsic relation between knowledge and territory. Current research highlights the collective appropriation of communication technologies, including audiovisual production and social media platforms as instruments for political organization and strengthening of the Indigenous movement (Macedo Nunes & Campos, 2022, pp. 79–80) and the Amazonian culture as an underpinning factor configuring the use of the internet with focus on mutual help (Neves, 2022, p. 182). In this context, the appropriation of data becomes a new frontier of media activism (F. Milan & Beraldo, 2019) in which communicative processes are politically articulated in support of Indigenous demands for rights to culture and territory. In the particular case of Indigenous Peoples, data appropriation for political struggles is located at the intersection between territory and culture, exemplified in the cases of data about deforestation in the Amazonian region, the presence of rare earth metals in Indigenous lands, and historical data about land occupation that can be used to claim protected status of Indigenous territories (Duarte, 2017).

Ruppert et al. (2017) argue that data has become a political issue because it "reconfigures the relations between citizens and states" (p. 1) and we argue further that, in the case of Indigenous communities, data politics unveil the limitations of liberal citizenship that does not recognise the existence of ways of living outside the standards of Western civilisations. This includes, for instance, the reluctance of the Brazilian government to document deforestation in Indigenous areas or even to demarcate these areas that should be spared from industrial agriculture (APIB, 2020, p. 19). State information and data policies belie the danger of using technologies to construct Indigenous communities as a threat to national security and development (Proulx, 2014). Kukutai and Taylor (2016) argue that, as well as having sovereign rights to territory, Indigenous Peoples must also have sovereign rights to data. These arguments resonate with the idea of communication rights as the autonomy of collectives and individuals over decision-making processes related to the social and political management of communication (Mata, 2006; Peruzzo, 2011). One of the main claims of the Covid-19 action plan (APIB, 2020, p. 34) is precisely access to communication

technologies (radio, digital, satellite, and telephone services) in remote Indigenous communities to facilitate communication between remotely situated Indigenous communities and their diverse interlocutors.

The interplay between technologies, territories, and processes of political resistance to the continuous threat to Indigenous cosmologies and cultures posed by so-called Western civilisation has several practical dimensions identified in current research such as connection, sovereignty, and participation. Communication technologies can disrupt time and space dimensions and they have played a relevant and contentious role in connecting Indigenous Peoples and territories with each other and with societies and peoples beyond these territories. Since the emergence of settler colonialism, sovereignty has been a crucial value for Indigenous Peoples. The capacity to collective self-determination over culture, knowledge, and territory is paramount for the survival of Indigenous Peoples and, as it has been acknowledged recently, for environmental sustainability and regeneration that can help us mitigate the consequences of climate change. In consequence, sovereignty also applies to communicative processes and the technologies (digital or social) that underpin them. Several researchers have been calling attention in recent years to Indigenous struggles over the data that can provide information, counter-narratives, representation, as well as support claims for rights (Kukutai & Taylor, 2016; Proulx, 2014). Finally, Indigenous Peoples incorporate communication technologies into political processes through which they resist threats to their existence, thus participating as collective actors in policy-making processes that have an impact on their territories and on their lives.

2.3. Communicative Aspects of Mapping and Counter-Mapping as Data-Driven Practices

Cartography as a representation of the lived space, including human settlement and action, is an instrument of power and the subject of tensions. Maps have "played a role in communicating spatiotemporal information to mass audiences" during crises since the Spanish flu pandemic in 1918–1919 (Kent, 2020, p. 187). Kidd (2019, p. 955) argues that "the contest over maps, and other cartographic visualizations, is one of the longest-running examples of data activism." However, overreliance and unrealistic assumptions about the representational capacities of maps may overlook local needs and knowledge (Calvo, 2025, p. 302).

Lived territories are crucial for Indigenous communities because they are the material basis of Indigenous commons. This intrinsic relation between society and territory has been extensively documented and analysed in the field of critical geography with important contributions from decolonial perspectives. For instance, Hunt and Stevenson (2016, p. 372) argue that Indigenous counter-mapping is "an assertion of political and intellectual sovereignty" and Wainwright and Bryan (2009, p. 153) note that participatory mapping technologies and the popularisation of cartographic technologies such as geographic information systems have allowed Indigenous Peoples to map their lands and claim legal rights. Oslender (2021, p. 10) has analysed social cartography initiatives among Indigenous and Black communities in Colombia and concluded that, beyond legal and communicational aspects, Indigenous cartographies also materialise decolonial visions and reflect ontological conflicts over various ways of being in the world. Syme (2020) warns about the danger that digital "deep cognitive" mapping platforms replace the "context-rich" and "place-powerful" traditional mapping practices enacted by Indigenous Peoples, reinstating the Faustian bargain between traditional cultural practices and the informational benefits of datafied technologies.

At the same time, official and hegemonic cartographies that represent, and often invisibilize, Indigenous territories and communities exert power over these groups (Lowan-Trudeau, 2021). Consequently,

cartographic mapping can be understood as a communicative process and maps as media in the sense of "standing between" (Couldry, 2012) senders and receivers of information and as instruments to create shared understandings about the lived space. The development of data production technologies has meant that data is generated from the most mundane activities, such as using public transportation, opening a door with a card, and, of course, using mobile telephones and computers (see da Silveira, 2017), all of which have turned cartography into a highly datafied process. However, data is not produced and distributed in equal conditions (Lucas et al., 2020), and the Covid-19 pandemic exacerbated and intensified these inequalities (S. Milan & Treré, 2022). In this sense, Jeppesen and Sartoretto (2023, p. 152) argue that hegemonic maps reinforce communicative dynamics that "render intersectional inequalities immobile and invisible."

For Indigenous communities in Brazil, data poverty hits harder because although much data about the territories where they live is produced by corporations and state bodies, they do not have control over this data and cannot put it to use. Political conjunctures can be another complicating factor. During the Covid-19 pandemic, the extreme right government of President Jair Bolsonaro neglected Indigenous territories and communities, which resulted in a lack of trustworthy information about contagion and spread of the virus among Indigenous communities (Jeppesen & Sartoretto, 2023). As Seto et al. (2025) point out, the official production of data is a component of the representation of peripheral territories by corporate and state platforms that, through their biases, contribute to perpetuating social inequalities.

Indigenous communities in Brazil have a long history of resistance to threats from both the state and private actors, which lays the basis for the awareness of the role of communication and media technologies for the self-determination of these communities. This process can also be seen as a long struggle of Indigenous communities to become the subjects of their own communication which is a precondition for the exercise of communicative citizenship (Mata, 2002, 2006). Communicative citizenship can be understood as the agency over communication and presupposes access to information and the material means to exercise this agency. Indigenous counter-data mapping should thus be understood in this context of communicative struggle that challenges hegemonic narratives through social cartography (Vaughan, 2018), "providing specificity and nuance regarding the communities and territories mapped" (Jeppesen & Sartoretto, 2023, p. 152).

The struggle becomes twofold for these communities who need to gain access to information and technologies while they develop a collective understanding of the policies that regulate communication. Indigenous communities and organisations must use these technologies and knowledge to claim their agency over the communication policies, including data production and management, that affect them. We argue, therefore, that data-driven mapping and counter-mapping must be understood as a communicative process, as stated by Ruppert et al. (2017, p. 1) who claim that the many ways in which we deal with data bring "objects and subjects that data speaks of into being." Data production and circulation can thus be considered communicative processes that cannot be separated from the media that store and transmit data, so it follows that data flows cannot be analysed separately from the communicative processes of which they are a part. Or, as Silverstone (1999, p. 173) reminds us, "media technologies, like all other technologies, have the social behind them, the social in front of them and the social embedded in them." Consequently, the intersection of data practices with cartographic practices characterises communicative processes enacted by collective actors such as Indigenous organisations, civil society organisations, universities, and state authorities.

3. Methodology

3.1. Study Design

This study was conducted as part of the research project Countermapping Covid-19—Visualisations of Data on the Margins which analysed data-driven counter-mapping initiatives to understand data imaginaries articulated in the conception, production, and reception of counter-hegemonic maps among marginalised communities. The international project included counter-mapping projects among LGBTQIAPN and Black communities in the US, low socio-economic status communities in Spain and Latin America, and Indigenous communities in Brazil, which was our focus. The Brazilian branch of the project focused on the initiative *Emergência Indígena* (Indigenous Emergency) led by the APIB between 2020 and 2021 in response to the challenges faced by Indigenous communities due to the Covid-19 pandemic. APIB is an umbrella organization created in 2005 during the Free Land Encampment which is an annual demonstration that has run since 2002 to call attention to Indigenous rights in Brazil.

Here, we focus the discussion on semi-structured interviews with six interlocutors who were involved in different aspects of the implementation and operationalisation of Indigenous Emergency in 2021 and 2022. The interviews were akin to expert interviews in which our interlocutors were considered experts in different areas of data mapping among Indigenous communities and integrated in the project not as single cases but as a group (see Flick, 2009, p. 165). The interview guide was developed to be employed throughout the project to address counter mapping practice. The guide was structured in thematic blocks focusing on specific aspects of mapping practices including experiences, practices, and rationales related to map-making among each community in the pandemic context. The authors then adapted the questions to reflect cultural specificities of Indigenous political mobilisation in Brazil, incorporating questions about challenges in mapping Indigenous territories and obtaining official data during President Jair Bolsonaro's government which covered the whole pandemic period (2019–2022).

A total of six interviews were conducted via video call in September 2022. The interviews lasted between 20 and 55 minutes. Luana Martins conducted five interviews alone and one with Paola Sartoretto. Video calls were considered the best possible alternative considering the geographical distance between our interlocutors, who were in different parts of Brazil, and the researchers, who were in Canada and Sweden, especially given the travel restrictions still in place due to the pandemic. Concerns regarding the quality of technology-mediated interviews have been raised since the advent of the telephone (Flick, 2009), as any medium used to enable interactions between physically distant individuals may negatively impact the spontaneity of the interaction (Flick, 2009) and, in turn, have an impact on research quality. In video calls, it is possible to see each other and experience facial expressions and body language to a certain extent. In this case, the restrictions imposed during the Covid-19 pandemic meant that people had to rely heavily on video calls, which contributed to naturalise this form of interaction. To prevent distractions, all interviews were booked in advance and interlocutors were informed about the duration of the interview so they could have time to find an adequate space for the interviews. All interviews were conducted, recorded, and transcribed without major technical problems.

The interview interlocutors were selected purposefully due to their participation in different aspects of the project. The selection process started with contacts that were publicly available on the Indigenous

Emergency website, following recommendations from the Indigenous Emergency leadership board with a view to: (a) geographical spread (considered Brazil's five geographical regions: south, southeast, centre-west, northeast, and north); and (b) age and gender diversity (see Table 1). With six interviews, we considered that we reached theoretical saturation as well as satisfactory variation among our interlocutors, i.e., other potential interlocutors would have very similar profiles to those we had already interviewed. All interviews were recorded and manually transcribed with the consent of the interlocutors who received the transcripts for comments, although we did not receive any comments. The interviews were conducted in Portuguese, and relevant excerpts cited in publications were translated into English by the authors.

Table 1. Overview of interviews.

Role	Region	Occupation/Education	Gender	Age	Alias
Member of APIB leadership	Center-West	Teacher/Pedagogy	Male	over 50	Ali
Communications specialist Indigenous organisation	Northeast	Filmmaker/Communication	Male	over 30	Jorge
Member of APIB leadership	South	Politician/Environmental Management	Female	over 40	Teresa
Regional coordinator of an Indigenous organisation	Northeast	Not disclosed	Male	over 40	Elio
Communications advisor APIB	Southeast	Communicator/journalism	Female	over 40	Regina
Research consultant APIB	Southeast	Researcher/Anthropology	Male	over 30	Luis

3.2. Ethical Considerations

The project within which we conducted this study was approved by the Ethical Review Board of the project's institutional host and the study was considered low risk for both participants and researchers. Following standard ethical best practice in social sciences research, all interlocutors received information about the project, how interview data would be used, where it would be stored, and about their ability to withdraw at any point. Even though the interviews addressed activities that our interlocutors performed publicly and they would be talking about their area of expertise, we opted to anonymise our interlocutors to emphasise the collective aspects of Indigenous counter-mapping. After the interviews, all interlocutors had the opportunity to read and comment on the transcripts, but we did not receive any comments.

We must further reflect on the specific ethical implications of researching with Indigenous Peoples about themes that are relevant for them without ignoring that this is a political activity (Blanco, 2020, p. 72). In this sense, beyond avoiding that research with Indigenous communities causes any kind of harm, it is also important to conduct research in dialogue with these communities without objectifying or exoticising collective Indigenous knowledge and practices as research objects. The interlocutors were selected in their capacity as experts in the areas addressed by the project, following the project's standpoint that considers activists and other politically engaged individuals and collectives as legitimate producers of knowledge.

3.3. Interview Analysis

We conducted a thematic analysis of the interviews following the guidelines developed by Braun and Clarke (2017) and using qualitative data analysis software. Thematic analysis was chosen due to its theoretical flexibility, given the transdisciplinary approach of the project, which makes the use of a strictly theoretically informed methodology difficult. Furthermore, thematic analysis allowed us to systematically organise the rationales, experiences, and practices of counter-mapping among Indigenous communities to understand how they relate to broader Indigenous communication and political mobilisation. We performed an abductive analysis as a middle-ground between deductive and inductive research (Thompson, 2022). We did not depart from pre-determined hypotheses, but the analysis was informed by the conceptual map outlined above; thus, it was not entirely data-driven. While we wanted to remain epistemologically close to the interplay between communication, political mobilisation, resistant cartographies, and technological appropriation, we consciously avoid bracketing out datafied mapping practices in time and from the communication ecology experienced. Thus, we consciously avoid technology presentism (Virilio, 2010) and one-medium bias (Mattoni & Treré, 2014).

We conducted the analysis following the traditional six-step process devised by Braun and Clarke (2017) which includes the five operational steps below, plus writing up:

1. Familiarisation with the data: Author 2 transcribed the interviews, and both authors read the transcriptions to obtain an overview of the data.
2. Generation of initial codes: Author 2 coded the transcripts, informed by the research questions, to grasp rationales, experiences, and practices related to countermapping during the Covid-19 pandemic. Author 1 reviewed the codes. During this step, both authors met to resolve discrepancies and discuss the applicability of the codes generated by Author 2.
3. Generating themes: Author 2 generated overarching themes from the identified codes.
4. Reviewing themes: Both authors discussed the themes generated by Author 2 to ensure thematic saturation and the stringency of the themes in relation to the initial codes.
5. Defining and naming themes: Authors 1 and 2 jointly defined and named the themes that are discussed below.

4. Indigenous Emergency: Counter-Mapping, Communication, and Resistance

We set off this analysis with the aim of understanding counter-mapping practices among Indigenous communities in Brazil in the context of a global sanitary crisis (the Covid-19 pandemic), placing these practices in a continuum of Indigenous communication and within a spatial-temporal communication ecology. In the following sub-sections, we present the four themes that articulate the discussion about counter-mapping practices generated in the analysis of the six interviews: antagonism to the government, collective action, knowledge appropriation, and visibility.

4.1. Antagonism to the Government

During the Covid-19 pandemic, Indigenous collective organisations engaged in counter-mapping practices primarily to protect Indigenous communities from the consequences of the pandemic in a reaction to the

omissions of Jair Bolsonaro's government. In this thematic cluster, data-driven counter-mapping practices are explained in their tactical potential as tools to face an extremist government that has strongly antagonised Indigenous Peoples in Brazil. This antagonist position goes beyond political agonism (Mouffe, 2014) because the government at the time opposed the existence of Indigenous Peoples. During previous governments, Indigenous organisations experienced tensions and disagreements with the federal government, for instance, when President Dilma Rousseff approved the construction of several hydroelectric plants in Indigenous territories as part of a national programme for the acceleration of economic growth. This sparked a wave of protests and digital mobilisation at the time; however, open threats in words and actions were a particular trait of Jair Bolsonaro's government. In the words of Elio: "Indigenous healthcare has 1,46 million reais to work with, and that is not enough. Even so, the government cuts more than half of the resources. I think the intention of this government is really to exterminate Indigenous people!". He also describes the hostility faced by Indigenous organisations during a demonstration:

> FUNAI's [Fundação Nacional dos Povos Índigenas] president…ordered [the police] to shoot the Indigenous people who were demonstrating with rubber bullets, and left many people injured. So, in Bolsonaro's government, we did not have a good relationship with any of the public authorities dealing with Indigenous causes.

Mentioning the pandemic specifically, Regina points out that:

> It is such an exceptional case, because the role of the state is to do it [map out the contagion among Indigenous Peoples], and what happened was the opposite, the state took the virus into the territories. The first cases, for instance, were doctors or someone from SESAI [Secretaria Especial de Saúde Indígena] who had contact with an Indigenous person, that is, a federal government employee who was infected and contaminated the territory.

Furthermore, the collective organisations needed to constantly respond to hostile actions and statements from the government. For instance, Teresa argued that the governance constituted by the Indigenous collective organisations was intended to confront the federal government's denial of Indigenous communities' rights. She even alludes to experiencing physical discomfort when discussing pandemic measures with the government: "We were discussing the emergency plan with the government, and I felt sick when I had to stand face to face with those who want to exterminate us."

In this conjuncture of stark hostility, there is a continuation of the communicative struggle (Vaughan, 2018) with a new narrative object during the pandemic, which is the consequences faced by Indigenous Peoples and the government's (in)action regarding these consequences. Faced with such dire conditions, Indigenous collectives have started to strategically use mapping to represent their territories and communities with increased specificity and nuance, corroborating Jeppesen and Sartoretto's (2023, p. 152) argument. However, in the context of an antagonistic relationship with the government, Indigenous collectives faced yet another challenge when engaging in counter-mapping practices: The withholding of access to official data about the impact of the virus on Indigenous populations. Teresa affirms that "the government refused to keep statistics over the victims [among Indigenous populations] so they could deny what we said was happening."

Elio explained the situation: "There was a period when SESAI told us that they could not provide us with information because it was confidential." Due to its strong organic mobilisation and articulation that tapped into established Indigenous collective organisations, Indigenous Emergency succeeded in its data appropriation efforts to construct a representation of the impact of Covid-19 on Indigenous communities that could substantiate demands for support from civil society and action from state authorities (Kukutai & Taylor, 2016; Proulx, 2014).

Two of our interlocutors who integrated the leadership in Indigenous collective organisations highlighted this political character of counter-mapping. Ali says that the maps produced during Indigenous Emergency could "force something to happen from the government's side." Ali explains that "APIB created the project to have trustworthy figures and to form the basis to prosecute SESAI in the Supreme Court. In the end, Minister Barroso ordered SESAI and FUNAI to provide assistance to Indigenous communities."

These dialogues show that there is a collective appropriation of data as a strategy to respond to an antagonistic government that has weaponised data within a logic of political hostility and ethnic discrimination. The struggle of Indigenous Peoples of Latin America and Brazil against extermination and to be recognised as bearers of rights is a centuries-long feature of politics in the region. The deployment of data as a tool to invisibilize Indigenous populations was a new tactic within an old strategy adapted to the extreme right's ambitions for territorial control and ethnic cleansing.

4.2. Collective Action

As discussed in the conceptual mapping, we foreground counter-mapping within the history of Indigenous collective action and the articulation of various collective actors to represent Indigenous Peoples. In this context, counter-mapping practices are a form of collective engagement in two aspects: They are a collective effort that requires collaboration and coordination among individuals and regional Indigenous organisations. Following the history of Indigenous mobilisation, counter-mapping practices during Indigenous Emergency had a strong anti-colonial aspect, as illustrated in Teresa's explanation:

> So today we have achieved this visibility, and we can say to Europe that they have a historical debt with us and demand reparation….We can prove that we are the guardians of life on the planet and that the world needs us one more time.

She is referring to the increased deforestation of the Amazon forest during Jair Bolsonaro's government to clear the land for commodity crops and cattle herding, while international awareness rises about the importance of the rainforest to regulate the climate. This makes the permanence of Indigenous populations crucial to the preservation of the Amazon forest. The maps produced during Indigenous Emergency could show the relation between the meatpacking facilities located in the vicinity of Indigenous reservations and the contagion among Indigenous populations.

Counter-mapping practices must therefore be understood as an element within the construction of a collective actor grounded on Indigenous cosmovisions, following Milhomens' (2022) argument about the relation between Indigenous cosmovisions and the territories they inhabit. Strategically articulated communication is the subtle mesh that holds the collective actor together, as Jorge exemplifies: "Everything

was very difficult, but we supported each other. What generated our group was the collaboration between all communicators working with Indigenous Peoples in Brazil."

The interviews demonstrate that data-driven cartography appropriated by Indigenous collectives to resist colonial dominance does not exist in a vacuum, but is anchored on long-term mobilisation processes, as Elio explains: "So, in 2003, during the first Free Land Encampment, we felt the need to come together again and create an organisation to unite all Indigenous Peoples in Brazil."

And Teresa points out that as a member of the APIB executive board, she could "meet other organisations around Brazil with all the [Indigenous] peoples, where we could have these dialogues and together think about the best way of supporting populations in their territories."

Through this collective organisation, Indigenous collective actors argue that they can construct the political power necessary to influence policy making and legislation, and the maps created through counter-mapping practices are a materialisation of this process. As Elio explains: "The action was very fast…what we managed to mobilise and what we managed to contribute to mitigate the pandemic, for this reason, the maps were crucial at that moment, and they still are."

Following the nexus of collective organisation and construction of political power, digital mobilisation is purposefully articulated and maintained in periods when it is much needed. Regina, a journalist with a long trajectory as a communication advisor for APIB, points out that they held varied communication initiatives with Indigenous Peoples for an entire year to maintain online mobilisation. And Elio argues that during the pandemic, the internet was the main vehicle to access and share data in order to articulate counter-mapping practices, while the digital maps became a source of trustworthy information for Indigenous communities.

4.3. Knowledge Appropriation

Indigenous counter-mapping practices during the Covid-19 pandemic constituted a process of knowledge appropriation in which data-driven mapping techniques were adapted and modulated in combination with local collective knowledge. It is thus not accurate to define the use of these technologies as adoption, as they are deliberately juxtaposed to other collective practices, as Jorge explains:

> I have worked a lot with maps, including geo-mapping. APOINME [Articulação dos Povos Indígenas do Nordeste, Minas Gerais e Espírito Santo] sent me assignments in my role as communicator. There was a project called Indigenous Environmental and Territorial Management, back when the government cared for the environment, so we went around in the villages to map them out. We conducted mapping projects with the Tremembé people in Ceará, and with the Pakararu people, we conducted an ethno-zoning in which we first identified the problems and then located them on the map.

The adaptation of maps to the needs, knowledge, and political demands of Indigenous collectives is also highlighted by Teresa:

> The Indigenous movement is a political movement whose main demand is the demarcation of land and the granting of rights through public policies. During the pandemic, we needed to keep doing this, to

> advance these struggles and take control in the areas of healthcare and education, and protect our lands because we were experiencing many invasions during this period.

Challenging technological determinist arguments that ascribe to technologies the agency to solve problems, data-driven counter-mapping practices among Indigenous communities during the Covid-19 pandemic relied on existing relations and organic articulations among Indigenous communities and between Indigenous collectives and other sectors of society. Luis, who worked in civil society organisations allied to the Indigenous collectives, points out that even if they did not know whether information from official sources about contagion in Indigenous areas was trustworthy, the collective had the expertise to utilise the information:

> From these [official] figures, we could make estimations and develop other things as well. So, we provided this initial support to Indigenous Emergency so they could have the figures on the website and see the spreadsheets to generate data that were automatically updated without the need for someone to do this manually every time or create a new graphic and paste it there. We provided this support for the Indigenous Emergency site, a small contribution, but from the point of view of the site, it was very important. It was a well-organised process; they formed a group with Indigenous and non-Indigenous people who helped with the methodology. It was a very rigorous work done with the participation of grassroots organisations.

Personal relations and intergenerational help in the communities were also identified as key aspects for technological appropriation in symbiosis with the collective dynamics in the communities, as Elio explains:

> We kept thinking about what we could do for the information to reach [the villages]. Not everyone can use the internet, but we had to, somehow, ensure that the information reached everyone. So, for that young person who is more used to and closer to technology, we organised a live event online. He gathered the whole family to watch and then shared it with the village. I believe that many communities did the same as we did here.

These dialogues with our interlocutors reveal the complex social relations materialised through communicative processes that make up the context for data-driven counter-mapping practices or the social world that surrounds media technologies (Silverstone, 1999).

Finally, as part of a process of political mobilisation, counter-mapping cannot be an end. The maps themselves, as material artefacts, are not the final goal of counter-mapping, as suggested by Luis:

> They [the maps] had their importance, but now they need to be turned into something else. We need to transfer this data to a better-structured database and organise what we are going to do with data visualisation, if we are going to transfer it to the websites of Indigenous Peoples and Indigenous lands.

This means that, within Indigenous political mobilisation, the maps produced through data-driven counter-mapping practices cannot be seen as static media products, but as the materialisation of social and political processes, including the appropriation of knowledge.

4.4. Visibility

As media, maps represent territories and people and can thus be instruments of power, as they can be employed as tools for (in)visibility. Indigenous Peoples in Latin America have for centuries been the object of this representational power exerted first by colonisers and then by the state. It is noteworthy that most maps in mainstream Brazilian schoolbooks do not usually show Indigenous reservations or territories. In this context, the collectives involved in Indigenous Emergency, faced with a crisis in which invisibility became particularly harmful, engaged in counter-mapping practices to mitigate the consequences of the pandemic through the visibility that they expected to gain. For instance, Luis pointed out in the interview that official contagion numbers were largely underreporting contagion among Indigenous populations. With the maps, the organisations aimed at different scales of visibility—self-visibility, national visibility, and international visibility. In the previous section, we addressed how counter-mapping as a practice and the maps as artefacts were important for the communities to learn and understand how the pandemic affected them and how data was used as a tool to demand action from the state and public authorities. But the information produced during Indigenous Emergency also had an international reach, as Elio points out:

> We managed to show to certain parts of the world what was happening; it was not limited to organisations or Indigenous Peoples, or only within Brazil, but the whole world, or at least part of the world, became aware of what was happening, how Indigenous people were being treated. It helped us raise funds that we could then direct to Indigenous territories.

Nationally, the cartographic data and maps produced by Indigenous Emergency also attracted the attention of the press. The partnership with researchers and civil society organisations strengthened Indigenous Emergency's legitimacy as a source, as Luis argues:

> We scored a cover feature in Valor Econômico…it is a newspaper that circulates in a sector with strong political power in the debate. They put Sonia Guajajara's picture, and I produced the text with a journalist specialised in environmental issues.

Regina corroborates this view:

> [APIB] started producing content in a very consistent way, one reason being that the press was seeking out [APIB] because they are the best-positioned Indigenous source, the main national organisation uniting the regional collectives, so they consistently provided data to the press, and the press were continuously contacting them.

In retrospect, he positively evaluates the outcome of the coverage: "I think that there was a strong sensitisation among Brazilian society to the problems caused by the pandemic among Indigenous populations. We felt it very strongly, and it reverberated in traditional media and through social networks."

Data driven counter-mapping practices can thus be understood within the framework of communicative citizenship (Mata, 2002, 2006) as collective communicative efforts to reclaim power over both communication tools—maps—and collective representation. Taken as a whole, the interviews show that among individuals with leadership positions within Indigenous collectives and allied organizations there is a

strong consciousness and acute understanding about the ways in which Indigenous communities are in general marginalized and were particularly vulnerable during the pandemic. This consciousness materialises in the processes that produce the maps as a hyper-representation of the territory in the sense that they have continuously shown unfolding relations between people and territories. Among these collectives, there is also robust accumulated knowledge about different aspects of communication—including strategies, technologies, and the relation between communication and politics, as well as a strong sensibility for collective demands and for the importance of Indigenous Peoples in questions that have a much broader social impact, such as the climate crisis. As Elio explains:

> We need to show that we are citizens as any other citizen and that we are the foremost guardians of that which is going to guarantee our future in 50, 100 years—our natural resources, our forests—that are ever more coveted by developed countries who want to take away our resources. If we do not take care of Indigenous Peoples soon, we will not have fresh air to breathe, we will no longer have life, so we need to protect Indigenous populations in Brazil.

Elio's explanation resonates with Morley's (2009, p. 115) that even the latest technologies rely on material infrastructures to work. Further, we argue that the material infrastructures are supported by robust social structures that facilitated the circulation of the data that made the maps possible.

In Jorge Luis Borges's short tale *On the Exactitude of Science*, the Argentinian author tells the reader about a map so exact and faithful to the space represented that it lost its informational use and became a ruin. Conversely, Indigenous counter-mapping initiatives became useful artefacts precisely because of the socio-political relations that underpin their making. Instead of becoming a decaying ruin, they represented the context-rich and dense interconnection between communities and the territories where they live. During the pandemic (and beyond), these maps were produced through resistant communicative processes that disrupted the logics through which Indigenous Peoples were objects of data and documentation that served a particularly hostile government.

5. Concluding Discussion

Data-driven cartographic representations of varied data points plotted on maps were an important communication tool during the Covid-19 pandemic between 2020 and 2022. Jeppesen and Sartoretto (2023) argue that the hegemonic maps widely circulated through varied media failed to show the inequalities and vulnerabilities among marginalised groups. Our study demonstrates that Indigenous collectives in Brazil, foregrounded by a decade's long history of political mobilisation, were quickly aware of the failures in official data mapping the pandemic, and consequently, of their territorial and social invisibilization in official cartographic representations of the pandemic. This account adds to the body of research on Indigenous cartographies and counter-mapping worldwide, including Canada (Hunt & Stevenson, 2016; Lowan-Trudeau, 2021), Colombia (Oslender, 2021), and Australia (Syme, 2020), contributing to a conceptualisation of the communicative aspects of counter-hegemonic mapping practices. Our study adds nuance to current discussions on Indigenous communication in general and Indigenous counter-mapping in particular by providing a snapshot of the exceptional pandemic scenario coupled with an openly hostile extremist government. During the pandemic, counter-mapping was mobilised by Indigenous Peoples in Brazil as a crisis communication strategy worthy of attention in similar (and imminent) crisis situations.

Furthermore, the study highlights that it is impossible to dislocate data-driven counter-mapping practices from Indigenous resistance and from the dynamics of collective action within Indigenous collectives and communities. However, it is possible to partially relate the intense focus on data-driven counter-mapping that culminated in the Indigenous Emergency initiative to the exceptional historical moment of Jair Bolsonaro's government as a stark antagonist to Indigenous Peoples and their collectives. It is also worth noting that the rapid and effective mobilisation made use of strategic collaborations with other civil society organisations such as media collectives and research institutes.

The interviews articulate a collective understanding that access to technology and the adoption of new technologies are not an end but are a means to achieve visibility at different scales (within the communities, nationally, and internationally) and legitimate demands for political representation. In this process, political articulation and consciousness precede and condition technological appropriation, in which data combined with cartographic knowledge and representation becomes an instrument for political struggle. In this sense, the collective appropriation of technologies and the political awareness among Indigenous collectives and leadership play an important role in avoiding a Faustian bargain. For the collectives involved in Indigenous Emergency, it is not the technologies but the association between an oppressive state and corporate power that poses threats to their livelihoods.

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Conflict of Interests

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About the Authors

Paola Sartoretto is an associate professor in media and communication at the School of Education and Communication, Jönköping University, Sweden, and the director of the international MSSc Sustainable Communication. Dr Sartoretto has published extensively on media activism and communication rights in English and Portuguese.

Luana Martins is a graduate student in communication at the University of São Paulo (USP). In 2022, she participated in MITACS Globalink in Canada, researching data journalism. Martins completed a scientific initiation grant funded by CNPq (Brazilian National Research Agency—Conselho Nacional de Pesquisa) and has worked as a journalist and marketing assistant since 2023.

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ARTICLE

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The Right not to Drown: Data Visualisation in Contemporary Art

Anna Sejbæk Torp-Pedersen

Department of Art History, KU Leuven, Belgium

Correspondence: Anna Sejbæk Torp-Pedersen (anna.sejbaektorp-pedersen@kuleuven.be)

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Abstract

Counter-mapping and counter-data visualisation are employed by artists to reframe migration narratives, often focusing on retracing the journeys of migrants. However, the maps of those who never made it have not received the same attention. This article examines three artistic visualisations that address infographics of people who have died or disappeared in the Mediterranean. The Mediterranean has been described as a stage for necropolitics; it is both the deadliest border and the most visualised migration route to the EU. In *Mapping Global Refugee Migration and Displacement* (2015–), Tiffany Chung uses data to map migration routes and deaths in the Mediterranean. Her hand-drawn maps, marked with colourful dots representing lives lost, lack a key, rendering the visualisation deliberately ambiguous. In *Those Who Did Not Cross 2005–2015* (2017), Levi Westerveld places a red dot for each person who died while attempting to cross the Mediterranean. Finally, in *Nautical Charts of Sunken Boats* (2021), Mathieu Pernot recontextualises historical maps of the Mediterranean by inscribing migrant shipwrecks on them that he read about in the paper. The handwritten annotations are often difficult to read. Each artist traces the ongoing catastrophe of death at sea through maps, questioning the role that cartography and data visualisation play in the documentation of mass loss. Through "The Right Not to Drown," as introduced by Hilde Van Gelder, this article explores what justice and resistance look like when the dead are memorialised through maps of Mediterranean deaths.

Keywords

contemporary art; counter-mapping; Mediterranean; migration

1. Introduction

This article examines how three contemporary artworks map the catastrophe of maritime deaths in the Mediterranean and asks how such maps might function as claims to rights. Levi Westerveld marks where people drowned in the Mediterranean with red dots in *Those Who Did Not Cross (2005–2015)* (2017). In the

project *Mapping Global Refugee Migration and Displacement* (2015–), Tiffany Chung employs existing data visualisation to map migration routes and maritime fatalities in the Mediterranean. On her hand-drawn maps, colourful dots represent both migration and lives lost, but the consistently incomplete legends render the visualisation unclear. Finally, in *Nautical Charts of Sunken Boats* (2021), Mathieu Pernot inscribes contemporary shipwrecks on historical maps of the Mediterranean that he identified through newspaper reports. Whether hand-drawn, digital, or repurposed, each artist references infographics to trace the ongoing loss of life at sea. They draw attention to how data visualisation has become a key chronicler of death at sea.

Many readers may already be familiar with the Missing Migrants Project's online map, operated by the International Organization of Migration (IOM). The map of the Mediterranean documents incidents of death or disappearance with large yellow circles, particularly along its southern coasts. Each mark on this map refers not only to deceased persons but also to the many bereaved who lack certainty on the fate of their loved ones (Moon, 2014; Olivieri et al., 2018). Since 2014, IOM has kept a record of lost lives. They have counted 32,000 individuals but speculate that the number is likely higher (IOM, 2025). Other initiatives that have tracked fatalities since the early 1990s dispute IOM's figures, contending instead that the number exceeds 66,000 (Del Grande, n.d.; The Migrants' Files, 2016; UNITED for Intercultural Action, 2025). The discrepancies highlight that any attempt to count maritime deaths of people on the move is a contentious and political undertaking.

In the heavily-surveilled Mediterranean, mass drownings result from low-tech inefficiencies, bureaucratic failures of communication, and systematic disregard for international law (Casas-Cortes et al., 2017; Lo Presti, 2019; Tazzioli, 2015b, 2016). The European Union's (EU) maritime border regime, operated by the border agency Frontex and various national coastguards, presents its work as humanitarian, yet it never accounts for how it produces the very conditions that kill people on the move (Heller & Pezzani, 2020; Heller et al., 2017). Rather than contributing to the rich scholarship outlining these circumstances, this article examines how contemporary artists have transformed infographics of deaths in the Mediterranean. Their maps do not follow academic protocols for data collection. Instead, they embrace obscurity, ambiguity, and the creative manipulation of map conventions. How such maps might foster empathy or mourning has been explored in recent scholarship (Lo Presti, 2019, 2020). This article focuses instead on how the artists stage accountability.

In light of this, I employ recent literature in art history that considers images as possible claims to rights (Azoulay, 2015, 2019; Maimon, 2021; Van Gelder, 2021b, 2024). Responding to this framework, the article asks: How do the artworks of Levi Westerveld, Tiffany Chung, and Mathieu Pernot function as demands for rights? Addressing this question requires several theoretical steps. First, I demonstrate how critical writing on mapping often already gestures towards a framework of rights. Second, I expand on the art history literature that theorises images as claims. Finally, I turn to the artworks themselves to test how a map might demand justice through visual analysis and comparison. As part of this thematic issue on Counter Data Mapping as Communicative Practices of Resistance, I argue that these works do not operate within traditions of "mapping back" or of producing additional information in an already saturated field. Instead, they might evoke what has been described as "The Right not to Drown" (Van Gelder, 2024).

2. Rights Claims With Images

2.1. How to Claim Rights With Maps

Counter-mapping is generally considered to be a critique of the assumptions a map can propose: nation-states, stable communities, or the size of continents (Boatcă, 2021; Crampton & Krygier, 2006; Wainwright & Bryan, 2009). This overview does not provide a general study on the rich field of counter-mapping; rather, I will introduce how counter-mapping was first inextricably tied to rights claims. Nancy Lee Peluso coined the term when she analysed two mapping projects in Indonesia which sought to establish and visualise Indigenous peoples' ancestral claim to land (Lee Peluso, 1995). The intention was for these maps to be used in a specific legal case. However, Lee Peluso reflects that these maps transform the claim and its presentation "from rights in trees, wildlife, or forest products to rights in land" (Lee Peluso, 1995, p. 388). Thus, maps might depict with the potential to protect ancestral claims but in doing so fail to offer a depiction which mirrors the specific use and comprehension of land. Moreover, this kind of documentation of Indigenous peoples' presence might never become a "science of the masses" (Lee Peluso, 1995, p. 387). A map rigorous enough to challenge a state-made map demands resources which are not widely available. Additionally, counter-mapping can erode the legitimacy of state maps, but in doing so it may also reproduce the cartographic language of the state rather than question it.

Later writings on counter-mapping for land rights expand on Lee Peluso's concerns that counter-mapping can be counter-productive (Harris & Hazen, 2015; Hodgson & Schroeder, 2002; Walker & Peters, 2001), yet the focus on the efficacy of maps as claims to rights decreased. Maps continue to form a part of activist work, and several publications have gathered key examples, namely *An Atlas of Radical* Cartography (2008) and *This Is Not an Atlas* (2018). In the former, Lize Mogel and Alexis Bhagat define "radical cartography" as "the practice of mapmaking that subverts conventional notions in order to actively promote social change" (Mogel & Bhagat, 2010, p. 6). The contributions range from artistic interventions to academic examinations of maps. Ten years after *An Atlas of Radical Cartography*, 40 different map-making projects were gathered in *This Is Not an Atlas* by kollektiv orangotango. In the introductory essay, André Mesquita defines "counter-cartographies" as follows:

> [A] break with the scientific tradition and specialization of cartography as well as with its mere technical or essentially positivist view of the world….With an anti-capitalist orientation, one of the aims of counter-maps is to make obscure and established powers more perceptible in order to confront them. (Mesquita, 2018, p. 26)

Mogel, Bhagat, and Mesquita promote the capacity of maps to envision social change but they no longer consider them part of legal cases.

Practices of counter-mapping migration return to the focus on rights because "mapping practices not only represent migration flows but play a key role within both the advocacy for and enactment of freedom of movement and its denial through practices of control" (Casas-Cortes et al., 2017, p. 3). For example, counter-maps of migration include "route maps" that are used by people on the move to navigate or propose possible itineraries. Simultaneously, the aim of the EU's mapping apparatus is to stop the very route that people travel along. Therefore, "route maps" have become the logic of border enforcement. In fact, Europol, the EU's intelligence agency, and Frontex utilise mapping to target people on the move far beyond the EU's

boundaries (Cobarrubias, 2009, p. 298). Sebastian Cobarrubias analyses how the surveillance technologies employed, including maps such as the i-Map, produce illegality (Cobarrubias, 2019). The i-Map is a real-time mapping of the flows towards the EU "based on controlling flows rather than (or in addition to) hardening lines" (Casas-Cortes et al., 2017, p. 11). Cobarrubias concludes that the route maps assume the "illegality" of the person on the move from the moment they leave their home (Cobarrubias, 2019). This supports existing literature present in visual studies, which argues that people are "illegalized" through images (Bischoff et al., 2010, p. 8). People's right to move is asserted, imagined, and hindered in a dynamic politics of mapping.

The following example, Forensic Oceanography's video *Liquid Traces: The Left-to-Die-Boat* (2012a), maps migration to prove a transgression of international law in court. The work reconstructs how people were left to drift in the Mediterranean for almost two weeks without the activation of a search and rescue (SAR) operation (Figure 1). In this regard, *Liquid Traces* describes the many people who decided to cross the Mediterranean as seizing "their freedom to move" (Forensic Oceanography, 2012a, 00:01:16). Of the 72 people who embarked on a rubber vessel near Tripoli on 27 March 2011, nine survived. The piece illustrates the necropolitics of Western organisations, capturing how people are "let die" through inaction (Gržinić, 2018; Lo Presti, 2019; Mbembe, 2019). Necropolitics describes more generally how sovereign powers can determine who dies and who lives (Mbembe, 2019). The "disobedient gaze" of *Liquid Traces* subverted surveillance technology to shed light on the deadly EU border regime, which dictated a death sentence through neglect (Casas-Cortes et al., 2017). The video was used in several legal cases (Forensic Oceanography, 2012b). It has also been followed by several other investigations of obstructed rescue missions, illegal pushbacks, and the EU outsourcing of border enforcement (Forensic Oceanography, 2015, 2017). In every case, a map is used to frame culpability by insisting on jurisdictional borders and obligations within the existing legal framework.

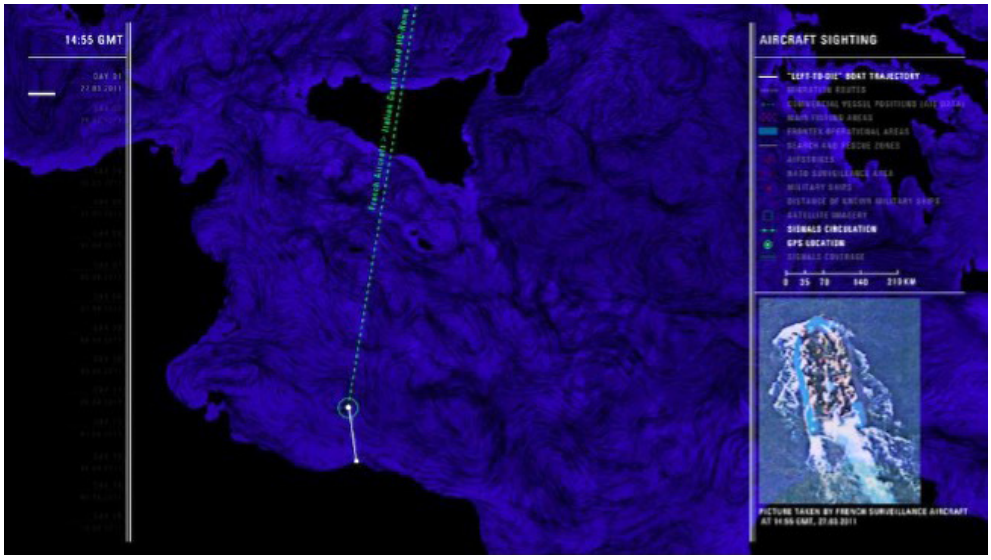

Figure 1. Forensic Oceanography, *Liquid Traces: The Left to Die Boat*, 2012, 17:59.

Liquid Traces echoes the initiatives Lee Peluso describes when she introduced counter-mapping. This same critique also applies here: The research efforts, technical skills, and resources are way beyond what a non-specialised person or community can manage. Counter-mapping might also reduce an issue—in this case, migration—to a matter of territory. When maps must be legally effective, counter-mapping remains an

inaccessible tool and fatal human rights violations are presented as an issue of jurisdiction. Regardless, Forensic Architecture and Forensic Oceanography have been instrumental in proving the disregard for human lives operated and funded by the EU. Boundaries, physical or financial, are still "one of the most contentious aspects of the cartographic-legal strategy" (Wainwright & Bryan, 2009, p. 163).

Nonetheless, scholars have defined another way to claim rights with maps. It emerged again within the field of counter-mapping. According to Martina Tazzioli and Glenda Garelli, "a counter-mapping approach does not consist in unveiling the secrecy of state's [sic] operations, nor in embracing a neo-positivist approach and proving evidence of the state's violations of the international law" (Tazzioli & Garelli, 2019, p. 7). Defined in the negative, a counter-mapping approach is not "more of visibility, more of knowledge, more of evidence" (Tazzioli & Garelli, 2019, p. 9), a "perspective from below" (Tazzioli, 2023, p. 5), nor a question of how to represent or not represent migration (Tazzioli, 2015b, pp. 4–5). Rather, counter-mapping is both a deconstruction and construction that builds "new and different constellations of political and historical connection" (Tazzioli & Garelli, 2019, p. 9). In the case of migration, Tazzioli proposes counter-mapping as a research method which draws attention to how people on the move exceed systemic control and claim their rights through disobedience. Tazzioli contemplates rights as something to be interpreted from people's struggles. Protests and refusals by people on the move in the EU promote "the image of a European space of free movements not grounded on citizenship but on spatial presence" (Tazzioli, 2015b, p. 12). In a later article, she formulates a right to European asylum with the subheading reading: "Instead of asking what's 'fair' for states, let's ask what's just for asylum seekers" (Tazzioli & Stierl, 2023). This method interprets rights not from the existing set of laws, but from people's practices of freedom.

Counter-mapping, as introduced in academia, was a way to claim rights through legal systems. In matters of migration, Forensic Oceanography is amongst the initiatives that function within the original way of pursuing rights with maps. Tazzioli speculates that such a method might be a straitjacket which does not allow for other imaginations of the justice system or recognise people's freedoms. My survey of how people envisage rights being claimed through maps highlights that maps can be used to present evidence of legal violations and to interpret resistance as proposals for rights.

2.2. How to Make a Visual Declaration of Rights

Scholars in the field of art history have also addressed the capacity of images to claim rights or preserve freedom. Historian, photography scholar, and artist Ariella Aïsha Azoulay posits that certain combinations of images can be conceived as a "Visual Declaration of Human Rights" (Azoulay, 2015). Her book, *The Civil Contract of Photography* (2008), insists that photography evokes rights through a set of relations between the photographer, the photographed, and the camera. Together, they form a contract in which citizenship is not granted by the state but by the ethical spectator and the photographed person who claims it. They recognise that citizenship is a common property, mediated by the common property of the photograph. Azoulay writes that "citizenship should become a matter of topographical location, a property allocated equally to everyone as each is entitled to it by virtue of their presence in the governed territory" (Azoulay, 2008, p. 78). Citizenship is claimed by presence, paralleling Martina Tazzioli and Glenda Garelli's proposal that counter-mapping should view the right to settle as that which is enacted by presence. Azoulay played a part in shifting the conversation on photography away from the emotional economy of empathy, outrage, or solidarity to rights, citizenship, and obligations.

In *Ground Sea: Photography and the Right to Be Reborn* (2021), art researcher Hilde Van Gelder proposes that photographs advance "The Right to Be Reborn" and "The Right to Reappear," pleading for a non-imperial judicial system which allows people to become part of new communities. The book spans artworks, legal architecture, and cultural geography on migration across the Strait of Dover and Calais, showing how the strait is crossable and interwoven with histories of migration. As a later appendix to this work, she created *Thirty-Three Blueprints for the Right not to Drown* (2023) and a letter to a fictional art critic (Van Gelder, 2024; see Figure 2). On 24 November 2021, 27 people drowned, four disappeared, and two people survived when their rubber dinghy sank in the English Channel. The blueprints were a response to this event and comprise three sets of 11 cyanotypes, one for each of the drowned people, those who disappeared, and the two survivors. In the accompanying letter, Van Gelder outlines the French track record of refusing to uphold the obligation to save lives at sea. Despite several emergency calls, the poor communication between the French and the British rescue services, topped by a "moral deficit," meant that they were left to drown. The Right not to Drown, a right invented by Van Gelder, references both the Right to Life and the duty to rescue people in distress at sea. The former is a human right, the second a rule from the international law of the sea, maritime law, and international humanitarian law (Papanicolopulu, 2016). Following Van Gelder, I consider the Right not to Drown as straddling those into one non-imperial right. Similar to The Right to Be Reborn and The Right to Reappear, the Right not to Drown calls for creating the conditions where these disabled existing rights and duties can be re-activated within a shared worldly condition instead of an imperial one (Van Gelder, 2021b).

Figure 2. Hilde Van Gelder, *Thirty-Three Blueprints for the Right not to Drown*, 2023, cyanotypes, each measuring 29 × 39 cm.

Thirty-Three Blueprints for the Right not to Drown (2023) pairs images of Van Gelder's family, her own children who she taught to sail at a very young age, with a view of the French Cap Gris-Nez. The use of family photographs is significant. For art historian Vered Maimon, when family photographs are repurposed to insist on the right to life, they can uphold "a concept of universality as an unfulfilled collective claim and a site for contestation, rather than as an ideological norm that masks conflict and repression"(Maimon, 2021,

p. 121). In her book, *Contemporary Art, Photography, and the Politics of Citizenship*, Maimon identifies a move away from the politics of representation to a "politics of rights" in depictions of vulnerable populations. Van Gelder's use of photography as a promoter of rights mirrors this view of the medium, though, of course, her subject matter is entirely different. She underlines the difference between the subjects depicted, EU citizens who would likely be rescued by a SAR operation, and the people to whom the photographs refer: those who were left to drown. Van Gelder conceptualises the Right not to Drown as a necessary right to be claimed, as it is already implicitly accessible to her kin.

The sequence of blueprints exemplifies what Azoulay would likely refer to as a "Visual Declaration of Rights." Azoulay created such a declaration in an exhibition by combining two series of photographs. In the accompanying text, Azoulay explains that a declaration is a montage of comparisons which can never have a sole author (Azoulay, 2015). In the exhibition, one series depicts protests from the 1930s–1950s in which people mobilised against the emerging world order that sought to oppress them. The other series consists of images of "lovers" appropriated from the 1955 exhibition *The Family of Man*. The combination of images of intimate relationships and public protest captures rights as relational: imagined and negotiated before they formally exist. Again, rights have world-building capacities and make certain political constellations possible. They are not necessarily taken from an existing legal architecture and applied. The shift away from issues of representation suggests the importance of reviewing the potential of images as part of rights projects.

The visual declaration that Azoulay and Van Gelder develop employs the logic of montage. Montage works by holding together opposing views, forming a process of juxtaposition and comparison. Véronica Tello analyses the growing literature on art on migration by citing T. J. Demos, Mieke Bal, Nikos Papastergiadis, Angela Melitopoulos, and Jill Bennett (Bennett, 2012; Demos, 2013; Melitopoulos, 2007; Papastergiadis, 2000; Tello, 2016). For Tello, the common denominator in all of these is "the nexus of montage and the aesthetics of exile and migration" (Tello, 2016, p. 31). Demos reads documentary works alongside Giorgio Agamben's concept of "bare life," a condition in which individuals are deprived of political representation by a sovereign power (Agamben, 1998; Demos, 2013). Bal and Miguel Á. Hernández-Navarro collect texts on how art acts as "little resistances" against nationalist narratives and differential rights to movement (Bal & Hernández-Navarro, 2012). Collectively, these theorists analyse artistic practices that employ montage to create disorienting encounters with experiences of migration, thus opening a space that disrupts the divide between "citizen, refugee, migrant" (Tello, 2016, p. 33). By contrast, Azoulay and Van Gelder mobilise montage explicitly in relation to rights.

Additionally, Van Gelder's blueprints and the Right not to Drown are a critical response to the kind of images of migration which artists have been lauded for (Van Gelder, 2024). Such works, rewarded by jury prizes and large-scale exhibitions, reinforce a hyper-visibility that fixes people on the move as disenfranchised victims of circumstance, whilst leaving obscured the systemic injustices that directly structure and produce their conditions. In the 33 blueprints, Van Gelder leaves the two prints that refer to those who survived blurry as an attempt to resist the tendency towards hyper-visibility. In fact, Van Gelder encourages the idea of "weak images," which are unspectacular images that resist aestheticisation (Van Gelder, 2021a, 2021b). Her 33 blueprints may be understood in this register, shifting attention away from representational spectacle towards a contemplation of who has access to rights and who does not. These questions are ethical, yet a key factor in contemporary art is ethics (Demos, 2013). That focus is echoed in contemporary literature on how to use maps to create infographics on migration (Adams, 2020; Bacon et al., 2016; Bueno

Lacy & van Houtum, 2015; Cobarrubias, 2019; van Houtum, 2024; van Houtum & Bueno Lacy, 2019; van Houtum & Bueno Lacy, 2020). The attention towards the maps of death, however, has been more disparate, and so have the ethical concerns (Heller & Pécoud, 2020). That is the gap that this article addresses, although many more considerations are needed, academic or not.

In conclusion, several art historians have recognised the potential of images to be used as rights claims. Azoulay illustrates that rights are claimed, imagined, and fought for. Maimon underlines that disagreement is central to any claim as it protests the unequal distribution of rights. Van Gelder mobilises repetition, comparison, and disjunction as strategies of rights-claiming. When considered alongside prior discussions of mapping practices, both differences and similarities become evident. A parallel can be drawn between the conceptions of rights advanced by Azoulay, Maimon, and Van Gelder on the one hand, and those articulated by Martina Tazzioli and Glenda Garelli on the other. Rights emerge from protests and contestations, or from events of injustice that galvanise claims not yet codified in law. Unlike Forensic Oceanography or the mapping projects analysed by Nancy Lee Peluso, these practices do not require high-tech map-making, nor will they be used in a court of law. Such a conception has limits in terms of pursuing justice short term, but perhaps it marks a cultural shift in promoting a perception of rights as a shared commons recognised by a growing community of cultural practitioners, academics, and activists.

3. Case Studies

The Right not to Drown is particularly significant in this context as it engages with artists' map-based infographics of deaths in the Mediterranean. Whereas the preceding examples involved artists, mapmakers, and academics explicitly making claims to rights, the works I examine were not created with that intention. The artists' infographics challenge conventional statistical representation: They neither enumerate the dead nor provide a clear legend. They might be understood in the register addressed above as not representational but as rights claims. Therefore, I return to the guiding question now situated within a more robust theoretical framework: How do the artworks of Levi Westerveld, Tiffany Chung, and Mathieu Pernot function as demands for rights? The following exploration outlines the works as well as explaining different ways of counting the dead, which have informed the format of their work.

3.1. Those Who Did Not Cross 2005–2015 (Levi Westerveld, 2017)

Artist and map-maker Levi Westerveld explains that "maps are one of the few languages we have to communicate the scale and the complexity of some of the most important issues we face" (TEDx Talks, 2024). He cites his map, *Those Who Did Not Cross 2005–2015* (2017), as representing deaths and disappearances in the Mediterranean using data from The Migrants' Files (Figure 3). The map delineates the three principal Mediterranean migration routes—the Western (Morocco, Algeria), Central (Tunisia, Libya), and Eastern (Turkey)—with red dots marking fatal events. In a few instances, a brief annotation specifies the number of deaths and, at times, the circumstances. A brief text on the left side explains that more than 16,000 people have died and that the exploitative methods of human smugglers are partially to blame.

Westerveld sought to produce an emotionally charged data visualisation. He argues that although the public is aware of the Mediterranean fatalities, there is a lack of emotional resonance. By employing a conic projection, Westerveld excludes most of Libya and Egypt while incorporating Turkey, thereby centring the three primary

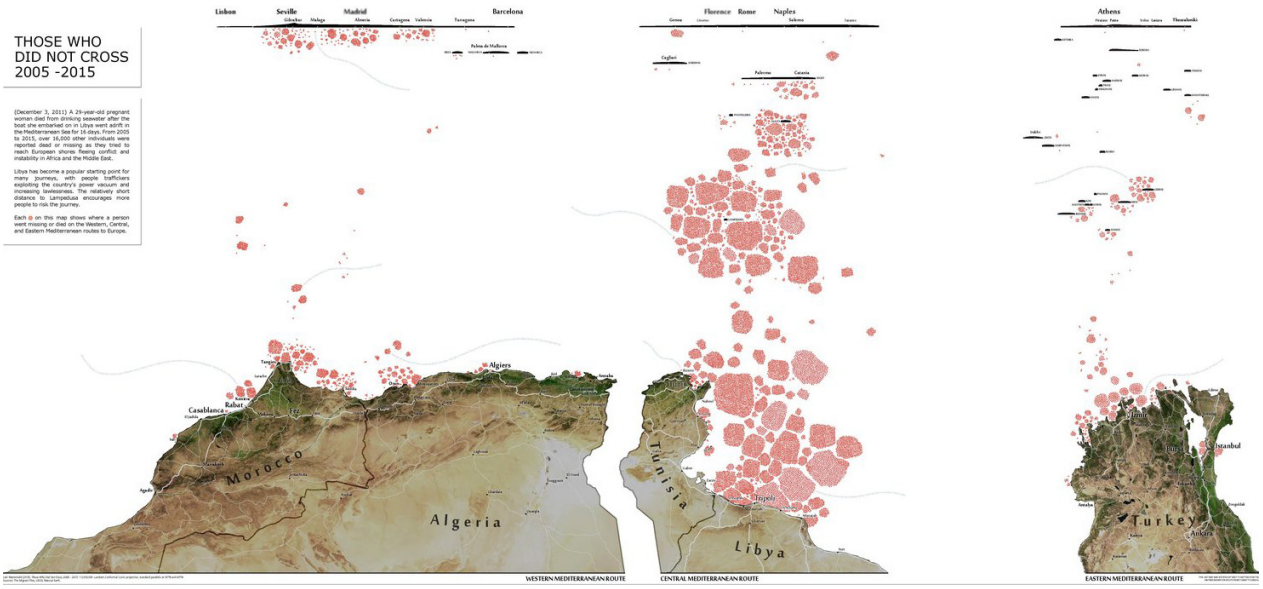

Figure 3. Levi Westerveld, *Those Who Did Not Cross 2005–2015* (https://www.visionscarto.net/those-who-did-not-cross), 2017, digital map.

maritime migration routes. For instance, one note states, "Shipwreck in Izmir on the route to the Greek island of Chios. 50 bodies recovered. 29 missing in sea," whilst another records, "Recovered off the Island of Lesbos corpses of drowned 6, including 3 children. All were wearing life vests." The scarcity of descriptors is intended to invite viewers to imagine the unrecorded circumstances of the remaining fatalities. Because it is an online image, viewers can interact with the landscape of death in a way which might engage an emotional response. Scholars have cited Westerveld's visualisation as foregrounding loss and evoking empathy (Cheshire, 2022; Gomis, 2022; Lo Presti, 2020; van Houtum, 2024).

The source material derives from The Migrants' Files, which published its first list of migrant deaths in 2014. This project combined two existing activist lists of maritime deaths: UNITED for Intercultural Action, which has collected newspaper reports of border deaths since 1993; and Fortress Europe, a blog run by Gabriele Del Grande that compiled news articles and accounts of Mediterranean deaths beginning in 1988. The Migrants' Files ceased giving updates in 2016, shortly after the IOM launched its own data collection initiative in 2014 under mounting political pressure. This initiative has since been criticised for its data collection methodologies (Heller & Pécoud, 2020; Tazzioli, 2015a). Although The Migrants' Files consolidated and verified the activist lists, Westerveld's map does not indicate the number of deaths, nor are the locations of the drownings precise. The liberties taken underscore his challenge to the foundational functions of infographics, particularly data visualisations' association with precision and objectivity.

Geographer Laura Lo Presti argues that maps of deaths in the Mediterranean expose violence: "This corroded, numerical, and dotted choreography uncovers an inhuman, unjust, but nonetheless real geography of necropower that would otherwise remain buried under the seabed" (Lo Presti, 2020). The term "necropower" derives from Achille Mbembe's concept of necropolitics, which designates the sovereign power to decide who may live and who must die (Mbembe, 2019). Nonetheless, such an exposure of necropolitical structures is not self-evident in *Those Who Did Not Cross 2005–2015*. Westerveld's map remains largely silent on the specific circumstances of death. For example, the text frames human smugglers

as the culprits whilst remaining silent on how border structures produce such an environment. This silence is also reflected in the archive on which the map is based. Ultimately, the list by The Migrants' Files records little more than the encounter of the dead with the EU's border regime. This record-keeping was crucial for tracing the EU's complacency and culpability, yet this critical dimension is largely effaced in Westerveld's visualisation, which privileges affective impact over political critique.

For comparison, map-maker and artist Nicolas Lambert used UNITED for Intercultural Action's List of Refugee Deaths and The Migrants' Files to create *The Migratory Red Mound (1993–2015)* (2015; see Figure 4). It resembles an elevation map in which deaths rise as peaks. This is one map in a series of mapping experiments Lambert has undertaken. He encountered the same lack of locational data as Westerveld, but solved this by placing the dead alongside the external EU border. The deaths visualise the walls of "Fortress Europe." Lambert shows what the numbers demonstrate: "Death by Policy" (UNITED for Intercultural Action, 2015). A longer discussion could outline how effective that visualisation is, but nonetheless, in comparison, *Those Who Did Not Cross 2005–2015* lacks a perpetrator. It represents an effort to produce humane data visualisation that renders lives "grievable" (Butler, 2016). The emphasis on mourning might also risk reducing political solidarity to sentiment (Ahmed, 2014; Berlant, 2011; Maimon, 2021). Moreover, emotions are historically mediated rather than spontaneous, and the absence of sustained outrage at deaths in the Mediterranean must be understood in relation to enduring colonial attitudes (Danewid et al., 2021). Nonetheless, none of these dynamics are made explicit in *Those Who Did Not Cross 2005–2015*.

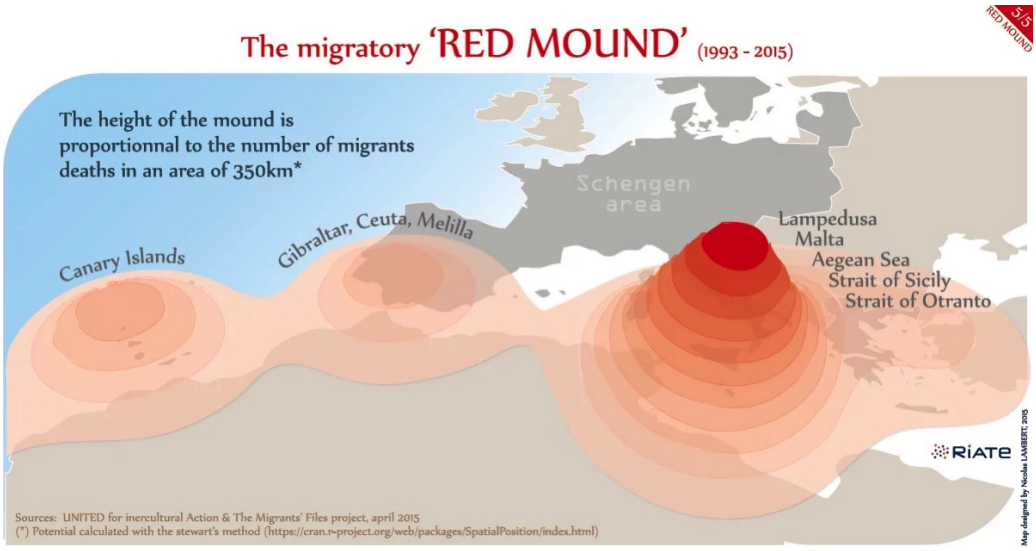

Figure 4. Nicolas Lambert, *The Migratory Red Mound (1993–2015)*, 2015, digital map.

Returning to the theoretical framework, projects such as those by Forensic Oceanography or Hilde Van Gelder foreground the systems of power that enable death at sea. By contrast, in Westerveld's map, deaths appear decontextualised without these power structures being rendered tangible. As Azoulay argues, representing certain groups as "injured populations" risks normalising disaster: "The disaster that strikes such groups is conceived as part of the routine, not as an exceptional event, and the situation is emptied of any dimension of urgency" (Azoulay, 2008, p. 34). Although emotionally affective, the map risks eliding the urgency of the crime it seeks to represent.

Unlike Van Gelder's blueprints, which mobilise disjunction as a strategy, or Forensic Oceanography's collection of evidence, Westerveld's visualisation does not invite critical analysis; it generates little conflict or dissonance. Within the discourse of rights, images may function either to assert jurisdiction by outlining culpability, or to contribute to world-building imaginaries. Westerveld's map does neither and thus falls short of constituting a rights claim or asserting the Right not to Drown.

3.2. Mapping Global Refugee Migration and Displacement (Tiffany Chung, 2015–)

The question of how a map functions as a claim becomes clearer in the next case study. In Tiffany Chung's map project, *Mapping Global Refugee Migration and Displacement* (2015–), of the 13 maps that are part of it, four depict deaths in the Mediterranean, whilst the others track conflicts, climate disasters, and displacement, collectively constructing a complex picture of why, how, and where people move. From Chung's long-term research projects, such as the *Vietnam Exodus Project* (2015–) and the detailed maps *The Syria Project: Tracking Conflict and Displacement* (2015–), Chung's oeuvre constitutes an ongoing record of displaced populations. This section's discussion focuses on two of her Mediterranean maps, which represent only a small portion of her broader project. Both maps are copies of other maps and datasets which Chung compiles. The titles function as bibliographies, and legends are often included; however, many visual indicators remain unexplained and numerical data is absent.

On *NYT, UNHCR, IOM Missing Migrants Project: Numbers of Arrivals in Europe, Dead and Missing in the Mediterranean* (2017; see Figure 5), the Mediterranean appears densely populated with colourful spots, reminiscent of organisms under a microscope. The outline of Europe, Turkey, and the northern coast of Morocco is visible on the blue map. An ornate green pattern extends across southern Italy, Greece, Spain,

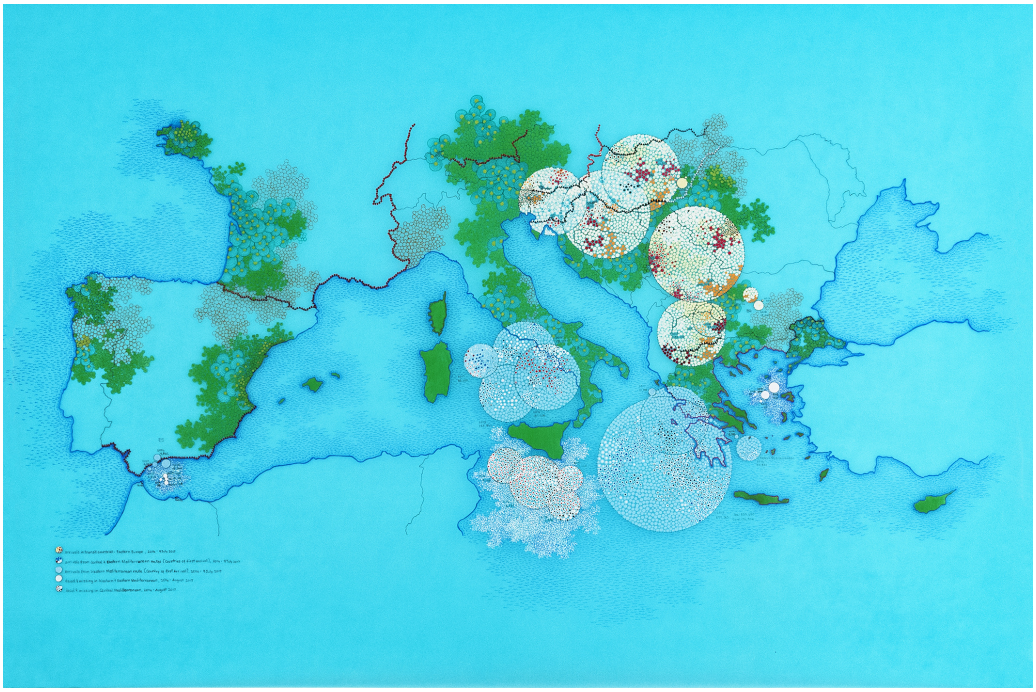

Figure 5. Tiffany Chung, *NYT, UNHCR, IOM Missing Migrants Project: Numbers of Arrivals in Europe, Dead and Missing in the Mediterranean*, 2017, ink and oil on vellum and paper, 72 × 91.6 cm.

and Portugal, marking patterns of arrivals. In eastern and southern Europe, large circles border areas perforated by small white markings. The handwritten grey legend is difficult to decipher: blue, yellow, and red dots indicate arrivals from 2014 to 2017, whilst black dots denote fatalities or missing persons.

The next map, *IOM Missing Migrants Project*, *EUROSTAT*, *FRONTEX*, *RAUL Analytics*, *ECHO: SAR Zones*, *Rescue Operations by Date*, *Numbers of Dead and Missing in the Mediterranean*, focuses on Libya's coast (Figure 6). Black lines demarcate SAR zones in international waters, whilst a green dotted line indicates the boundary of Triton, an EU Frontex-led operation. Various dots populate the waters: White circles denote fatalities and missing persons, whilst the remaining dots represent SAR operations from 2014 to 2017. The highest number of dead and missing people lies just outside of the SAR zones along Tunisia's coast. Together, the lines and dots visualise the governance of the Mediterranean and the distribution of risk and protection between 2014 and 2017.

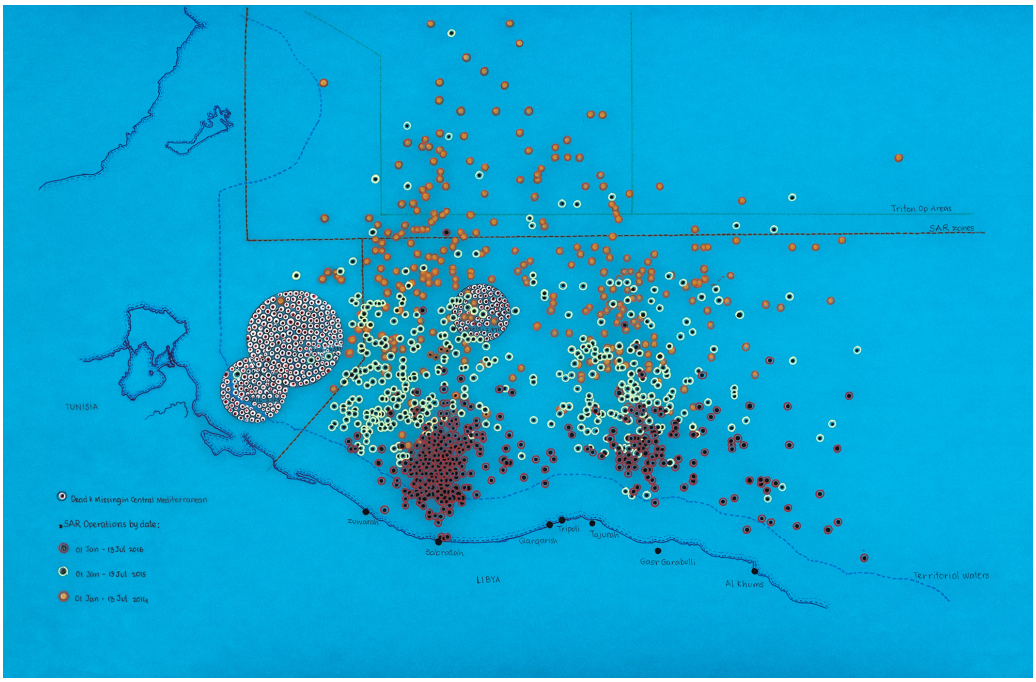

Figure 6. Tiffany Chung, *IOM Missing Migrants Project, EUROSTAT, FRONTEX, RAUL Analytics, ECHO: SAR Zones, Rescue Operations by Date, Numbers of Dead and Missing in the Mediterranean*, 2017, ink and oil on vellum and paper, 38 × 50 cm.

On *IOM Missing Migrants Project*, *EUROSTAT*, *FRONTEX*, *RAUL Analytics*, *ECHO*, the locations of rescue operations shift progressively southward each year. A *New York Times* article featuring a similar map attributes this southward movement to EU rescue efforts adapting after 2014 in order to save lives closer to Libya (Thompson & Singhvi, 2017). Bright orange dots indicate 2014 SAR operations, the final year of Mare Nostrum, an EU naval and air rescue operation which was subsequently replaced by Frontex's Triton operation with a smaller budget and a border zone located further north. With this limited border zone and only a third of Mare Nostrum's budget, Triton effectively increased the dangers of crossing ("Triton is no substitute," 2014). Green and dark red dots indicate 2015 and 2016 SAR operations, reflecting the emergence of NGO-led SAR efforts (Rodríguez Sánchez et al., 2023). Unlike the *New York Times* map, Chung also records deaths off Tunisia's coast, emphasising that people continue to cross regardless of the presence or absence of international SAR operations.

On *NYT*, *UNHCR*, *IOM Missing Migrants Project*, the dead and the living appear intermingled within the dense array of dots. The intentional confusion challenges the usual tacit legibility of a data visualisation. Chung includes a green pattern, which is unexplained in the legend, and extends across Italy and along the southern and northern coasts of France and Spain. The intricate ornamental pattern thickens around some borders and disperses on the other side. The Greek islands in the Aegean Sea are particularly green, a feature that can be read in light of the EU–Turkey deal of late 2016. The statement of cooperation between the EU and the Turkish government stipulated that anyone crossing without legal permission from Turkey to the Greek islands would be returned. It also declared that Turkey would ensure greater preventive measures. In return, Turkish nationals were promised visa-free travel within the EU; Turkey received funding to improve refugee welfare; and the EU agreed to accept one refugee for every person returned to Turkey ("Lesvos: Symbolic protest," 2017). The deal primarily affected people on the Aegean islands as Greek courts found that Turkey was not a safe country for most of the arriving individuals. Chung's colouring hints at the complex agreements that simultaneously limited the movement of one population while expanding the mobility of another.

The green pattern intersects zones of containment and deterrence implemented by state authorities. Thicker black lines denote the Turkey–Greece border, the Greece–North Macedonia border, and Hungary's border, representing fences erected during or after 2015. These barriers are shown to be ineffective as the green pattern continues to cross them. Additional enforced fences and temporary passport controls on France's and Austria's borders illustrate attempts to restrict movement within the Schengen Area. Through these visual cues, *NYT*, *UNHCR*, *IOM Missing Migrants Project* reveals policies attempting to contain movement that ultimately proved ineffective, reflecting ongoing assertions of people's right to mobility.

Chung's maps present fragments of a dynamic puzzle which resist a single authoritative reading. Chung underlines that it is about responsibility: "I want to encourage questioning, and I want to provide an entry point into the history that the audience might not have known, so that they will take on the responsibility to study the history themselves" (Sano, 2017). By combining IOM and Frontex data on deaths and crossings in ways neither organisation does, the maps critique official representations of migration while inviting new interpretation. Unexplained visual cues convey the persistent force of migration, and the bibliographical titles reference the structures of power shaping both movement and maritime fatalities. Often exhibited together, the maps could function as a "Visual Declaration of Rights," tracing how sea fatalities have been shaped by policies such as Frontex's Operation Triton and the EU–Turkey deal. While aligned with Forensic Oceanography in mapping jurisdictions, Chung resists these sources by leaving certain signs obscure and reinterpreting the data.

Using a visual language reminiscent of organic growth, the maps narrate complex and fatal journeys and challenge simplistic narratives of victimisation. Though demanding to read, they imply that migration continues despite the risk of death, asserting the Right not to Drown, or the Right to Life and Movement. Despite their ornate aesthetic, they function as what Hilde Van Gelder has termed "weak images," resisting conventional representation in favour of a nuanced and inventive imagining of otherwise (Van Gelder, 2021a, 2021b).

3.3. Nautical Charts of Sunken Boats (Mathieu Pernot, 2021)

Mathieu Pernot's book, *The Atlas of Motion* (2022), gathers together over a decade of his artworks on migration, focusing on people, their journeys, and the conditions they endure upon arrival in the EU. Several works are co-authored by people on the move and include photographs of the Moria Camp, violent Greek border crossings, makeshift refugee camps in Paris, and more. A recurring focus on the Mediterranean is evident throughout the book. For example, Marwan Sheik Albassatneh, a botanist, maps the evolution of trees across the Mediterranean and annotates pages from a botanical book with Mediterranean plants in Arabic (Figure 7), connecting shores through the movement of seeds. Pernot emphasises migration as a fundamental, universal act: "The sky, the sea, nature, people, everything is linked to the question of movement" (Boucheron et al., 2022, p. 326).

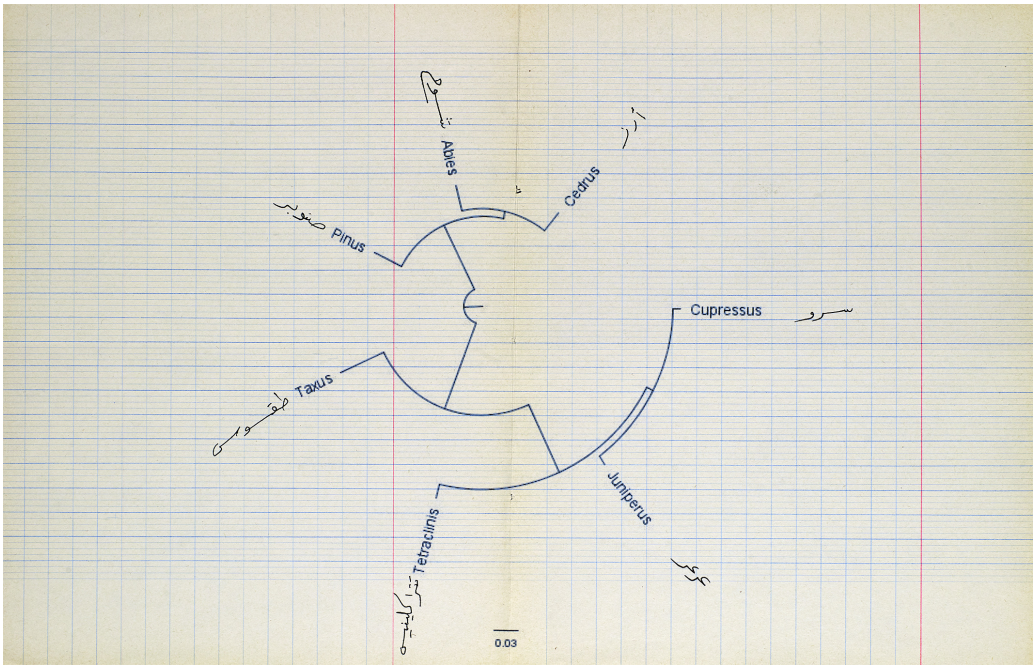

Figure 7. Mathieu Pernot, *In the Wild: Phylogenetic Trees of Mediterranean Forest Species Printed on Notebook Pages by Marwan Sheik Albassatneh*, 2018, pen on paper, dimensions unknown.

This focus on the Mediterranean is further explored in Pernot's map series, *Nautical Charts of Sunken Boats*. In *Entrée de la Méditerranée*, he transcribes newspaper records of sunken boats onto an archival chart (Figure 8), handwritten in pencil across the strait between Spain, Morocco, and Algeria, with each entry preceded by a date. Ten annotations mark locations of maritime fatalities. On another map, *Côte Septentrionale d'Afrique. Partie Comprise entre Zarzis et Tripoli*, he similarly records shipwrecks (Figure 9). I focus here on the nautical charts series to examine how it might constitute a claim to the Right not to Drown.

First, Pernot's handwritten annotations reflect the enormity of the task when he records only the shipwrecks he read about in newspapers. Second, these entries represent only a fraction of total deaths. The ambivalence and limitation of the function of the maps as data visualisation highlight the inherent difficulties of documenting Mediterranean fatalities. Pernot's method also mirrors the early ways activists tracked shipwrecks and deaths at sea, as seen in the UNITED for Intercultural Action and Fortress Europe databases, which were also based on news reports. Referred to as "counterstatistics," these methods

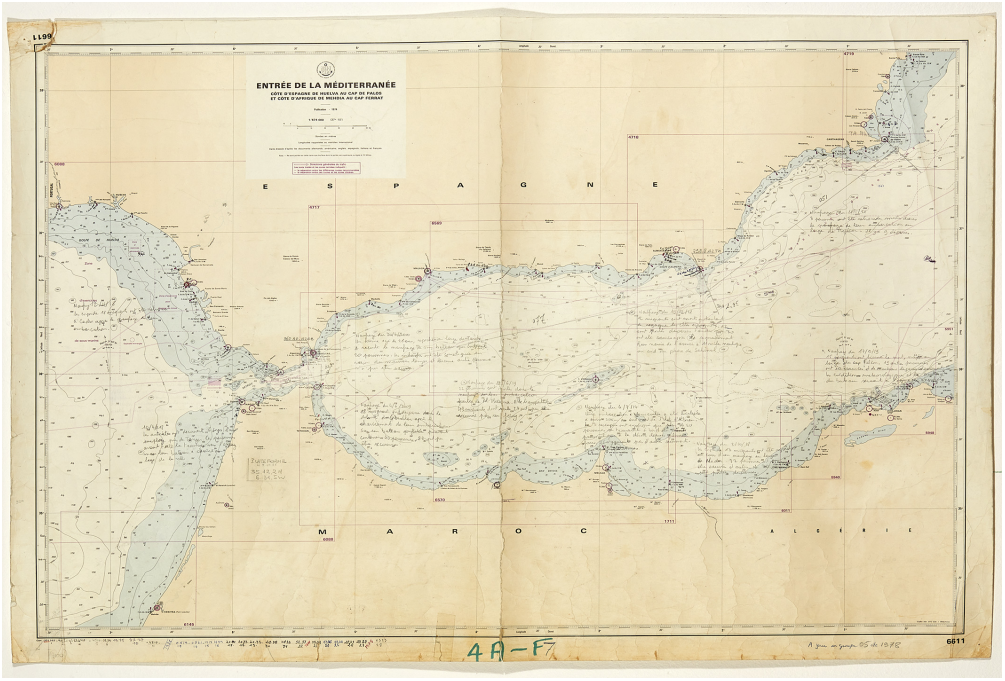

Figure 8. Mathieu Pernot, *Nautical Charts of Sunken Boats*, 2021, archival charts with pencil annotations, dimensions unknown.

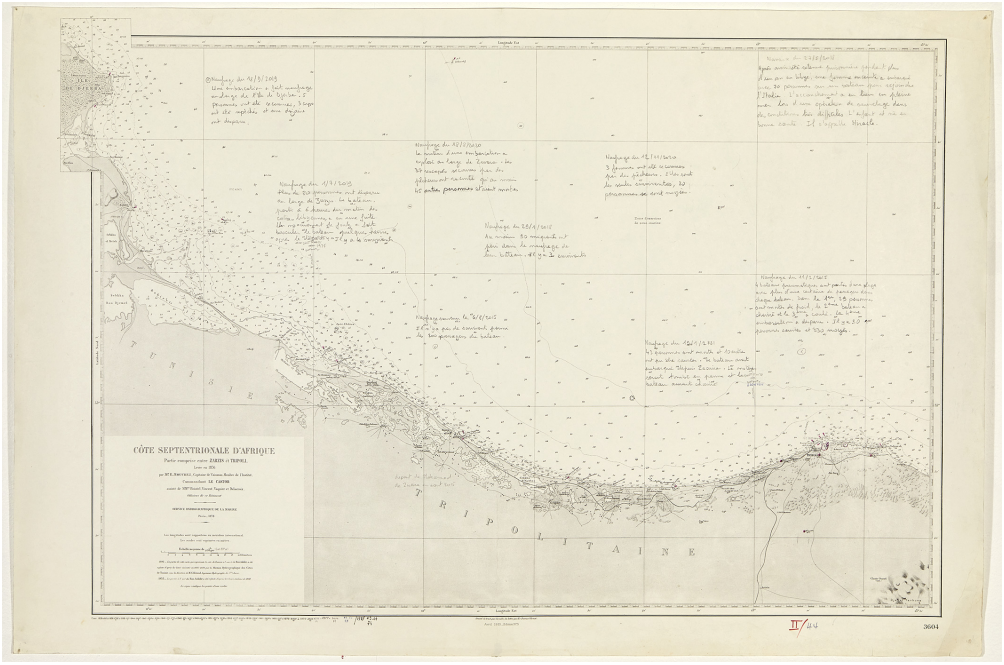

Figure 9. Mathieu Pernot, *Nautical Charts of Sunken Boats*, 2021, archival charts with pencil annotations, dimensions unknown.

critically challenged EU border policies (Heller & Pécoud, 2020). In contrast, IOM's counting reproduces early methods but lacks the same critical force. Instead, it reinforces policies condemned by human rights organisations. Consequently, counting the dead now carries "a more ambivalent political signification" (Heller & Pécoud, 2020, p. 486). The most recent of the works discussed in this article, Pernot's maps, speak

to these conflicts of counting while simultaneously reflecting on the lack of a meaningful political response to the rising death toll.

The use of archival charts is crucial. Produced by the French Naval Hydrographic Service, these charts intended to establish a state monopoly on navigational knowledge, instructing the safe pilotage of vessels (Bourgoin, 1988). Pernot's maps highlight the gulf between expert seafaring information, which could prevent the ongoing human tragedies at sea, and his handwritten annotations describing capsized boats. Moreover, the charts prioritise maritime routes over terrestrial features by omitting national borders. They were also designed to ensure the safe transport of goods and people. Pernot again underlines the difference between what the map proposes and what his annotations suggest: National borders are enforced across the Mediterranean, and they determine who can move freely and be saved in case of emergency.

Additionally, using archival charts produced in the 19th century is significant in terms of the changing moral attitudes in relation to rescue at sea. In the modern period of humanitarianism, alleviating suffering and saving lives has become a priority. In the 19th century, saving lives at sea became a matter of granting immediate aid: Where one saw a shipwreck, one was supposed to act despite the risks associated with it (Stafford et al., 2024). At the same time, that form of humanitarianism was short-lived because it overlooked the structural causes of the wrecks and the labour conditions aboard (Stafford et al., 2024). As technology improved, 20th-century maritime shipwreck aid was reduced and replaced by airborne rescue. Tazzioli describes how contemporary "rescue politics" present people on the move as "shipwrecked persons," and promote the flawed rescue missions as an adequate response to people perishing at sea (Tazzioli, 2015a). By inscribing and combining multiple moral paradigms onto such charts, Pernot's work prompts critical reflection on the historical and contemporary conditions of people in maritime distress.

Nautical Charts of Sunken Boats offers a historical backdrop to the deaths depicted and juxtaposes the development of seafaring methods with the perilous ways people are forced to travel. Most notably, Pernot's meticulous collection of facts from archival charts draws attention to how these deaths are the result of a moral paradigm, and thus underlines how they could have been prevented. In dialogue with Hilde Van Gelder's *Thirty-Three Blueprints for the Right not to Drown*, Pernot adopts a comparable strategy of disjunction and offers an invitation for reflection. They both use an existing image, be that a family photograph or a nautical chart, modifying it in relation to contemporary maritime tragedies in order to produce a rupture that calls the structural conditions of the event into question. I suggest, therefore, that Pernot's work asserts the Right not to Drown: the right to life as it applies to persons in maritime distress.

4. Discussion and Conclusion

Levi Westerveld, Tiffany Chung, and Mathieu Pernot all mobilise infographics of maritime fatalities to critique methods and purposes of counting, the institutions that produce migration data, and the moral attitudes that underpin them. They respond to different political turning points in how data on maritime deaths in the Mediterranean has been produced: from activists' databases to institutionally verified lists; from the persistent lack of political response to the rising death toll.

A comparison shows that the specific conditions and datasets they use shape their works. Westerveld presents an infographic of deaths shortly after a verified database was created. As a response, he produced

the conditions for mourning by making the scale of the disaster tangible. Chung engages with the wealth of data visualisations produced during the migration surge of 2015–2016. She documents the institutions that keep a record of migration and deaths to highlight the mass drownings as produced by systems of power. She not only reproduces the data visualisations but also combines them in alternative ways, allowing critical engagement with what the maps suggest. Pernot establishes a historical point of reference by reappropriating archival charts. His 2021 charts reflect on the continued rise in deaths, but his work has still not been met with a viable political response. He is the only one of the artists in this article's case studies to collect his own data and attribute information to every fatal event that he records. Each artist challenges statistical representations, for example, by rendering the data illegible. Only the latter two projects invite a critical engagement with the conditions that enable the drowning of people in the Mediterranean.

This article has questioned whether the artistic reworking of infographics can move beyond evocative images to constitute rights claims. In conclusion, by reimagining infographics of maritime deaths, only Chung and Pernot demonstrate how mapping can move beyond representation to articulate rights claims. Their work exposes both the politics of counting and the urgent need to rethink maps as cultural images of rights. The Right not to Drown underscores that the concern these maps raise is not merely that rising numbers should provoke moral outrage, but rather that they call for the protection of fundamental rights.

Taken together, these artistic projects reflect on how mapping has come to narrate migration data and deaths at sea. This makes it crucial to continue interrogating how maps of migration shape the narrative on the growing number of deaths in the Mediterranean. Although these works are pieces of art, they profoundly illustrate how seemingly simple combinations of various datasets can obscure perpetrators as much as they can assign culpability. This is a lesson with relevance beyond the field of art.

This article also illustrates avenues for further research. At the beginning of the article, the frameworks of counter-mapping and art history literature on the link between rights and images were combined. As of now, literature on counter-mapping mostly engages with maps that can be used in the court of law. Additionally, literature on art history on this topic has largely focused on photography. This article has placed the distinct focus of counter-mapping on the advocacy of rights in conversation with art history research on rights claims outside the legal system. Nonetheless, further research is necessary to bring the two fields into conversation with one another so that the cultural impact of maps as images of rights can be better articulated. Moreover, across their works, each artist employs point-based mapping logic to represent loss. Future research could explore the broader approaches of art history and visual culture to point-based mapping and the history of visualising maritime deaths. Ultimately, a sustained critical engagement with the maritime fatalities of people on the move is necessary to understand how this tragedy is chronicled and presented to the public. The artists' interventions provide a model and invitation for further academic engagement.

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Conflict of Interests

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About the Author

Anna Sejbæk Torp-Pedersen is an FWO-funded PhD student in the Art History Research Unit at KU Leuven, and a junior fellow at the Lieven Gevaert Centre (KU Leuven–UCLouvain).

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Making a Scene via Counter-Data Mapping: The Digital Cartography of Hong Kong's Resistant Economy

Tin-Yuet Ting

Department of Applied Social Sciences, The Hong Kong Polytechnic University, Hong Kong SAR

Correspondence: Tin-Yuet Ting (tyting@polyu.edu.hk)

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Abstract

Studies of contemporary social movements have explored the role of digital maps and mapmaking in the organisation and visualisation of protest events, yet little is known about the contentious political potential of maps when the political opportunities for street politics fade. This article examines the digital cartography of Hong Kong's yellow economic circle, a networked system of retailers and consumers linked by political values that support pro-movement stores and boycott pro-establishment businesses, for which citizen activists amassed crowdsourced data to create and update counter-maps that galvanised political consumerism to uphold dissent. Drawing on a renewed conception of the networked movement scene, I contend that counter-data mapping demonstrates a connective structure of self-mobilisation that affords the (trans)formation of (a) dissent spatiality, (b) sociality, and (c) solidarity during the declining stages of movements. Based on digital ethnography and archival research, I show how this nascent cartographic data-as-repertoire not only helped establish and sustain a resistant economy but also allowed people to maintain and refashion their contentious political participation via everyday engagement with data. While the state authorities attempted to expand their territorial control amidst the crisis, counter-data mapping, as a digitally enabled, joint practice of scene-making, (re)invented dissent territory, enabling dispersed citizen activists to continue to connect and mobilise amidst intense urban policing and social distancing protocols. This article casts new light on the utility and capacity of digital cartography during movement latency while illuminating the understudied contours and consequences of counter-data mapping in a non-Western context.

Keywords

counter-data mapping; digital cartography; Hong Kong; movement scene; yellow economic circle

1. Introduction

Whilst urban authorities in Hong Kong clamped down on street protests and imposed strict controls in public spaces during the Anti-Extradition Bill Movement (AEBM) and throughout the Covid-19 pandemic that immediately followed (Pit, 2024), a citywide "counter-data mapping" (Jeppesen & Sartoretto, 2023, p. 150) campaign aimed at creating a "yellow economic circle" (YEC)—a networked system of retailers and consumers linked by political values to support pro-movement stores and boycott pro-establishment businesses—was mobilised by citizen activists to carry on the pro-democracy movement. As police repression escalated and street protest risks mounted, protesters, movement supporters, and sympathisers migrated online to produce digital counter-maps that curated shop data and categorised retailers by political alignment through the intensive use of social media and mobile technologies.

Studies of contemporary social movements have explored the role of digital maps and mapmaking in the organisation and visualisation of protest events (del Biaggio et al., 2019; Rodríguez-Amat & Brantner, 2016), yet little is known about their contentious political potential when the "political opportunity" (Tilly & Tarrow, 2015, p. 60) for street politics fades. In contrast, more recent studies have started to show that digital cartography constitutes a new "repertoire of contention" (Jeppesen & Sartoretto, 2023, p. 153; cf. Tilly, 1978, p. 155) that can be leveraged to disrupt traditional power asymmetries and may have policy or political impact on its own. This recent strand of research has identified the production of counter-maps for a myriad range of agendas such as housing justice, indigenous rights, and labour equality (Counter Cartographies Collective et al., 2012; Kidd, 2019; Maharawal & McElroy, 2018). However, relatively limited attention has been paid to the utility and capacity of digital cartography for contentious politics, especially in non-Western contexts. Much remains to be understood about the ways in which digitally savvy citizens develop counter-maps and corresponding practices and networks to challenge autocratic state power in the Global South.

This article investigates the latest contours and consequences of counter-data mapping in the case of Hong Kong where citizen activists converged and crowdsourced resistant data to (re)produce counter-maps that galvanised political consumerism to engage in political contention. Drawing on a renewed conception of the networked movement scene, which describes a specific network of places, people, and events that denotes shared forms of countercultural expression and counter-hegemonic activities (Creasap, 2012; Leach & Haunss, 2009; Silver & Clark, 2014; Ting, 2021), I contend that counter-data mapping demonstrates a connective structure of self-mobilisation that affords the (trans)formation of (a) dissent spatiality, (b) sociality, and (c) solidarity during the decline stage of political movements. Based on digital ethnography and archival research, I show how such nascent cartographic "data-as-repertoire" (Beraldo & Milan, 2019, p. 6) in Hong Kong not only helped establish and sustain a resistant economy but also allowed people to maintain and refashion their contentious political participation via everyday engagement with data. Whilst the state attempted to expand its territorial control amidst the crisis, counter-data mapping—as a digitally enabled, joint practice of scene-making—(re)invented dissent territory out of quotidian territory which enabled dispersed citizen activists to continue to connect and self-mobilise despite intense urban policing and social distancing protocols.

2. Conceptual Framework

2.1. Digital Cartography and Contentious Politics

Studies on maps and mapmaking in the digital age have shifted focus from the state and its "cartographic authority" (Gautreau & Noucher, 2022, p. 9) to networked individuals and their "collaborative, experiential cartographic praxis" (Miner, 2022, p. 433). Modern cartography developed in parallel with the rise of the nation state (Mason-Deese, 2020; Miner, 2022) and traditional information technologies and techniques, such as government statistical systems and databases, served state authorities in their publication of top-down spatial representations that draw fixed borders in support of colonial conquest and the imposition of capitalist property relations (de Souza et al., 2025; Kidd, 2019; Miner, 2022). Yet the rise of many-to-many mobile social media has significantly expanded the communicative capacity and mobilisation opportunities of (counter-)publics (Castells, 2009). In particular, digital media have been found to help render the alternative spatial narratives and visions of marginalised communities and their struggles over territory more visible and effective (Kidd, 2019; Miner, 2022), thereby contesting "maps of power" (Mason-Deese, 2020, p. 428) from the bottom up.

Whereas traditional cartography "from above" has been employed by state authorities worldwide to influence and shape public opinion, knowledge, and behaviours (Salerno et al., 2020), recent research on contemporary digital cartography has highlighted its counter-hegemonic nature, noting that it helps challenge institutionalised landscape discourses by representing the perceived spaces of marginalised communities and subaltern groups. For instance, many studies have shown how indigenous groups and sovereignty movements produce their own digital maps that represent local spatial knowledge and visualise hidden spatial power relations to counter the development plans of the state, such as pipelines for non-renewable resources crossing territories of the Dene and the Inuit in Canada and state-imposed irrigation projects in Licto, Ecuador (de Souza et al., 2025; Kidd, 2019). Another strand of research on Covid-19 cartography has also looked at how amateur mapmakers created alternative Covid-19 maps that revealed inequality and promoted mutual support (Jeppesen & Sartoretto, 2023; Kent, 2020), thereby "compensating for the loss of external movement" (Pase et al., 2021, p. 150) among ordinary people proscribed by state authorities.

Research has also paid particular attention to the collaborative and participatory nature of many contemporary counter-mapping projects. Digital cartography involves and invokes horizontal organisation among networked individuals who interact in digital environments to create new spatial knowledge and contest hegemonic spatial power through counter-mapping (Jeppesen & Sartoretto, 2023; Kidd, 2019). From this perspective, the power of digital cartography derives from its role in enabling or promoting grassroots collaboration and cooperation among ordinary people who (re)appropriate information and data to fight social injustice and inequality, facilitated by the use of social media and mobile technologies (Miner, 2022). Yet the openness of digital cartography may simultaneously expose mapmakers and contributors to state surveillance as state authorities and power actors can identify activists more easily, leading to a high(er) risk of participation (de Souza et al., 2025; Duggan & Gutiérrez-Ujaque, 2025).

In studies of mapmaking in political movements, the literature has foregrounded the counter-hegemonic and participatory potential of digital cartography focusing on how activists and movement organisers produce

counter-maps, particularly during protest events and large-scale demonstrations. This strand of research has outlined the production of protest maps that visualise possible safe routes and shelters and map ongoing police suppression and violence. For instance, Hind (2021) explored the role of anti-police or anti-arrest maps in the anti-austerity movement of the United Kingdom and in the AEBM of Hong Kong. The study looked at how the digital cartographies of protest helped ensure the safety of protest participants by providing "navigational knowledge" to allow protestors to remain mobile and safe in fast-moving and chaotic protest situations. Drawing on the case of the Yellow Vest Movement in France, Lobbedez (2023) and Baisnée et al. (2022) also contended that protest cartography helps reveal state repression by mapping police brutality and countering media distortion. Albeit from a different perspective, Abers and von Bülow (2021) examined how "catalogues and collaborative maps that listed solidarity projects and campaigns [of] movements, civic organizations and collectives" (Abers & von Bülow, 2021, p. 94) invite other social actors to join protests and to feel united. Likewise, del Biaggio et al. (2019) and Rodríguez-Amat and Brantner (2016) argued that digital cartography may facilitate protest mobilisation and the recruitment of participants by visualising the size and prevalence of street protests.

However, although studies have examined digital cartography at the peaks of mass mobilisation, they have not sufficiently addressed how digitally enabled citizen activists (re)produce counter-maps during movement "latency" (Melucci, 1989) at quiet(er) times when mobilisation and organisation are not publicly visible. In particular, studies have thus far failed to consider the importance and impact of counter-mapping beyond street politics and instead focus on the role of digital maps and mapmaking in facilitating the organisation and visualisation of protest events, rather than how it matters in its own right. The utility and capacity of digital cartography at quiet(er) moments of mobilisation, particularly in how counter-mapping advances and alters citizens' political-contentious participation during movement latency, deserve research attention.

2.2. Counter-Data Mapping as Scene-Making

A renewed conception of the networked movement scene is useful for understanding the significance of digital cartography during movement latency. The original notion of the "social movement scene" was introduced by Leach and Haunss (2009) and further developed by social movement scholars to investigate how seemingly mundane cultural activities taking place in European and North American cities—such as discos, punk clubs, rock performances, and street art—facilitated or preserved anti-segregation, anti-gentrification, radical feminist, and anarchist movements, although such activities are not conventionally recognised as contentious political participation. Described as "a network of free spaces that encompasses one or more subcultures and/or countercultures" carved out of the dominant space (Leach & Haunss, 2009, p. 259), the social movement scene is closely related to Melucci's (1989) notion of "submerged networks" of everyday life, which considers contentious politics as "a commitment to a prefigurative praxis" (Leach & Haunss, 2009, p. 262) characterised by an array of alternative lifestyles and corresponding counter-hegemonic practices that are often "submerged" in mundane activities.

More recently, going beyond examinations of the physically bounded places in which countercultural practices and counter-hegemonic activities unfold, research has shed light on the digitalisation of the social movement scene. For instance, Ting (2021) observed that "in emerging digital environments, the movement scene helps to illustrate the innovative ways in which cultural praxis, increasingly facilitated by new information and communication technologies, can inform and shape public engagement at movement

protests in significant ways" (p. 163). This revised notion of the networked movement scene is, in part, derived from Jenkins' framework of "convergence" or "participatory culture" (Jenkins, 2006; Jenkins & Couldry, 2014) which prioritises digital prosumption over consumption and focuses on people's digitally enabled experiences of media production (e.g., citizen journalism, podcasting, video production, graphic design) and other tech-based activities (e.g., building apps and websites) as a gateway for more engaged citizenship. Its alternative focus on the "participatory promise of contemporary culture and politics" (Jenkins & Couldry, 2014, p. 1107) thus signals a shift in the possibilities of contentious political participation in which citizens assume active roles as social interventionists by mixing new and digital media tactics with more tried-and-true approaches to "make a scene" (Creasap, 2012, p. 183) in and for contentious politics.

In this article, I contend that the digital cartography of Hong Kong's resistant economy is an example of a networked movement scene through which networked individuals came to "create and sustain within the live practice of the movement relationships and political forms" (Breines, 1980, p. 421) and that its contentious political potential can be observed and analysed in terms of the "spatial, symbolic, and relational dimensions of social movement scene" (Creasap, 2012, p. 182).

The spatial dimension refers to the social and physical spaces in which a social movement can (continue to) develop. Embedded in and across particular landscapes of urban life, such as squatted spaces, music venues, and community centres, a social movement scene may act as a recruitment ground and serve as a pool for grassroots mobilisation by offering spaces for people to directly participate in or stay connected with a social movement and its ideas or culture (Haunss & Leach, 2007). However, whereas the traditional notion of the social movement scene rests on the tight connection between counter-hegemonic activities and physical places, the revised notion of a networked movement scene revolves around digitally enabled praxes of creating, sharing, and connecting content that take place in online communities and mediated networks.

The symbolic dimension concerns the development of a sense of belonging and shared identity through participating in political or protest rituals. Characterised by "(para-)social interactions and public events collectively performed by digitally enabled citizens around particular cultural phenomena" (Ting, 2021, p. 164), a networked movement scene does not maintain rigid boundaries or strict membership criteria. Rather, its membership "is ultimately constituted through a process of self-identification" (Haunss & Leach, 2007, p. 164) as the scene allows the articulation of "multiple loosely binding, more flexible arrays of local meanings" (Silver & Clark, 2014, p. 428).

The relational dimension focuses on the articulation of new socio-cultural relationships in the process of scene-making and whether such relationships help advance a movement's political and societal influence. As a movement forges its own culture through which participants engage with one another in joint practices to advance a particular socio-political agenda (Leach & Haunss, 2009), a networked movement scene may serve as a site for refashioning new movement relationality, albeit sometimes temporarily, amongst like-minded people who work together and engage with one another in joint struggles.

Shifting the analytical emphasis to networked praxes of scene-making therefore invites us to rethink contentious political participation in terms of the everyday local practices of digital media and mobile social technology or repertoires of "everyday networked activism" (Ting, 2019) that simultaneously operate outside and yet interact with political movements. As shown in my analysis, many of the characteristics and

potentials of a networked movement scene can be observed in the digital cartography of Hong Kong's resistant economy through which networked individuals connected and contested the despotic power of the state based on data (re)appropriation. Through the lens of the networked movement scene, I show that such a data-as-repertoire "is in itself political work" (Creasap, 2012, p. 184) which not only helped preserve the legacy of and keep alive the AEBM but also re-enacted particular movement convictions, norms, and routines in everyday life (Haunss & Leach, 2007), allowing citizen activists to experiment with new styles and alternative modes of contentious political participation during movement latency.

3. Methodology

3.1. The Case Study

This article is based on a case study and its goal is to enrich our understanding of the contentious political potential of counter-data mapping, particularly in geo-political settings that have been thus far underexplored. With the aim of arriving at a "thick description" (Geertz, 2000, p. 6), the article seeks to contribute to theoretical transferability, rather than statistical generalisability (Yin, 2009), regarding the utility and capacity of counter-data maps during the decline stage of mass mobilisation. To contextualise, for a prolonged period of time between mid-2019 and 2022, the Hong Kong government instituted restrictions on public gatherings throughout the AEBM and strict social distancing rules during the Covid-19 pandemic that immediately followed. In the face of the imposition of a dominant spatial order (Ting, 2022b), (former) protestors and their supporters converged in the digital realm instead, calling on people to buycott "yellow" businesses—which were pro-democracy and movement supporting—and boycott "blue" businesses—which were pro-government and police supporting (Chan & Pun, 2020).

To coordinate and mobilise a citywide campaign based on the yellow/blue divide, citizens employed mobile social media and digital platforms to collect, fact-check, analyse, and visualise shop data in collaboration with each other in the hope of encouraging pro-movement citizens' consumption activities to take place within the YEC. They developed a set of user-friendly digital maps that guided movement participants and sympathisers to identify yellow and blue businesses and to make conscious and strategic political choices in their everyday lives. Various web- and app-based maps were designed and launched at different stages to prompt and guide users to locate and distinguish businesses to patronise or boycott.

The counter-data mapping campaign catalysed an unprecedented wave of political consumerism in Hong Kong and sustained self-mobilisation in constrained urban spaces. Street interviews documented widespread adoption of maps such as WoliEat and WhatsGap with users consulting them several times a week for faster decisions and as a low-risk mode of political expression (Apple Daily, 2023; Miller, 2019). Economic effects were significant and asymmetrical. While yellow eateries (e.g., Cheung's restaurant chain, JarGor 1996) drew persistent queues, blue-aligned firms (e.g., Maxim's Group, Best Mart 360, Yoshinoya, Fulum Group) faced boycotts, reputational damage, and reported losses (Yau, 2020). During acute moments—such as the Apple Daily finale in June 2021—Punish Mee launched five rapid-reporting portals that crowdsourced newspaper availability across districts, triggering a citywide "buy-crazily" surge (Davidson, 2021). These maps thus produced an "ephemeral queuing landscape" at yellow shops (Pit, 2024), exemplified by events like the 2020 "5.1 Golden Week" which mobilised over 2,000 participating businesses, generated an estimated HK$100 million in turnover, and drew over 400,000 participants (Ho, 2020; Yau, 2020).

As a particular type of data-enabled activism, citizens harnessed and represented shop data on a range of digital infrastructures including the prominent online forum LIHKG, a Reddit-like platform that has been the most prominent forum in Hong Kong especially during the AEBM (Ting, 2020), and digital mapping tools such as Google Maps and OpenStreetMap. Open-source databases, often based on an open licence for their code and data, were also set up to preserve the data and share it with different map teams, and an unrestricted application programming interface for collaboration with other mapping teams was provided. Whenever a digital map encountered technical problems or ceased operating, people shared alternative options online and relied on backed-up data from the terminated map. For instance, after the Yellow–Blues Map ended its operation in 2023, citizen activists exported and mirrored its crowdsourced dataset to public GitHub repositories—a US-based code-sharing platform widely used by developers and activists to collect, store, and curate sensitive material through a combination of crowdsourcing and scraping (Sun & Wright, 2024). By cloning the cloud-stored repository to their local devices and then pulling updates or pushing revisions to the central version, interested citizen activists could continue the counter-mapping work at any time. Citizen activists also circulated access links via LIHKG threads and Telegram channels and directed one another to alternatives such as WhatsGap and NeoGuideHK.

The case study is, therefore, illustrative of the underexplored contours and consequences of counter-data mapping during movement latency. It unveils not only how the creation of digital maps contested and challenged the state's hegemonic representations and restrictions of urban public space but also how mapmaking as a particular type of data-enabled activism provided opportunities for contentious political participation based on resistant data appropriation. As I demonstrate, by connecting contentious politics with everyday life, such mapping helped redirect political struggles from street politics to opposition politics both during and after the abrupt end of the AEBM in early 2020, when police brutality and the outbreak of the pandemic largely halted street protests.

3.2. Methods and Data

I drew on digital ethnography and archival research to examine the digital cartography of the Hong Kong resistant economy. Digital ethnography involves unobtrusive, observational analysis of content on digital platforms to understand communications and interactions in online communities and the points of view of their members (Kozinets, 2010; Langer & Beckman, 2005). In particular, conducting non-participant online observations on open-access platforms allows for "uncovering mechanisms and tracing processes" (Small, 2009, p. 22) and minimises the (potential) risk and harm to researched subjects as it avoids intruding on privacy or disturbing the natural behaviour on these sites, particularly where a potentially sensitive topic is concerned (Kozinets, 2010; Langer & Beckman, 2005). Following this approach, I focused on observing the cartographic practices of networked individuals and changes in those practices over time in relation to the development of counter-data mapping. Drawing on Coleman (2010), I examined the self-constructed culture, discourse, and conventions in the activist communities on and across digital platforms.

During the two-year period between August 2019, a few weeks after the start of the AEBM, and July 2021, one year after the local version of the National Security Law was enacted, I collected materials on major platforms that were key to the counter-data mapping campaign. These included threads and posts on LIHKG regarding both the YEC and the digital maps (Figure 1), and comments and replies that were publicly available on six mapping platforms (Table 1). Collecting materials across platforms allowed me to study

online behaviours and interactions across a digital media ecology rather than on a single specific platform (Feuston et al., 2020). Although collecting empirical materials on these selected platforms may not have included all of the materials available, analysis of the content posted on the most popular platforms helped achieve "societal significance" (Small, 2009) and offered insights into the (re)production of digital maps along with the corresponding activities and experiences of citizen activists.

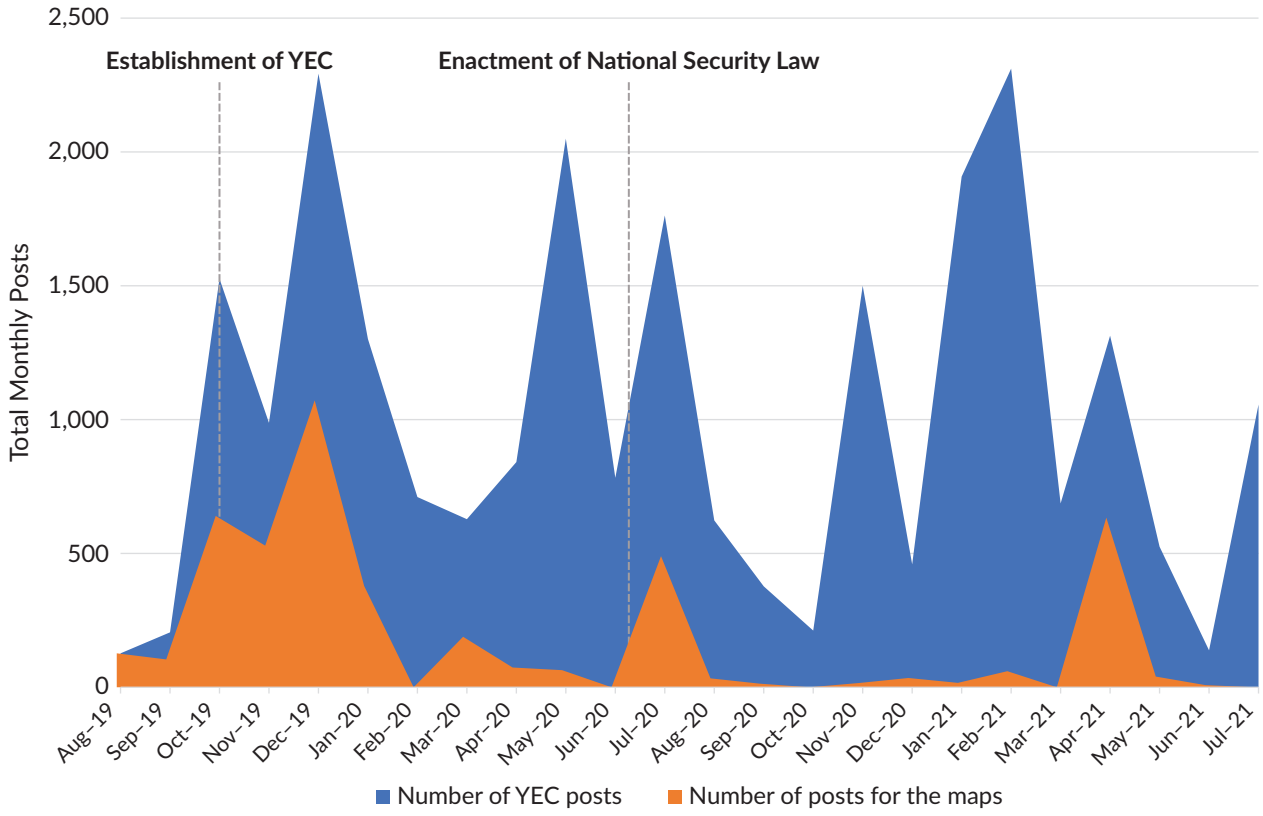

Figure 1. Distribution of LIHKG posts about the YEC and digital maps.

An archive of materials was collected and curated, and immersive readings of media coverage, documents, and records were carried out. The archival research served two complementary purposes. First, it guided the non-participant observations on the digital platforms as it helped connect them to the antecedents and targets of the counter-data mapping campaign and identified the relevant unfolding events and processes by noting the key time points when they occurred. Second, it supplemented the digital ethnography by providing evidence of the acts and results of counter-data mapping and their ramifications in real-life contexts that might not have been fully captured by the online observations.

Following Schreier (2012), I used qualitative content analysis to examine how and why resistant data practices tied to Hong Kong's digital cartography were articulated online. Using LexisNexis keyword searches, I retrieved 304 press articles in both Chinese and English from major local outlets (e.g., *South China Morning Post*, *The Standard*, *HK01*, and *Hong Kong Free Press*) and international news agencies (e.g., Reuters, Bloomberg, AFP) mentioning the six map names, as well as 35 government announcements and press releases mentioning the "yellow economy" or "YEC." I scanned the headlines to locate appropriate press articles while including all the government documents in the analysis. Through the archival research,

Table 1. Six popular web- and app-based maps examined in this study.

Type	Name	No. users/members	No. data/shops	Start date	End date
Web	Yellow–Blue Map (aka. Lemon Map)	97,000+ followers on Facebook	10,000+ entries	August 2019	August 2023
Web	NeoGuideHK	6,000+ daily	4,000+ entries	June 2019	February 2021
App	WhatsGap	N.A. (ranked as the #1 free app in both the iOS and Google Play app stores)	4,000+ entries	July 2019	July 2020
App	WoliPay	8,000+ daily	N.A. (granted permission to access shared data from the Yellow–Blue Map)	December 2019	November 2020
App	WoliEat	N.A. (2,000+ 5-star reviews and ranked as the #1 free app in the iOS app store)	N.A. (granted permission to access shared data from the Yellow–Blue Map)	October 2019	July 2020
App	Punish Mee	250,000+ members	N.A. (a key app for YEC activities)	April 2021	July 2023

I process-traced the emergence, diffusion, and transformation of these practices over time, rather than outlets' editorial stances. Analysis proceeded in two cycles: First-cycle coding distinguished specific mapping initiatives, their evolving affordances (e.g., crowdsourcing, crowdsensing, political labelling, shareable links), and contentious political capacities (e.g., mobilisation, coordination, consumer action); second-cycle coding generated a coding frame comprising three thematic dimensions—spatiality, sociality, and solidarity. This process enabled the contours and consequences of the cartographic data-as-repertoires to be identified and analysed.

The analysis of the online observations was integrated with information derived from the archival research to provide a contextual analysis. To achieve a context-specific account, I used an iterative and dialogical process that moved between empirical materials and theorisation (Carspecken, 2013; Spiggle, 1994) and gradually refined the themes until sufficient levels of interpretive convergence and theoretical saturation were achieved (Belk et al., 2012). In presenting the research findings, I refer to evidence and examples that illuminate the networked processes and real-life consequences of counter-data mapping at work. To protect privacy and anonymity, the names of people and businesses are not mentioned and their pictures are blurred.

4. Findings

4.1. Producing an Alternate Spatiality of Dissent

In Hong Kong, whilst the local government imposed strict restrictions on public gatherings through urban policing and rejecting applications for public assembly to clamp down on street protests (Ting, 2020), two

web-based maps—Lemon Map (formerly the Yellow–Blue Map) and NeoGuideH—were established based on Google Maps to contest the hegemonic spatial order within commercial settings that were less susceptible to overt governmental intervention. These freely accessible web-based maps sought to guide consumers to make politically informed decisions about their everyday purchases through the "counter-data visualisation" (Jeppesen & Sartoretto, 2023, p. 155) of pro-movement retailers and businesses with opposing political affiliations using category-specific icons such as cutlery icons for restaurants and scissors for barbershops. Aside from showing the locations of the "coloured" businesses nearby, the map gave users information through clickable icons about what the businesses had done for the movement, whether shops had a relationship with the police, and whether businesses were involved in the strikes.

By visualising the territories of the YEC and of its counterparts with geo-referenced data, the use of digital maps rendered Hong Kong's resistant economy visible to the public at large. Figure 2 shows NeoGuideHK's desktop view which classifies businesses into four main categories: restaurants, shops, chain stores, and organisations. Map users could select which sectors they wanted to view by clicking the corresponding block in the map legend. The map in the figure displays "blue" and "yellow" eateries with icons indicating type (fork and knife for restaurants, cake for bakeries, noodle for noodle bars, and cup for cafés; Figure 2). These visualisations offered alternative ways to interpret urban space, turning routine consumer choices into political acts and creating a networked movement scene that allowed citizens to reclaim agency in everyday life.

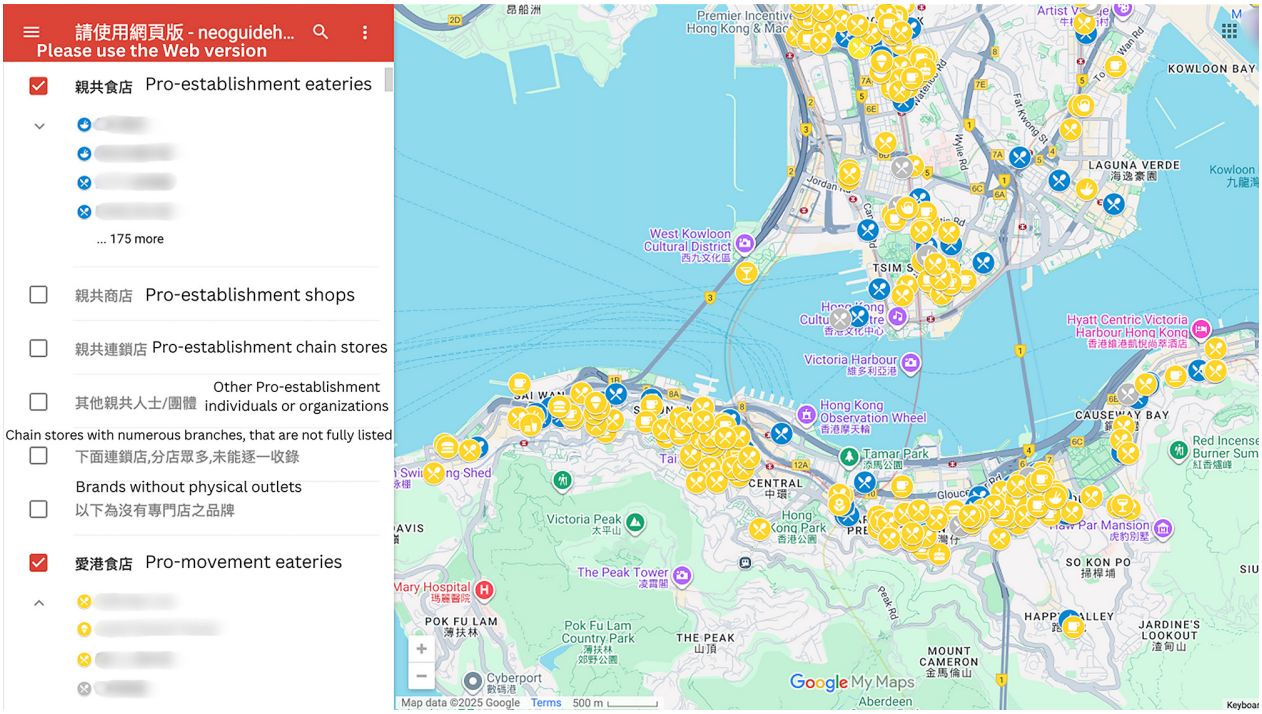

Figure 2. NeoGuideHK's desktop view (translated by the authors).

While the networked movement scene entailed "a struggle over territory" (Haunss & Leach, 2007, p. 260) in that it disrupted and subverted the spatial control of the emergent authoritarian regime, its materialisation involved a series of connective endeavours among networked individuals who collaborated to collect, organise, and visualise the shop data with the aim of discovering and uncovering the locations, distribution, and details of "yellow" businesses and their "blue" counterparts. The scene's affordances were thus

assembled as a set of resistant data practices undertaken by self-joining citizen activists who (re)produced resistant datasets to create and update web-based maps in a largely ad hoc and networked manner. At the earlier stage of the YEC, mapmaking primarily involved crowdsourcing data, with networked individuals analysing and synthesising shop data that had not necessarily been produced using high-tech tools or activities. On the one hand, citizen activists converged on LIHKG and social media platforms such as Telegram to gather information from publicly accessible online sources like businesses' official websites. On the other hand, the Yellow–Blue Map and NeoGuideHK online portals enabled the submission of first-hand reports via Google Forms and spreadsheets. Anonymous contributors, including whistleblowers, ex-employees, and consumers, were encouraged to submit detailed, first-hand witness data about businesses including names, addresses, (perceived) political stance, and visual evidence of the suggested political affiliation of the businesses.

To uncover hidden pro-establishment businesses that were pretending to be or had been mistaken for being yellow, citizen activists employed data doxxing tactics by investigating public and private social media accounts linked to business owners. The crowdsourced data were then systematically sorted and compiled by the mapmaking teams. For instance, the Yellow–Blue Map teams received over 2,000 entries in the last few months of 2019 alone, which were later turned into a comprehensive database covering over 10,000 entries as of 2023. The mapmaking teams then created digital maps using accessible visual mapping platforms to overlay the data onto Google Maps interfaces to provide the public with instant and intuitive, politically informed spatial awareness of their surroundings. To ensure the usability of the maps and legibility of the shop data, they marked certain businesses with "green" pins, indicating debatable cases that were subject to verification. The sharing of these web-based maps through embedded links, QR codes, and social media integration facilitated their rapid dissemination, making the digital maps widely adopted tools that helped reinforce the YEC.

However, local authorities contested the YEC and its digital maps. Government officials—most notably Secretary for Commerce and Economic Development Edward Yau—cast the YEC as unsustainable and discriminatory (Pang, 2020), while state media, including *People's Daily* and China Central Television, portrayed it as "Hong Kong independence" in disguise ("Gao jingji 'Gangdu'?," 2020; "Huang lan shidian ditu," 2020). A CCTV editorial also singled out the maps' "blue/yellow" classifications for deepening social divisions and purportedly harming the economy (Pang, 2020). During the pandemic lull, the Health Department and police enforcement also drew criticism for selective targeting "yellow" businesses, including unusually frequent social-distancing inspections and checks of customers' LeaveHomeSafe app usage for digital contact tracing at pro-movement restaurants (Ting, 2025; Wan et al., 2020).

Responding to fears of surveillance and arrests via corporate data disclosures, Hong Kong's counter-data mapping campaign attempted to balance public discoverability with participant security through strict data minimisation and pseudonymous infrastructures. Developers and users thus moved away from data-hungry platforms (e.g., Facebook, Instagram) toward LIHKG, Telegram, and Google Sheets which supported anonymous submissions. While LIHKG pledged to erase personal logs and adopt one-way encryption, Telegram's perceived strong encryption and pseudonyms enabled crowdsourcing without collecting identities. Map teams also deliberately used web-based overlays that did not capture personal or location data. Thus, while the digital maps themselves were publicly accessible, participation remained shielded, allowing a widely discoverable resource to sustain a counter-data mapping campaign without exposing contributors.

Through the cartographic practices of resistant data, user-friendly counter-maps were created and constantly updated by citizen activists. By identifying and linking "enclaves" of politically aligned businesses, these web-based maps articulated a network of political consumerism across urban spaces that was relatively removed from the direct territorial control of the state. By enabling ordinary citizens to convert everyday activities (shopping, dining, leisure) into deliberate acts of political contention, they played a pivotal role in (trans)forming an alternate spatiality of dissent beyond street politics.

4.2. Prosuming Sociality and Neighbours of Dissent

In addition to the web-based maps, there emerged a series of app-based maps that were developed by volunteers in response to demands for more mobile-friendly interfaces. These app-based maps adopted mobile cartographic techniques and interactive social media tools such as allowing users to subscribe to and follow businesses, vote on and rate these businesses, write reviews and comments, and upload photos to provide richer detail. Drawing on the mobile practices of data crowdsensing, referred to as the collective gathering and verification of data via users acting as distributed "sensors" to collect and share data by using mobile devices (Liu et al., 2019), these app-based maps mobilised networked individuals to share their everyday observations and connect their personal experiences during neighbourhood explorations and shop visits.

Serving as both replacements and alternatives, especially when some of the web-based maps were occasionally disrupted and after they were removed by Google due to alleged policy violations, some of the tech-savvy activists employed the iOS app store and Google Play Store to disseminate independent apps, rather than fully relying on Google Maps, for mapmaking. While allowing users to differentiate nearby businesses and make politically informed shopping decisions based on industry categories and political affiliations, these app-based maps differed in design, features, and practical function. For example, WoliEat was focused on the catering sector, whereas WhatsGap and WoliPay covered a broader range of industries and service providers ranging from catering to logistics and sales. Despite these differences, these app-based maps all commonly employed interactive interfaces such as text-based list views of businesses that users were following, the bookmarking of favourite shops to receive promotional updates, and the ability to add and report new business entries by users on their mobile devices on the move. In addition to improving in-app users' experiences and facilitating their journeys of political consumption, they actively involved networked individuals mapping their "coloured" communities by developing new features for personalisation through which networked individuals participated in the production and distribution of resistant data in the form of captioned pictures and user-generated textual content including comments, reviews, and ratings.

For instance, Punish Mee—a widely used app-based map that curates "yellow-only" shop data and served as the YEC's first shop aggregator—mobilised a wider public to contribute situated, personal data by logging everyday activities, immediate encounters, and embodied experiences, thereby maintaining a dynamic, continuously updated database (Figure 3). As Figure 3 illustrates, users often post close-up images of meals with Cantonese vernacular and sensory captions that signal endorsement and convey the satisfaction of family members and friends, thereby prompting likes and cross-references to other venues in support of nearby "yellow" restaurants. Through the visualisation and circulation of personal consumption, counter-data maps operated as living, social media–like databases in which first-hand, real-time experiences were continuously curated, turning personal encounters into connective political practices.

Figure 3. A close-up image and user comment in support of a "yellow" restaurant on Punish Mee (translated by the authors).

Therefore, by enabling users to craft their own "stories" about nearby businesses and review shops in their neighbourhoods, app-based maps integrated subjective evaluations and personal perspectives to enhance their credibility of being "yellow." In the case of WoliEat, map users were invited to report new businesses in a photo display section featuring food and drink menus, interior design features, and cues such as "Lennon walls," slogans, and event flyers (Figure 4). While "Lennon Walls"—citywide mosaics of sticky notes and posters that facilitated information sharing, emotional expression, and mobilisation during the AEBM—later re-emerged as symbolic outlets and a repertoire of contention (Li & Whitworth, 2022). Figure 4 shows users photographing an indoor "Lennon Wall" to substantiate a "yellow" business aligned with the movement.

Albeit in a different guise, WoliPay developed the mobile-friendly function of "coloured" ribbon icons that users could tap to confirm or contest a business's political stance, whilst WhatsGap offered thumbs-up and "anger" buttons for users to express their opinions on shops' affiliations. Wolipay also enabled in-app discussions by building comment sections where users could elaborate on a businesses' political stance or service quality and could comment on other users' reviews on the move. Punish Mee took the further step

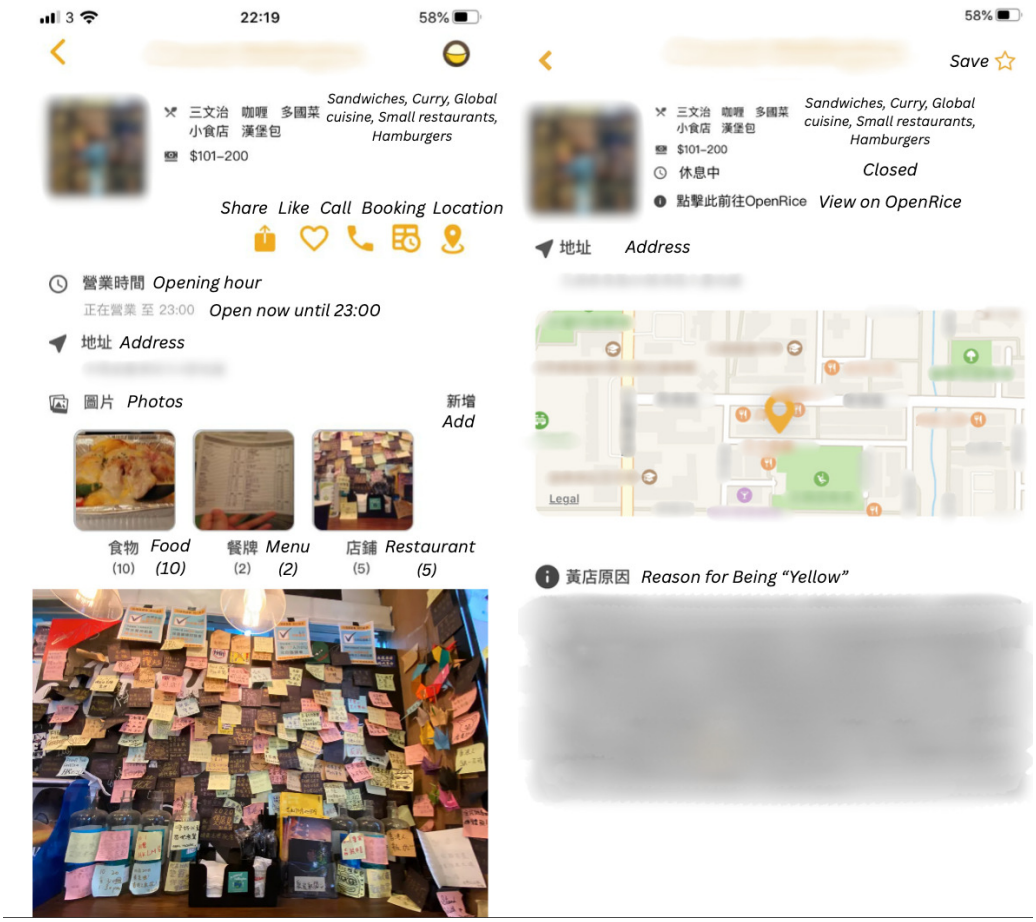

Figure 4. Photo display section of a "yellow" restaurant on WoliEat and the corresponding map shown after tapping "location" (translated by the authors).

of establishing a membership and loyalty programme called "Mee Rewards" which mobilised user participation through points earned from submitting user-generated data such as reports, reviews, comments, and photos after visiting yellow businesses. These points could be redeemed across participating businesses. Punish Mee sought to reinforce citizens' networked participation by nurturing and sustaining their everyday engagement in data crowdsensing.

Just as popular access to mobile devices and digital cameras has enhanced real-time communication regardless of location, so resistant data are not restricted to numerical figures but can also include instant personal updates and online streaming (Ting, 2022a; Ting & Chen, 2021), often loaded with personal perspectives. By introducing more personalised ways to participate, these apps constituted a flexible infrastructure of data crowdsensing and took a more participatory approach to engage networked individuals in the joint practices of mapmaking. In reclaiming and protecting their pro-movement neighbourhoods from pro-establishment corporate power and governmental territorial control, networked individuals joined in an array of cartographic practices of digital prosumption, rather than mere political consumption, to maintain their dissent. In turn, through these highly "personalised action frames" (Bennett & Segerberg, 2013), a buzz was created to attract people to "yellow" neighbourhoods and pro-movement places.

4.3. Perpetuating Solidarity and the Relationality of Dissent

As an essential constituency of Hong Kong's resistant economy, counter-data mapping played a prominent role in reproducing dissent solidarity and community relationships throughout the Covid-19 pandemic. As most yellow businesses were run by small and medium-sized enterprises that were not tied to the mainland Chinese market (Chan & Pun, 2020), citizen activists attempted to concentrate resources within the YEC. As retailers and eateries were impacted by the social distancing measures imposed due to the pandemic, digital cartography periodically created events of political consumerism in the city during the lockdowns. In so doing, it not only contributed to the sustainability of the YEC but also (re)vitalised dissent relationality by perpetuating mobilisation and promoting mutual aid within the activist community.

Amidst the public health crisis, a series of cartographic practices was invoked to identify vulnerable yellow businesses and to instruct consumer activists to patronise stores particularly in need. This involved cartographic practices that selected, filtered, and ranked shop data to turn them into useful and crucial information for timely collective action and prompt economic support. The app-based maps opened comment sections to allow citizens to report struggling businesses. Citizen activists actively identified struggling "yellow" shops either through social media monitoring or first-hand neighbourhood observations and they then put urgent appeals and updated statuses onto the map platforms. This continuous flow of data was integrated into the digital maps by the mapmaking teams, allowing the struggling businesses to be treated as priority cases deserving immediate attention and support. Central to this data-enabled activism were tagging systems that enriched the counter-maps with narratives and urgency markers, creating an "attention backbone" (Bennett et al., 2014, p. 250). For instance, time-sensitive tags such as "Yellow Business Now Gou3 Gap1 (Urgent)," "Countdown to Closure," and "Urgently Needed to be Punished" appeared in a timely manner on counter-data maps like NeoGuideHK to identify vulnerable yellow shops and inform people about the current hardship that these enterprises were facing (Figure 5). WoliPay also had a page

Figure 5. Screenshot from NeoGuideHK showing the system of alerts for businesses. Notes: After tapping the green tag entitled "Double Ten Thanksgiving Day to Yellow Shops," the shops involved in this campaign were marked with a green circle; red tags refer to "Yellow Business Now Gou3 Gap1 (Urgent)."

that curated lists of businesses at risk and included information on the contributions these businesses had made to the AEBM, providing urgent appeals and explanations of why users should support these shops.

In response to the absence of tourists and a lack of shoppers during the prolonged pandemic, counter-data mapping also contributed to the mobilisation and organisation of shopping campaigns that sought to periodically mobilise people to support yellow businesses by leveraging cartographic features. In addition to using tags to highlight politically aligned shops and curate businesses participating in the buycotting campaigns, such as "5.1 Golden Week," in-app notifications and subscription features allowed users to follow and receive real-time updates and discounts from yellow shops to boost engagement during festive celebrations and themed shopping events such as "Double Ten Day Thanksgiving" and "Thanksgiving to Yellow Shops." These features provided users with geo-referenced and actionable guidelines on when and where to shop on symbolic dates. Functioning as a networked movement scene during movement latency, Hong Kong's digital cartography thus linked scattered individual consumption activities and branded them with a common identity, conviction, and purpose.

Beyond visualising and promoting "yellow" businesses, some of the digital maps evolved into support infrastructures in the aftermath of the AEBM. For instance, WhatsGap guided pro-movement citizens to donation points for former protestors, directed citizen activists in need to nearby shelters and pre-paid meal schemes, and highlighted shops distributing free masks and sanitisers during the pandemic ("Huang lan shidian ditu," 2020). NeoGuideHK also created a new in-app section of "Bowl Together" feature solicited and posted job openings without fees, complemented by voluntary vocational training for former protestors (Leung & Wong, 2019). They thus extended beyond political consumerism to include and support those with disrupted education and employment during the AEBM (Yau, 2020) and those unable to consume by building non-consumerist networks, strengthening relational ties, and facilitating mutual aid.

By mobilising acts of political defiance, Hong Kong's digital cartography not only gave rise to a series of highly spectacular performances of dissent but also (re)fashioned movement relationality within the YEC throughout the pandemic. Repeated mobilisations of boycott campaigns and events of mutual aid thus helped manifest solidarity among pro-movement businesses and consumers despite adverse conditions.

5. Conclusion

This article examines the underexplored contours and consequences of counter-data mapping at times of movement latency. Using the case of Hong Kong, it investigates the development of a digital cartography of dissent through which citizen activists came to take part in a series of collaborative practices of mapmaking that simultaneously exposed and nullified the dominant spatial order imposed by an increasingly authoritarian (local) state. Unlike conventional accounts of protest cartography, which have concentrated on the instrumental uses of digital maps during the peaks of street politics, the article explicates how counter-data mapping allowed an alternate, popular form of political resistance and defiance to take shape through everyday engagement with resistant data, especially when large-scale protests were halted due to urban policing and social distancing measures.

Whilst recent studies of counter-data mapping have highlighted the role of data (re)appropriation in constituting a novel repertoire of contention to advance social justice agendas, this article incorporates the idea of data-enabled activism to illuminate the utility and capacity of digital maps and mapping both in and

for contentious politics in the Global South. Specifically, it invokes the renewed conception of the networked movement scene to provide a three-dimensional analysis of the contentious political potential of counter-data mapping during movement latency. First, the analysis shows how the emergence of digital cartography in Hong Kong and the corresponding joint practices of data crowdsourcing facilitated the formation of a network of latent movement spatiality vis-à-vis the hegemonic spatiality of political repression and contagion, thus (re)opening urban spaces to contentious political struggles. Second, highlighting its participatory nature and features, the article reveals that counter-data mapping as a scene-making practice helped prompt a participatory culture of digital prosumption and offered a new avenue for political consumerism via data crowdsensing. As shown in the analysis, this process of mobile data crowdsensing was significant for the formation of an "ideological neighbourhood…[in which people] came to socialize and engage in cultural activities together" (Li & Whitworth, 2022, p. 1378). By leveraging the latest affordances of mobile social technology, digitally enabled citizen activists, albeit loosely connected, thus became able to continuously exhibit and exercise their political agency while critically scrutinising their neighbourhoods and proactively updating counter-maps. Third, focusing on the refashioning of dissent relationality during the lockdowns, the analysis further demonstrates how counter-data mapping not only enabled physically dispersed individuals to continue to engage in data-enabled activism but also perpetuated movement solidarity by (re)producing landscapes of mutual aid and rhythmic spectacles of political resistance.

Although many Hong Kong counter-data mapping platforms are now inactive, their contentious political effects remain evident in the repertoires of contention they seeded. Locally, counter-data mapping helped cultivate a durable counter-culture of political consumerism—such as sustained patronage of independent bookstores and attendance of book fairs promoted and rendered visible by earlier maps—even under the National Security Law ("Indie book fair," 2025). Their value thus lies not only in maintaining a single live map but in nurturing routines of support and low-risk engagement that have preserved movement identity and solidarity in post-movement Hong Kong. Transnationally, these novel data-as-repertoires have proliferated among diaspora communities. In the UK and Taiwan, Hong Kong emigrant networks adapt similar strategies to identify "yellow" and "blue" businesses by using crowdsourcing and shareable Google "My Map" features to keep dissent legible across borders ("'Nuanqi junshi' tui Ying," 2021). Regionally, counter-data mapping diffused via the Milk Tea Alliance. Thai activists developed the "No Salim Shopping List," while Myanmar activists relied on "Way Way Nay"—an app-based counter-map—to steer covert sanctions (Chan, 2024). Taken together, these trajectories exemplify the "rhizomatic" (Deleuze & Guattari, 1987) dynamics of Hong Kong's counter-data mapping campaign which has become a template for modular replication and local adaptation of political resistance through everyday data practices.

This article enriches our understanding of how counter-data mapping manifests a connective structure of self-mobilisation "by providing an infrastructure for bridging politics and everyday life" (Leach & Haunss, 2009, p. 275) amidst and despite unfavourable conditions. Developed in and across both physical and virtual spaces, Hong Kong's digital cartography offered flexible gateways for contentious political engagement and contributed to the achievements of the YEC. Moreover, it engendered new opportunities for grassroots collaboration and interaction, helping otherwise isolated individuals and groups converge and assert their political agency and movement identity. These actions, although individually modest, collectively contributed to the broader pro-democracy movement. Although they alone fell short of achieving structural social change, they made a significant impact on how people practised political resistance and upheld dissent in post-movement Hong Kong and beyond.

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Conflict of Interests

The author declares no conflict of interests.

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About the Author

Tin-Yuet Ting (PhD, University of Illinois Urbana-Champaign, USA) is associate professor of sociology in the Department of Applied Social Sciences at The Hong Kong Polytechnic University, Hong Kong SAR. His research lies at the intersections of mobile social media, data technology, platform creative economy, and techno-politics.

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The Affective Lives of Cruising: Recharting Space, Place, and Time

Alexander P. Chun [1] and Sandra Jeppesen [2]

[1] Department of American Studies, Brown University, USA
[2] Department of Interdisciplinary Studies, Lakehead University, Canada

Correspondence: Alexander P. Chun (alexander_chun@brown.edu)

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Abstract

This article turns to cruising maps as sites in which normative conceptions of space, place, and time might be reimagined. The authors first examine a brief history of queer mapping practices, paying particular attention to how queer cruising maps challenge constructions of private and public life by charting veiled sexual publics obfuscated by subtle queer social codes. Then, paying particular attention to ephemera and affect, the authors investigate the ways these queer cruising maps are animated by economies of affective experiences and other queer ephemera—feelings, lingerings, barterings, passings, and potentialities. The authors then argue that such an affective experience reorients stabilized notions of space, place, and time. The article concludes with a meditation on the futures of cruising, reflecting on how queer social and sexual relations have been (re)shaped across time into the present moment. Through such a provocation, the authors seek to critically examine how queer sexual practices and counterpublics are mapped and remembered, and how their contours of belonging continue to be contested, opening potentials and possibilities for new queer futures.

Keywords

affect; counter-maps; cruising; queer; temporalities

1. Memories, Vignettes

All personal anecdotes in this article reflect the experiences of the first author. The use of the first-person singular pronoun "I" is employed to reflect this perspective while later uses of the first-person plural pronoun "we" reflect the joint scholarly contributions of both authors.

I am 14 years old, shopping for jeans in the Mall of America's Abercrombie and Fitch. An older, middle-aged white man unsubtly stares at me from across the store, toggling his gaze between me and a rack of

button-down shirts he ostensibly peruses. Just about to start at the public high school, I am incredibly nascent in my sexuality. I haven't yet had a first kiss or a boyfriend. I haven't yet cruised or been cruised. And yet a creeping adrenaline begins to stir a felt intuition—a suspicion that sex and queerness are everywhere. The man walks over to me. I run out of the store and look for my mother.

I am 20 years old, rifling through a book in Toronto's Glad Day Bookshop. It's Pride Month, and folks are spilling in and out of the stores, restaurants, and bars that line Church Street. A man approaches, startling me out of my book. He asks if I'm here alone. "I'm here with a friend," I stammer back, confused. He smiles politely, nods, and walks away. It'll take some time before I understand what he was really inquiring about.

I am 23 years old, huddled on a public bench beneath a bridge on the outskirts of Providence, Rhode Island. Fingerless knit gloves keep my hands warm enough to annotate the pages of the academic article I'm pretending to read. A car parks about 100 feet from me, joining a handful of other parked vehicles in which men sit and wait. It's around 5 pm, so I presume that most of the men just got off work. After a few minutes, a middle-aged man exits his vehicle, crosses the street over to me, and stands at the entrance to a wooded area just a stone's throw to my right. He stares at me intently, and I offer him a smile before returning my attention to the reading in my lap. My right leg is shaking. The man scans the other cars before heading into the wooded area. A few minutes later, another man leaves his vehicle and trails after. They disappear into the woods and my imagination.

I am 24 years old. My boyfriend and I are stumbling through the streets of Provincetown after spending the night dancing at an underwear party. The streets are surprisingly empty, which makes it all the more obvious when we spot a group of men converging near a large, raised dock on the water, just off Commercial Street. We watch other men leave the same dock. Curious, we approach. Lapping waves gently hush soft moans. Moonlight traces converging silhouettes. Shifting sands bring bodies closer together.

2. Introduction

Cruising refers to the sexual practice in which queer people, most often gay men, seek out sexual encounters in public spaces, such as parks, malls, movie theaters, rest stops, bathhouses, and bars, amongst others. Typically, cruising happens anonymously and spontaneously, and while certain geographic sites might be known as a cruising spot, one never quite knows what or whom they might find. The sexual negotiation often happens without words, with communications exchanged through coded physical movements: the gesture of a hand, the tapping of a foot, the nod of a head. In *Cruising: An Intimate History of a Radical Pastime*, Alex Espinoza recounts his first time being cruised, recalling how he was approached by a stranger seeking a sexual encounter:

> That moment with the stranger broke a seal inside of me, released a flood of emotions and hormones and urges that, up until that moment, had remained just beneath the surface….I had crossed a threshold, and before me now was a world of secret exchanges, of fleeting acts of intimacy occurring in public places. It was a world where I was noticed, where I could perform, where I was needed. Even though my identity as a gay person was nascent, in those spaces, in those small cracks lying just below the everyday, my sexual identity took root. (Espinoza, 2019, p. 29)

This article seeks to examine such a "world" that Espinoza details—the "cracks" in which public yet obfuscated social spheres and queer counterpublics of the everyday might be found (Espinoza, 2019, p. 29). In this article, we offer cruising maps as sites to examine queer social projects in which normative conceptions of space, place, and time are challenged. In doing so, we offer cruising as a sexual practice that blurs uneasy delineations between public and private life, and with it, ideations around space, place, and time. This article argues that cruising maps replot space, place, and time by charting ephemeral, ever-shifting queer lifeworlds and sociality, pushing back against containers of space that are marked by, and assigned meaning from, stable physical geographic markers and chrononormative measurements of duration. As Halberstam (2005) points out, geographies and temporalities are intimately linked and best understood as co-constitutive, arguing that "a 'queer' adjustment in the way in which we think about time, in fact, requires and produces new conceptions of space" (p. 15). The goal of this article is neither to romanticize cruising nor moralize queer sexual practices along binaristic understandings of "good" or "bad." Rather, starting from an analytic that takes cruising as a given, as a sexual practice that has existed, still exists, and will continue to exist, we're interested in what cruising does and can do.

This article first examines a brief history of queer mapping practices, paying particular attention to how queer mapping challenged constructions of private and public life by charting veiled sexual publics obfuscated by subtle queer social codes. Then, paying particular attention to ephemera and affect, we are interested in the ways these queer cruising maps are animated by economies of affective experiences and other queer ephemera—feelings, lingerings, barterings, passings, and potentialities. In doing so, we examine how affect "constitute[s] cultural experience and serve[s] as the foundation for public cultures" (Cvetkovich, 2003, p. 10). We then pay attention to how such an affective experience reorients stabilized notions of space, place, and time, arguing that understanding cruising as an affective intimacy, more than acts of physical intimacy, offers an invaluable entry point to rethink how space, place, time, and ultimately sex ought to *feel*. In focusing specifically on the affective lives of cruising and its destabilizing potentials, we seek to expand conceptions of what sex and sexuality are, moving the investigation beyond just the materiality of bodies and pleasures of physical contact.

The article concludes with a meditation on the futures of cruising, reflecting on how queer social and sexual relations have been (re)shaped across time into the present moment. Through such a provocation, we seek to critically examine how queer sexual practices and counterpublics are mapped and remembered, and how their contours of belonging continue to be contested, opening potentials and possibilities for new queer futures, particularly for queers of color.

3. Private Publics and Public Privates

In 1964, Bob Damron, a gay bar owner in San Francisco, published the *Damron Address Book*, a map and catalogue of gay and gay-friendly spaces across the US (Gonzaba, 2022). Damron was an avid traveler and visited every entry, jotting down bars, arcades, bookstores, cruising spots, hotels, community centers, and erotica stands, amongst other places where queer folks, with a particular focus on gay men, might gather. After printing 3,000 copies of his first guide, Damron began publishing a new edition each year, updating his guides with the newest openings and pending foreclosures of queer spaces. It is estimated that by 1987, 100,000 copies of Damron's guides were circulated annually (Gonzaba, 2022). That same year, the Damron Company was formed, overseeing the publication and distribution of the *Damron Guides*; such a move also enabled a team of fact-checkers to keep the guides up to date (Damron, 2003). While other gay travel

handbooks existed at the time, Damron's were particularly notable for the great detail they included. For instance, the inner cover (see Figure 1) of the 2003 edition of the *Damron Men's Travel Guide* serves as a "Key to the Codes," in which the book's identification system is broken down: MO is short for Men Only; GF means Gay-Friendly (mostly straight); GS is shorthand for Gay/Straight; and so on (Damron, 2003).

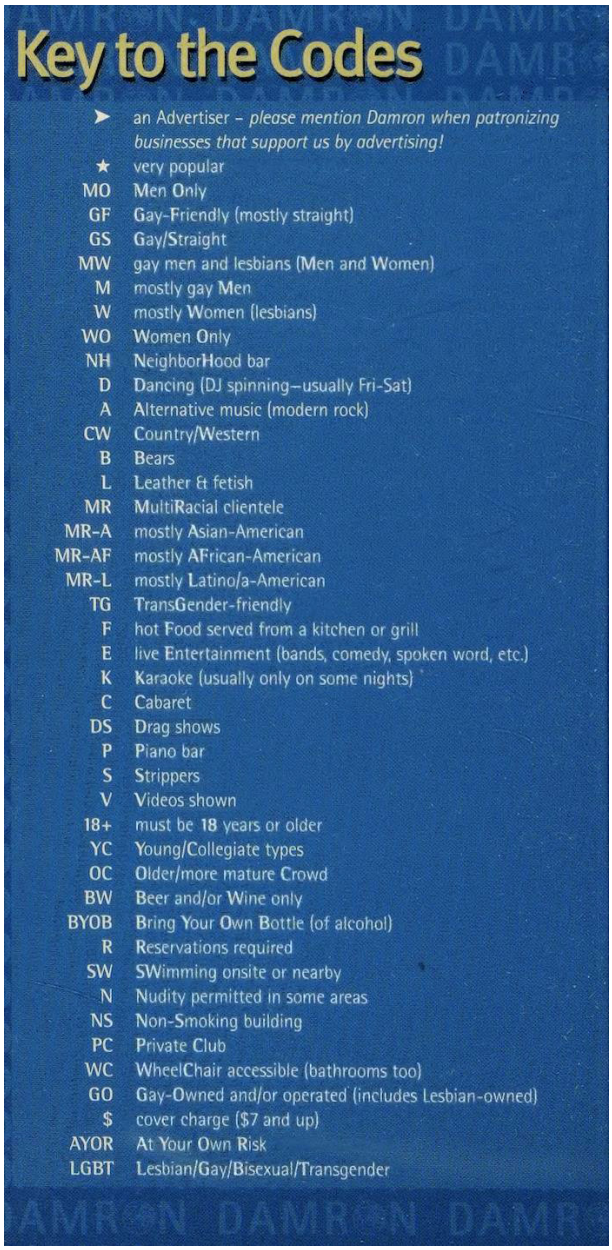

Figure 1. "Key to the Codes": explanation of abbreviations used in the 2003 *Damron Men's Travel Guide*. Source: Damron (2003).

The guidebook then goes on to outline both sodomy laws and national resources for queer folks. Under the guidebook's section "Sodomy Laws," US states with both "heterosexual and homosexual sodomy laws" as well as states with "homosexual sodomy laws only" are listed, followed by the urging: "To get your state off this list, please contact the National Gay and Lesbian Task Force, providing a phone number and website" (Damron, 2003, p. 6). In this way, the *Damron Guides* insist that queer sex and sexuality are inherently political,

urging users of the guidebook to engage with policymakers and politicians and to challenge constructions of the private and public life that are bifurcated along understandings of sex as linked to familial kinship and heterosexual reproductive futurity.

The "Sodomy Laws" section ends with a note on "Cruisy Areas," urging users to "proceed with caution" as such areas "may involve risk," followed by a chilling warning: "BEWARE—MOST POLICE DEPARTMENTS IN THE USA HAVE COPIES OF THE MEN'S TRAVEL GUIDE" (Damron, 2003, p. 6). And indeed, such a warning remains relevant as cruising sites are increasingly targeted and subject to police raids in the present moment.

In "Sex in Public," scholars Lauren Berlant and Michael Warner investigate how the private and public life are constructed along axes of acceptable sexualities (Berlant & Warner, 1998). In doing so, they examine "sex as it is mediated by publics," paying particular attention as to how "heterosexual culture achieves much of its metacultural intelligibility through the ideologies and institutions of intimacy" (Berlant & Warner, 1998, p. 553). More specifically, the two argue that intimacy becomes linked to the private life, while work and politics remain in the public sphere. This means that "nonnormative or explicit public sexual cultures" are sequestered away, rendering intimate life as:

> The endlessly cited *elsewhere* of political public discourse, a promised haven that distracts citizens from the unequal conditions of their political and economic lives, consoles them for the damaged humanity of mass society, and shames them for any divergence between their lives and the intimate sphere that is alleged to be simple personhood. (Berlant & Warner, 1998, p. 553, emphasis in original)

And yet the *Damron Guides* explicitly link the political with the supposed personal by highlighting how the formation of public cultures is shaped through the regulation of sexualities, as well as the surveillance of sexual subjects—a gaze further emphasized through the *Guides'* awareness of police possession of the guidebooks.

In their discussion of sex and publics, Berlant and Warner offer queer counterpublics as those that both resist and contest the sequestering of sex to the private life. They write:

> Queer culture constitutes itself in many ways other than through the official publics of opinion culture and the state, or through the privatized forms normally associated with sexuality. Queer and other insurgents have long striven, often dangerously or scandalously, to cultivate what good folks used to call criminal intimacies. We have developed relations and narratives that are only recognized as intimate in queer culture: girlfriends, gal pals, fuckbuddies, tricks. Queer culture has learned not only how to sexualize these and other relations, but also to use them as a context for witnessing intense and personal affect while elaborating a public world of belonging and transformation. Making a queer world has required the development of kinds of intimacy that bear no necessary relation to domestic space, to kinship, to the couple form, to property, or to the nation. These intimacies *do* bear a necessary relation to a counterpublic—an indefinitely accessible world conscious of its subordinate relation. (Berlant & Warner, 1998, p. 558, emphasis in original)

Cruising slots easily into definitions of such queer counterpublics, in which sex resists any inherent tie to familial structures of kinship or heterosexual coupling. Further, cruising is commonly constituted by the ways it makes sex public, shared, promiscuous, and non-reproductive.

In July 2024, writer and filmmaker Leo Herrera published *(analog) CRUISING*, as much a map as it is a guidebook filled with personal anecdotes and tips to navigate cruising spaces, from the bathhouse to the public park to the arcade to the sex club (Herrera, 2024). In it, Herrera describes what he calls the "three-point system" of the street cruise: "1. Lock eyes as you pass. 2. Look back. If they look back, stop. 3. If they stop too, walk toward them" (Herrera, 2024, p. 39). In an interview on the Sniffies podcast *Cruising Confessions*, Herrera says: "The whole world is waiting in that, 'Are they going to turn back?'" (Gonzalez & Patterson-Rosso, 2024). Herrera's quick remark in the podcast is strikingly utopic, perhaps in a way that borders on romanticization, but we are interested in these moments of unspoken negotiation, the tensions, the passing moments rife with what-could-be in which the "whole world waits" (Gonzalez & Patterson-Rosso, 2024). Further, we see resonances between the world Herrera remarks upon and the queer worlding project Berlant and Warner argue for in their offering of queer counterpublics. Berlant and Warner define queer culture as such:

> A world-making project, where "world," like "public," differs from a community or group because it necessarily includes more people than can be identified, more spaces than can be mapped beyond a few reference points, modes of feeling that can be learned rather than experienced as a birthright. The queer world is a space of entrances, exits, unsystematized lines of acquaintance, projected horizons, typifying examples, alternate routes, blockages, incommensurate geographies. (Berlant & Warner, 1998, p. 558)

Cruising exemplifies such "incommensurate geographies," constitutive of queer world-making projects. While cruising sites themselves might be geographically plotted, evinced by maps such as the *Damron Guides*, the act of cruising itself resists fixed charting. It is a social lifework that is entirely spontaneous, affective, and ephemeral.

4. The Affective Lives of Cruising

Accounts of cruising often detail the experience as incredibly felt and intuitive. The practice is charged; it's affectively rich. In Michael Bullock's "Cruising Diaries," a span of entries that ranges from 1991 to 2001, Bullock remembers his first time cruising:

> That summer vacation I was fifteen, and had just finished my freshman year of high school. On a perfect sunny day at a water park in New Hampshire with my parents and two little sisters, I noticed a man who couldn't take his eyes off me. He looked about as old as my dad; he was hairy, well built, and had a receding hairline, which I found incredibly sexy. The way his eyes burned through me awakened the strangest sensation, combining delight, arousal, and panic….My lack of gay knowledge as a teen in the pre-internet era led me to conclude that gay men were like unicorns: mythical, incredibly rare creatures. I felt lucky to have a real one in front of me, but why did I have to be here with my family? I pouted. Still, I found his gaze empowering; it gave me a weird sense of control. As the first child of loving parents, my healthy self-esteem prevented the Catholic priests in our parish from convincing me that my same-sex urges made me an outcast or a freak; instead, I fancied myself an insider belonging to a taboo secret society. I wasn't going to let anything disrupt my first taste of being objectified. Aiming to heighten the man's desire, I grabbed a lollipop from my mom's bag and made a spectacle of myself. Once I could see that he was hooked, I headed toward the locker room, making sure he followed. (Bullock, 2020)

Bullock's detailed recount recalls the deep viscerality awoken within him upon being cruised for the first time. He describes a sort of abject pleasure, "the strangest sensation, combining delight, arousal, and panic," upon receiving attention from a man who immediately reminds Bullock of his own father (Bullock, 2020). In a peculiar reversal of normative power distributions, in which youth and sexual nascency are regarded as powerless, Bullock feels "a weird sense of control" and an immediate belonging "to a taboo secret society" that is queerness; he springs into action, grabbing a lollipop and further seducing the man (Bullock, 2020).

Espinoza's first memory cruising also took place when he was 15. In reflecting on his cruising experiences, he writes:

> Much later, I would come to understand the coded desires attributed to cruising, the power associated with performing such intimate acts in these open spaces. The energy and rush I felt engaging in something so intense in such a public place worked to elide any sense of crushing doubt and insecurity. These unmapped geographies became my domain, my territory, the places I turned to at the low points in my life, in those moments when I felt the most alone, the most undesirable. (Espinoza, 2019, p. 31)

Here, Espinoza keys into the affective "rush" in queering a public place through sexual intimacies, calling cruising sites "unmapped geographies" (Espinoza, 2019, p. 31). In this way, Espinoza highlights how cruising sites are constantly in-flux; they are ever-moving, ephemeral, and constantly (re)made.

In "Ephemera as Evidence," José Esteban Muñoz defines ephemera as a sort of "invisible evidence"; ephemera may be "a kind of evidence of what has transpired but certainly not the thing itself" (Muñoz, 1996, p. 6). Arguing that archives fail to properly account for minoritarian life, Muñoz argues that attention to the ephemeral makes possible the enactment and recognition of lifeworlds that might otherwise "not be upheld by a foundation as unsympathetic as a rigorously enforced archive" (Muñoz, 1996, p. 10). Thus, understanding cruising sites as aqueous, as resisting fixed charting on a standard map, allows us to see past surface geographies into the "taboo secret society" and "unmapped geographies" both Bullock and Espinoza gesture toward (Bullock, 2020; Espinoza, 2019, p. 31). Writing about Tony Just's photography project—a documentation of a public men's room, a popular cruising spot—to further his argument, Muñoz writes that Just's work "accesses a hidden queer history of public sex outside the dominant public sphere's visible historical narratives" (Muñoz, 1996, p. 6).

Importantly, Muñoz also highlights affect as constitutive of ephemera, arguing that such structures of feeling shape queer sociality:

> Ephemera, and especially the ephemeral work of structures of feeling, is firmly anchored *within* the social. Ephemera includes traces of lived experience and performances of lived experience, maintaining experiential politics and urgencies long after these structures of feeling have been lived. Queerness, too, can be understood as a structure of feeling. Since queerness has not been let to stand, unassailed, in the mass public sphere, it has often existed and circulated as a shared structure of feeling that encompasses same-sex desire and other minoritarian sexualities but also holds other dissident affective relationships to different aspects of the sex/gender system. (Muñoz, 1996, p. 11, emphasis in original)

It is for such a reason that we argue cruising maps ought to be understood for the ways they chart affective lifeworlds. It's these affective relations that shape queer sociality and sexual practices, in turn challenging constructions of both the public and private life. In such a way, these maps expand what typical cartographic renderings might offer, providing a different entry point in thinking through the covert social lives that fixed maps will always miss.

5. Queer Landscapes, Queer Temporalities

What becomes of time in the cruising space? In what ways is time queered?

As Halberstam points out, "Queer uses of time and space develop, at least in part, in opposition to the institutions of family, heterosexuality, and reproduction" (Halberstam, 2005, p. 1). Thinking of queer time and queer space as interlocutors, we are interested in what strange temporalities emerge amidst cruising practices.

As Elizabeth Freeman argues, "One of the most obvious ways that sex meets temporality is in the persistent description of queers as temporally backward, though paradoxically dislocated from any specific historical moment" (Freeman, 2007, p. 162). And indeed, cruising is regarded as socially-backward, given that respectable sex is private, monogamous, and reproductive, rather than public, promiscuous, and casual. Freeman also argues that queer time provides an alternative to thinking through conceptions of linear, personal development that chart milestones in such a way as to produce reproductive, heteronormative citizens. In other words, hegemonic conceptions of time, or chrononormativity, dictate when subjects "should" have sex, when subjects "should" get married, when subjects "should" have children, when subjects "should" buy a home, etc. Such a conception of time favors heteronormative coupling and familial structures, as well as a manageable social order that is favorable to state interests and the economic capitalist market. However, as Freeman points out, queers resist such a timeline. Social stigma, AIDS, and invisibilized communities have meant that many queer folks come out late in life, have sex later than straight folks, and find love and start families in a way that resists chrononormative demands.

As we see in the accounts offered by Bullock and Espinoza, men of all ages cruise. Bullock and Espinoza were both pulled into such a scene at only 15 years old, which would typically be considered quite young. Further, both men have a cruising experience with a partner considerably older than them; in being cruised, Bullock is reminded of his own father. While society often associates nascency with helplessness, a move that emerges from social regulations that link sexual purity with innocence, naivety, youth, and femininity, both men detail a feeling of power that emerges while cruising. In fact, Bullock takes the lead in his story, grabbing candy to seduce the man before leading him into a locker room. The sexual ethics become blurry, given our cultural insistence that youth lack the capacity to properly consent to sexual experiences, yet notions of queer time complicate these understandings of linear sexual development. Such a lens of queer time challenges the idea that age is an exceedingly relevant identitarian marker in the formation of social connections. In lingering with the ethical complexities of sexual encounters such as these, Bullock and Espinoza offer ambivalent, pleasurable, and even "empowering" accounts that challenge the expected distributions of power that inform contemporary sexual ethics, offering personal perspectives on intimacies that are often deemed illegible and morally incomprehensible. In her essay *Thinking Sex*, Gayle Rubin offers

her "Charmed Circle" (Figure 2) as a visual to understand how sex practices become moralized and socially-understood as normative or deviant (Rubin, 1984).

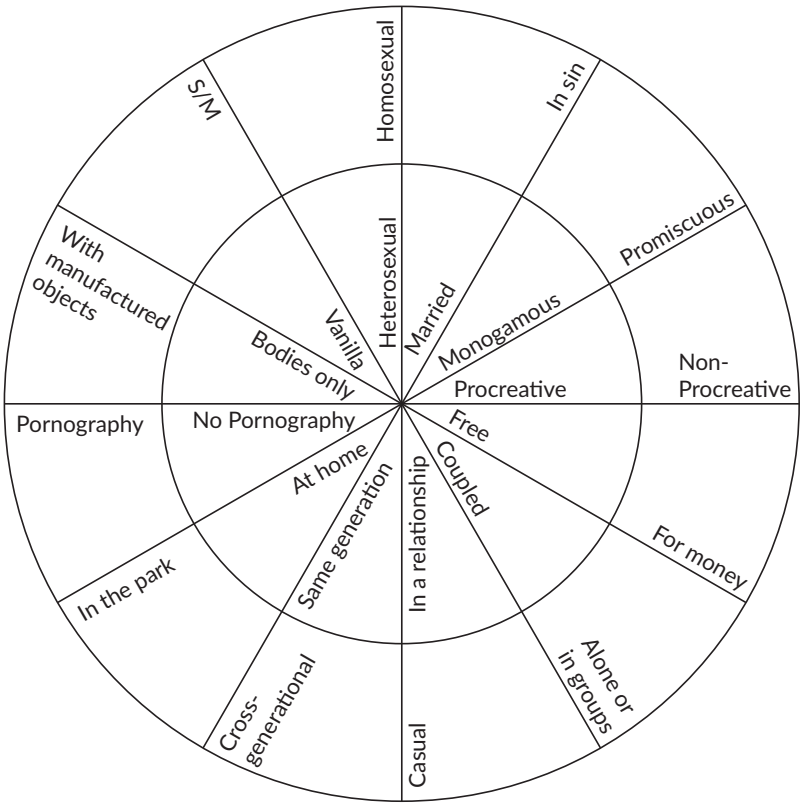

Figure 2. "Charmed Circle" in Gayle Rubin's 1984 essay *Thinking Sex*. Source: Rubin (1984, p. 281).

Sex in the middle of the "Charmed Circle" is understood to be socially acceptable, morally good, and normative. Sex in the outer circle is deviant, queer, and perverse. Cruising lives in the outer-ring. It is "promiscuous," "non-procreative," "alone or in groups," "casual," can take place "in the park," "in sin," and it is often "cross-generational."

Samuel Delany's *Times Square Red, Times Square Blue* offers an ethnographic account of queer cruising spots in New York City, arguing that gentrification, urban renewal projects, and conservative politics aimed at "cleaning-up the streets" pose an existential threat to spaces in which gay men have met to cruise (Delany, 1999). Delany reflects on his own time at a movie theater in Times Square, cruising other men: "Many encounters were wordless. Now and again, though, one would blossom into a conversation lasting hours, especially with those men less well-off, the out-of-work, or the homeless with nowhere to go" (Delany, 2019, p. 15). Time becomes strange in such a place, where the social order is structured by a queer sociality and the outside world is shut out. Halberstam writes about Delany's account the following:

> [It elucidates how] the relations between sexuality and time and space provide immense insight into the flows of power and subversion within post-modernism; and finally, that queers use space and time in ways that challenge conventional logics of development, maturity, adulthood, and responsibility. (Halberstam, 2005, p. 23)

Once, when cruising a public park to look for a group orgy, Herrera remembers being lost, unable to find where other men were supposedly gathering. He thought to himself:

> OK bitch, think….This park is old as fuck. How did the men before me do it? Horny guys during the war…they had no phones, they couldn't go around asking people where to suck dick in fucking Nazi Germany. Where do we go? Away from the street. Away from the lawn. Away from laughing straight people. Into the dark. Into the quiet. Into a place where we can see out but they can't see in. (Herrera, 2024, p. 45)

In this instance, Herrera keys into the waiting—a temporal limbo constitutive of cruising. He thinks across temporalities, intuiting where those before him may have gone, what they may have done. It isn't until Herrera abandons the map on his phone, adjusting his eyes to the dark and further opening himself to the world around him, that he catches, out of the corner of his eye, a lit cigarette. Another lights, then another. Herrera realizes he is being watched. There are cruisers all around him, standing in the dark. Herrera's immediate affective response is a deeply visceral one, prompting an emotional reaction that is equally physical. He writes, "I felt my ears flush and my heart start to pound. My chest tightened" (Herrera, 2024, p. 46). In his recounting, Herrera oscillates between pleasure and pain, between looking and having. And to do so, throughout his accounts, he recounts his time cruising as so affectively charged that he could literally feel it; he describes the "electrifying jolt of eye contact," the sex that "charges the air" (Herrera, 2024, p. 59). In defining queer time, Halberstam offers: "'Queer time' is a term for those specific models of temporality that emerge within postmodernism once one leaves the temporal frame of bourgeois reproduction and family, longevity, risk/safety, and inheritance" (Halberstam, 2005, p. 15). Similarly, when Herrera realizes that there are cruisers all around him, he thinks to himself: "I'm already inside" (Herrera, 2024, p. 46). In other words, he has stepped out of such chrononormative temporal logics and into the invisibilized queer sociality of the cruising park.

In New York City's Prospect Park resides the Vale of Cashmere, a popular cruising spot for Black and Latino men in New York City. Herrera explains that the site "is a secluded, petite valley created when a glacier melted underground and collapsed the soil, leaving a divot surrounded by steep walls of earth" (Herrera, 2024, p. 51). Then, in the 1800s, the area became a children's playground with earth fertile enough for a "majestic" rose garden to bloom (Herrera, 2024, p. 51). A Brooklyn mayor's wife was so taken with the beauty of the park that she named it the "Vale of Cashmere," inspired by the Thomas Moore poem titled "Lalla Rookh, an Oriental Romance." Yet in 1960, the garden fell into disrepair. Herrera writes: "The lily pool became overgrown, the fountains ran dry, the rose bushes withered. The men arrived" (Herrera, 2024, p. 52). Herrera offers a trans-temporal lens, showing us how the earth has changed through the centuries. "Because of a series of events 17,000 years ago," Herrera continues, "men gather here to shoot their semen into the soil" (Herrera, 2024, p. 51).

Here, we can read the Vale of Cashmere as an abundant archive of queer ephemera; a site in which a shared structure of queer feeling is housed, in which invisibilized queer traces beget themselves, in which viscerality and visceral reactions shape sociality. In doing so, we begin to see a hidden structure of feeling and marketplace of affect that aren't immediately obvious; it invites us to reimagine the landscape. As George Chauncey points out in *Gay New York* (Chauncey, 1994), public gathering spots within the metropolis historically served as ideal meeting grounds for queer individuals; deep histories have shaped, remade, and repurposed such spaces. Herrera's explicit remark about men "shooting their semen into the soil" invokes an obvious next question

given the remark's pun: What grows from this "seed"? In other words, we might wonder what remains, what is left behind, and what new life is born from these traces. The land, overgrown and abandoned, is dismissed as unruly and abject. And indeed, on the website of Prospect Park Alliance, a collective of staff and volunteers dedicated to the upkeep and day-to-day maintenance of Prospect Park, the Vale of Cashmere is filed under "From the Archives," with the last entry—in which it is stated that the Vale is on the list of pending revitalization projects—being authored in 2014, over a decade ago (Prospect Park Alliance, 2014).

Atlas Obscura calls the Vale a "secluded ruin" (Lampbane, 2019); Herrera calls it a "garden" (Herrera, 2024, p. 61). In doing so, he suggests that the overgrown foliage and unruly botanics of this "secluded ruin" might be a sign of a flourishing life that is meant to be unkempt. What if we understand the unruly foliage as growing in tandem with the queer sociality? All sprouting from the same "seed," the same traces. What would it mean for the Vale to be "revitalized"? Even the language of revitalization implies that the land is closer to death than vitality. But, as Herrera shows, there is an abundance of life. Chrononormative time frames a ruin as an abandoned thing of the past. Queer time frames it as a rich site of queer structures of feeling in which we might discover an entire social lifeworld, a queer counterpublic.

Herrera concludes:

> Our enclosed spaces are so commonly associated with loss: bars close, bathhouses close, nightclubs close, bookstores close. But you can't close a natural cruising area. You can mow it down, burn the bushes, send in cops, but it grows back, even if it takes a decade or two. They survive plagues, wars, depressions. Before we had walls and bars, we had only the outdoors to find one another. (Herrera, 2024, p. 54)

6. The Futures of Cruising

"You know, you're quite young to be here," said Court—a white, middle-aged sex and intimacy coach—to me over breakfast. We sat in a group of just over 20 men in the dining hall housed within a queer community gathering and retreat space in upstate New York. It was the first full day of a five-day, gay Tantric-BDSM retreat, where I was spending the week conducting ethnographic fieldwork.

I couldn't quite discern if Court's comment was simply observational, or if I was reading into skeptical undertones. He wasn't wrong; in my early 20s, I was the youngest at the retreat by decades, with the next-youngest attendee in his 40s. Most men were middle-aged and able-bodied, though there were also attendees in their 80s who used hearing aids and walking canes. I was also the only Asian person, and besides one other Black attendee, the rest of the men were white.

"Yeah, I noticed that as well!" I replied to Court. "Why do you think that is?" It's a question I had already pondered for quite some time as I had become increasingly aware of the lack of age-diversity in gay sexual spaces, such as bathhouses, leather bars, and other cruising sites. The demographics of this retreat reflected the demographics I had often encountered in those spaces, where I most often tended to be the youngest and one of few people of color.

"Well," Court answered, "For your generation, this kind of thing is a novelty. For us, it has been a necessity."

I nodded, allowing Court's insight to sink in. While I don't disagree with him, I am unconvinced that his observation accurately represents how queer sexual and social practices have changed through and across generations. Queer sexual spaces and ecologies have undergone drastic change in the past half-century, given the advent of the digital age, social movements that have resulted in a widening acceptance of queerness, the rise of queer neoliberalism, and, of course, the AIDS epidemic. I have no doubt that before and throughout this change, safe, protected spaces for queer men to meet one another to socialize and form networks of intimacy were crucial—a "necessity," as Court said. But the retreat overwhelmingly reflected a demographic of men who were white, cis-gendered, and financially well-off. While this is far from true for every cruising site—and sometimes not true at all, as cruising sites themselves, not just participants, are shaped by classed, racialized, and gendered lines—my conversation with Court left me reflecting on how these queer counterpublics are changing and have changed across generations. What are the racial, class, and sexual politics of these spaces? Should these counterpublics be resistant to change? What would be lost?

It's no secret that the digital age has drastically changed the landscape and counter-maps of cruising. Social networks have moved online, and in some instances, they stay there entirely. The rise of cruising and hook-up apps has also meant that individuals may "cruise" more intentionally—they can browse through and select specific sexual partners, choosing specific times and locations to meet. Our present-day culture of immediacy has shaped cruising in the digital age. Further, the hypervisibility and surveillance that accompany digital technologies and social networking platforms jeopardize the ephemeral nature of cruising in person. Drew Zeiba writes:

> Virtually mediated intimacy, conversely—whether Grindr hookups or Facebook friends—privileges unrelenting visibility, which, unlike the visibility of a fluorescent-lit toilet stall, privileges legible identity over anonymity. While on platforms like Grindr or Scruff, you might put any profile photo you want, or none at all, it seems that such an array of selectable, identifiable individuals could have a cognitive effect similar to any other online environment. And the common back-and-forth of face pics and nudes leaves a saveable record. Compared to the public of shared physical space, the digital "public" of a clearnet app doesn't provide much cover. (Zeiba, 2022)

Despite this, we are reluctant to romanticize past cruising practices. Heather Love offers the provocation: "Is it better to move on toward a brighter future or to hang back and cling to the past?" (Love, 2009, p. 27). Cruising before the digital age bore incredible risk from the state but also from fellow cruisers. While digital cruising is not fail-proof by any means, users are better able to screen potential sexual partners and establish sexual negotiations and agreements ahead of time, but that is not to say that cruising (digital or in person) is free from the social hierarchies that structure the world outside of the cruise. In *A View from the Bottom*, Tan Hoang Nguyen writes about Douchebags of Grindr, a public forum in which users of Grindr, a popular gay cruising app, submit "douchebags" who have discriminated against others based on arbitrary, superficial reasons that are often racist, misogynistic, classist, ableist, and/or fatphobic (Nguyen, 2014, p. 1). Such biases shouldn't be too surprising, given the ways these online digital sites and maps reflect and, just as importantly, shape biases in the offline social order.

How do queer subjects, and queer of color subjects in particular, mediate the past, present, and future as they build queer counterpublics and inherit sexual practices? How do we look back at histories of exclusion and chart new futures?

In 2001, Nguyen released a pornographic videotape, *K.I.P.* (Nguyen, 2001), that engages the contradictions and tensions of such a question. In the film, Nguyen edits his face into a pornographic film of white gay men having uninhibited condomless sex before the AIDS epidemic. Nguyen's face floats phantasmically; the men fall under his gaze. Freeman writes on the film:

> This is not a tape about inclusion, ultimately, for a trace of pleasure is also visible: the surface of the television also simply reflects a voyeur taking his enjoyments where he finds them. Given the historical framing of this video by AIDS and racism against Asian Americans, it might seem politically inappropriate for the videomaker-character to experience any bliss by looking at white gay men barebacking. Yet there he is, watching. (Freeman, 2005, p. 65)

Nguyen's film is not a rewriting of history, but it is a renegotiation of inheritance—a manipulation made possible through digital technology. In editing his face into a space from which he would have been excluded, Nguyen challenges such a history and where he fits in. In reimagining this racialized queer counterpublic, Nguyen enjoys the space retroactively, further queering the time and place in which such pleasure exists, charting new possibilities and potentials for queer futures.

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Conflict of Interests

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About the Authors

Alexander P. Chun is a PhD student in the Department of American Studies at Brown University.

Sandra Jeppesen is professor of interdisciplinary studies at Lakehead University, Orillia.

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ARTICLE

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Mapa Verde: Participatory Cartography and Technological Imaginaries of the Young Environmental Movement in Uruguay

Victoria Gómez Márquez, Carolina Garzón Díaz, and Tatiana Oviedo Curbelo

Faculty of Communication, Universidad de Montevideo, Uruguay

Correspondence: Victoria Gómez Márquez (vgomez@um.edu.uy)

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Abstract

This article examines Mapa Verde, a participatory digital mapping project co-created by young environmental activists and academic researchers in Uruguay between 2023 and 2025, from the perspective of participatory action research along with social and technopolitical cartography. Drawing on the observation and systematization of collaborative workshops, revision of periodical reports of activities and outcomes, and in-depth interviews with the young activists involved in the participatory cartography, the article reconstructs and interrogates the co-creation process: diagnosis, construction, and evaluation (Calvo & Candón-Mena, 2023). It also analyzes youth imaginaries regarding digital media activism and environmental advocacy through counter-mapping. Pragmatic and critical imaginaries of digital media for activism are found among the young participants who created Mapa Verde, while the collaborative enterprise reflects community-based communication and some traces of counter-data mapping that strengthen identity and foster inter-organizational collaboration. The project expands participatory cartography practices in political ecology and environmental communication, highlighting youth as both agents and cartographers of environmental action. The process shows that mapping is not only a technical exercise but also political, cultural, and pedagogical, enabling new forms of participation and knowledge production.

Keywords

counter-data mapping; digital activism; environmental activism; mapping; participatory cartography; technological imaginaries; youth environmental movement

1. Introduction

Following the 2019 climate protests inspired by Greta Thunberg's school strike, young people have consistently been associated with environmental action. However, many youth activists feel they are poorly represented in public discourse and that their diverse collective actions are reduced to the most visible Fridays for Future protest (Gómez Márquez et al., 2022; Herfort et al., 2023). With scholarship about the phenomenon mostly focused on the Global North, questions arise regarding who young environmentalists really are in each country, where and how they collectively operate, what issues they prioritize, and how they relate to media and communication as visibility and advocacy tools. Furthermore, as signs of limited influence on "adult" agendas persist (Herfort et al., 2023), action research could help strengthen the movement.

In Latin America, cartography as a social work methodology has been widespread since the 1970s, initially through critical and transformative research driven primarily by Freire (1970) and his "popular pedagogies." Similar approaches were developed through participatory action research (PAR) by Fals Borda (1985) during the 1970s and 1980s, as well as participatory rural diagnoses promoted by the Food and Agriculture Organization of the United Nations. The centrality of land and geographic space in social conflicts, inequalities, and power struggles has contributed to the high prevalence of participatory cartographic methodologies across the region. Over time, the integration of these practices with digital technologies has expanded the scope of participation and mapping, consistently seeking to engage social groups—organized or not—who are directly connected to the mapped territory or to the georeferenced phenomenon. Digital cartographies have become popular worldwide in digital activism, allowing communities to gain visibility, strengthen their collective identity, and establish networks (Cobarrubias & Pickles, 2008; Pánek, 2016; Pezzullo, 2020). As Calvo and Candón-Mena (2023, p. 31) state, collaborative cartography goes beyond data extraction and visualization: "It is a procedure that allows the generation of knowledge horizontally with the explicit aspiration of being useful to the communities involved." Therefore, collaborative mapping enables PAR processes involving academia and specific communities (Calvo & Candón-Mena, 2023).

In environmental action, there is a need to develop more social mappings that add to the geophysical ones usually associated with the conservation or restoration of ecosystems (Buckingham et al., 2018). In addition to addressing the cultural construction of the territory from its inhabitants as a key element to think about sustainable development, they have proved useful for mapping ecotourism, agroecology initiatives, and environmental conflicts (Butts & Jones, 2021; Environmental Justice Atlas Team, n.d.; Pinilla et al., 2018; Rye & Kurniawan, 2017; Silva et al., 2018). Mapping also help systematize national experiences in terms of environmental mobilization (Clifford et al., 2013) and environmental social movements (Cobarrubias & Pickles, 2008), while enabling participatory processes (Bryan, 2015) that contribute to the construction of the common (Lydon, 2003; Venugopal et al., 2024) and serve as instruments of environmental advocacy (Pezzullo, 2020).

These practices are closely linked to what has been called digital media activism. As Jeppesen and Sartoretto (2023) explain, and as has earlier been observed in Latin America (Gumucio-Dagron, 2011), it has its roots in alternative communication undertaken by traditionally excluded social groups to articulate and make their voices heard through their own media. As Gerbaudo and Treré (2015) point out, digital media, specifically online social networking platforms, have been used as privileged spaces for political action by a multitude of actors who not only circulate discourses but also produce data, maps, images, and communication devices.

In this context, "the practice of mapping has become popular, constituting an innovation in the repertoires of technopolitical confrontation" (Calvo & Candón-Mena, 2023, p. 25). The environmental movement has adopted mapping as a form of communication, with the Green Map System (US) as a paradigmatic case, focused almost exclusively on the use of maps to promote environmentalism (Williamson & Connolly, 2011). In Uruguay, in response to a request from youth organizations, a local university designed and developed a participatory mapping project in collaboration with them during 2023 and 2024: Mapa Verde (https://mapaverde.uy). These activists and a team of researchers obtained financial support from UNICEF and the US Embassy to create this digital platform, which they currently direct, update, and manage. This article describes and analyzes the participatory mapping process (Bryan, 2015; Chambers, 2006) of Mapa Verde, in dialogue with the stages proposed by Calvo and Candón-Mena (2023): diagnosis–construction–evaluation. Additionally, through in-depth interviews with young promoters of the platform, their technological imaginaries are analyzed in order to understand whether they consider this experience as media activism and counter-data mapping (Jeppesen & Sartoretto, 2023).

2. Mapa Verde: A Participatory Mapping Process

Mapa Verde is the only digital information and communication platform in Uruguay and the region that identifies, highlights, and connects youth environmental initiatives across the country and with society at large. Launched in April 2024, it is an interactive website featuring a georeferenced map of youth-led environmental actions along with an activity calendar and a resource repository. A broader digital ecosystem complements the site, including social media (Instagram, LinkedIn, Facebook) and a WhatsApp community, designed to foster horizontal exchange and strengthen networks among environmentally committed youth.

The centerpiece of the platform is an interactive map featuring 28 active initiatives (as of May 2025), selected from an initial survey of over 100, filtered by criteria of youth leadership and current activity. It is a hybrid cartographic process (Calvo & Candón-Mena, 2023): anchored in the physical, georeferenced space of environmental action, while also connected to the digital sphere where activism unfolds, networks are built, and delocalized actions take place. Conceptually, Mapa Verde defines "youth environmental action" as collectively organized activities aimed at positively impacting the environment through awareness, conservation, education, ecological restoration, eco-friendly products or services, or political advocacy. These actions address key aspects of the so-called triple environmental crisis—climate change, biodiversity loss, and pollution (United Nations Environment Programme, 2021)—and involve youth aged 13 to 29 residing in Uruguay who play central roles in both decision-making and implementation.

Besides being a communication tool, Mapa Verde is a co-creation and participatory mapping process grounded in principles of participation, dialogue, and situated knowledge. From a communication perspective, dialogue—as defined by Bohm (1997) and developed in social change contexts by Obregón and Botero (2011) and Hartz-Karp and Briand (2009)—is a profound exchange process that fosters understanding differences, generating links, and advancing collective meaning construction. In participatory environments, dialogue supports shared visions, tension resolution, and strengthens the community fabric necessary for action.

The following sub-sections present an analysis of the Mapa Verde participatory mapping process, drawing on the methodological proposals of Calvo and Candón-Mena (2023) and Valderrama Hernández (2013) for the

implementation of PAR with social cartography. These phases comprise: (a) an initial stage of diagnosis and research; (b) a phase of construction, conclusions, and proposals; and (c) a third stage of collective evaluation. This scheme allows us to understand both the map construction processes and the political, methodological, and communicative meanings that run through them. Figure 1 shows how, in the case of Mapa Verde, these instances were not strictly consecutive but rather an iterative process where the features of the map as a product were reviewed and adjusted.

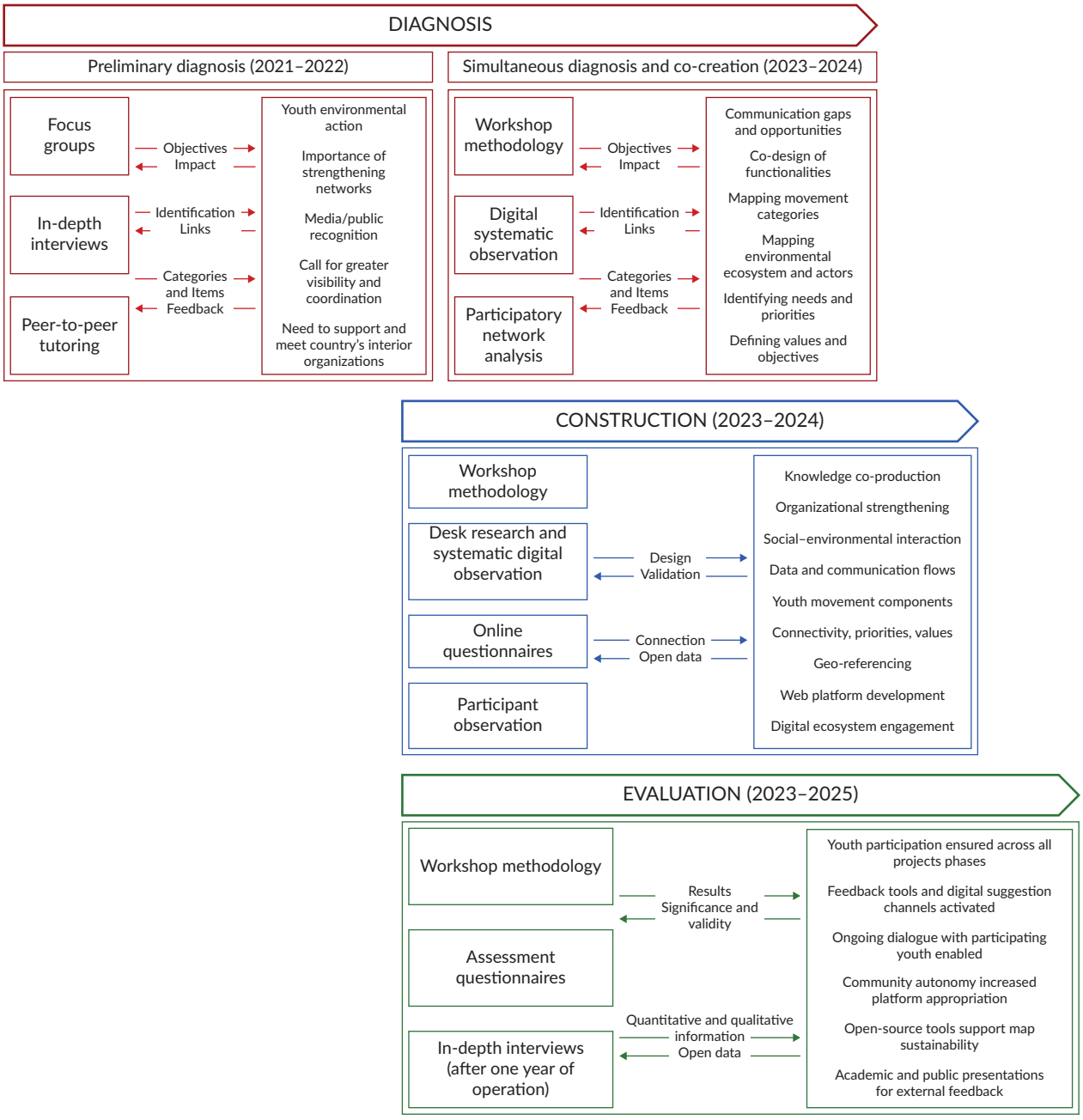

Figure 1. Phases of collaborative mapping in Mapa Verde. Source: Adapted from Calvo and Candón-Mena (2023).

2.1. Diagnosis

According to Calvo and Candón-Mena (2023, p. 32), the diagnostic phase "consists of the selection of the specific categories of the communities to be studied and the composition of the items included in each of them," according to the research interests and also the impact sought in the community studied (Stewart, 2010). From the dialogue between teachers, university students, and members of various youth initiatives that had already been working on environmental issues in the country, the need emerged for a platform that would allow these actions to be understood, connected, and enhanced. According to the principles of PAR, the phase articulates knowledge production and organizational strengthening.

Mapping environmental action that is both digital and territorially anchored enables multiple channels of dialogue between the academic research team and youth groups, as well as among the groups themselves. Face-to-face and virtual exchanges are central in Mapa Verde's participatory diagnosis phase. While these exchanges began in 2021, they intensified in 2023 with various methodological tools that allowed for a deeper understanding of the youth environmental movement in Uruguay, while also collaboratively designing the prototype of the digital platform. Thus, the participatory mapping assessment of Mapa Verde was not developed as a prerequisite to the platform's construction but was integrated simultaneously with platform co-creation processes, allowing for a dynamic interaction between research, participatory design, and collective validation.

2.1.1. Preliminary Diagnosis (2021–2022)

Regarding the intended impact on the community involved in the action-research project, the need and interest in mapping the youth environmental movement in Uruguay arose within an academic outreach exercise proposing peer-to-peer tutoring: representatives of youth environmental organizations and students from the Faculty of Communication, aiming to analyze and implement communication strategies for development (Gómez Márquez & Besada Paullier, 2024). In interviews and focus groups led by the research professors who designed the process, youth organizations expressed the need to better understand other youth organizations' environmental actions to strengthen networking:

> Knowledge is shared, and I think it's mutually beneficial to stay in touch. I didn't know the vast majority of them before this programme.
>
> We could complement each other with other groups. I think it's more than necessary; it would be good for all of us.
>
> It's important that larger organizations participate and provide support. It should be the joining of several things: the more theoretical organizations and those trying to act at the government level, the ones that can reach more municipalities.

They also highlighted the need to establish themselves as valid interlocutors for media and public institutions, providing key input for designing Mapa Verde as a platform for visibility and coordination. As a young activist emphasized, "The biggest goal is that we can bring together a larger audience; it's beneficial for all of us," while a member of a different organization specifically asked for support to be able to "talk with politicians, people

who are not peers." Interest in having a map and participating in its construction was unanimous among the eight participating organizations, selected from 15 applicants based on territorial and thematic diversity:

> I think it has a lot of potential, and it would help people a lot, because sometimes they search on social media, and you can't search specifically for environmental organizations on Instagram.
>
> A map is fantastic! Because mentally, it is how you think, the brain works that way. It could be done, for example, even with startups, so that people who want to be environmentalists can search for cosmetics, secondhand clothes, etc.
>
> I think it's a good idea, because networks are sometimes created, but they're internal, and creating one for external exposure is quite good. It would also help a lot with what we're doing and what we want to do. Knowing that there is a goal of achieving this final product would also help to prevent it being considered a waste of time.
>
> I love the idea. On the one hand, there's the advantage of virtuality, allowing us to learn about similar projects and, at the same time, complement each other. Knowing that there's a project doing something 20km away, we can complement each other. I think that's great. We recently met a startup that makes eco-bricks, and we stayed in touch, and they told us they didn't have anyone in Maldonado who could act as a collection point for eco-brick donations. Well, it was really close, so we received it at the high school, we have space, everything, and they pick it up. We were close, in terms of the thematic area, and they have professionals who know the subject, which is very useful for us. And, we found out by accident, but I think something like this that allows us to visualize projects with the same central theme in one place would be great.

The program evaluation also emphasized continuing to strengthen organizations' communication capacities to support these demands. This was later confirmed and expanded through training sessions with 20 other Uruguayan youth environmental organizations in another outreach project by the same research team, focused on providing communication tools to strengthen organizations in the country's interior.

The academic interest in producing knowledge about the Uruguayan youth environmental movement builds on previous research on youth, the environment, and communication conducted by the university coordinating the Mapa Verde project. The qualitative study comparing non-activist youth in Uruguay and Ireland regarding their perception of environmental issues, agency, sources of environmental information, and consumption of pro-environmental videos is the first milestone (Gómez, 2022; Gómez Márquez, 2024). This work shows that, while youth share globalized repertoires, thematic priorities and narratives about the environment differ significantly between the Global North and South (Gómez Márquez, 2024). This finding encourages the avoidance of generational generalizations based on studies from other latitudes. Focus groups with young people in Uruguayan environmental organizations, allowed comparison of their discourses with those of unorganized youth, revealing keys to social change strategies, environmental action, and communication forms adopted by youth activism (Gómez Márquez & Besada Paullier, 2022, 2024). Subsequent studies on narratives of local eco-influencers on the most popular youth social network Instagram (Garzón Díaz & Gómez Márquez, 2023) highlighted the need to consider entrepreneurships promoting green consumption as means of addressing the environmental crisis, aligned with international

trends in environmental activation through lifestyles. The analysis of Uruguayan discourses on environmental action on this social network also provided input for constructing the Mapa Verde digital ecosystem.

In 2022, renewed interest from youth organizations involved in the 2021 academic exercise led to the mapping proposal being reactivated. In response, the Faculty of Communications conducted exploratory research on the technical, communication, and social feasibility of a digital platform called Mapa Verde, investigating its main functions from the perspective of young, non-activist users. Together, this academia–third sector alliance designed a project that secured institutional support and funding for its participatory implementation during 2023 and 2024. The youth organizations promoting this initial co-design and fundraising stage were: Ecocity, created during the pandemic and focused on environmental education, based in two departments (north and center-south); Fridays for Future Uruguay, the local chapter of Greta Thunberg's international organization which operates mainly in the capital and southeast; and Movimiento Abeja, focused on local development in the southwest. These actors were key participants throughout the diagnostic process not only for the relevant information they provided but also for effectively creating the network of weaker ties with other youth initiatives necessary to complete the participatory mapping (Calvo & Candón-Mena, 2023; Postill & Pink, 2012).

2.1.2. Simultaneous Diagnosis and Co-Creation (2023–2024)

The mapping categories and items, based on research by the project's coordinating university, were outlined with the goal of promoting youth organizations and consulted with potential non-activist users in an earlier stage. They were finally defined participatorily in 2023, when Mapa Verde secured funding to expand and intensify activities for creating the digital platform https://mapaverde.uy. This involved three co-creation workshops focused on surveying the information and communication needs of young activists and interested non-activists—the two priority user groups—identifying relevant actors and understanding the youth environmental ecosystem, recognizing problems and opportunities in their communication with society, defining platform objectives and scope, and co-designing functionalities and the site's visual identity:

> I wanted to join as a volunteer in any environmental action. I searched for it and I couldn´t find anything anywhere. I googled it, I did research on Instagram, until I found Ecocity, but it was really hard for me to find the information.

> I feel that Mapa Verde appeared to facilitate the type of search that we had to do initially when we wanted to start doing something for the environment. We wouldn't find anything…in Mapa Verde, now you have all that you can access, seen from the perspective of other young people.

Various feedback mechanisms were designed and implemented so that, as pointed by Calvo and Candón-Mena (2023), "key participants know the specific items so they can raise doubts and identify incomplete categories, as well as possible biases in the map design" (p. 33). The three driving organizations of young environmentalists not only contributed their territorial experience and knowledge of the actors' ecosystem but also their strategic vision to guide platform content and objectives. They also consolidated as a Mapa Verde Advisory Council, consulted on all technological and political platform definitions as references for the broader community, testing a governance form that remains in place.

As a result, relevant items and categories for mapping the youth environmental movement in Uruguay were participatory. The agreed-upon map items are the various "youth environmental initiatives," categorized as independent non-profit organizations, circular economy, or conscious consumption-oriented ventures, networks, and volunteer spaces involving adult tutors. These items are also categorized according to: type of initiative, department where they operate, topics they work on, type of actions they undertake, how to contact them, volunteering opportunities, and activities uploaded to the website calendar.

From the perspective of contributing to strengthening the social movement, the workshops included a mapping of actors linked to environmental action, featuring institutions and organizations from the adult world with whom they worked or could work in a network around shared objectives or territories. Following the methodological proposal of Buckingham et al. (2018, p. 33) for mapping social landscapes, two approaches were developed in this instance: "Mapping Connectivity," to understand "network connectivity, or the degree to which individuals and organizations are connected"; and "Mapping Priorities and Values," used to "reveal the attitudes and cultural systems behind social networks."

In line with this proposal, the map construction strategy first addressed "mapping connectivity," applying participatory network analysis methodologies. The focus was on identifying relevant actors in environmental action in Uruguay (direct or indirect), understanding the functioning of the ecosystem, and identifying pain points/problems and opportunities in communication between environmental youth organizations and with society at large. After mapping the actors, the information/work/connection flows between them were identified.

Regarding "mapping priorities and values," the workshop sessions focused on identifying needs, priorities, and objectives shared by the participating stakeholders. The individual form, central to Buckingham et al.'s (2018) proposal, took on a secondary role to the workshop methodology which relied mostly on collective co-creation tasks. The discussions about priorities and values led to decisions regarding the design of the interactive map as well as the two complementary sections that would be part of the website: the calendar of activities and the resource repository. The values underlying the youths' environmental practices were observed and recorded, although they were not analyzed through a participatory approach in these sessions. Instead, they were added to the corpus of observations by the university research team.

The gaps in knowledge and experience observed among the young participants confirm the relevance of a platform that not only functions as an information repository for those outside the movement but also as a space for articulation, visibility, and exchange for youth committed to environmental action. In the evaluation of the workshops, predominant responses to the question of what was the main takeaway for young participants pointed to learning from peers: "To be able to exchange knowledge with other young people with the same interests"; "I found that it was crucial to give space to get to know what other organizations are doing"; "what I value most is the exchange between participants," "I feel that there is more conversation on these topics in Montevideo, but not that much in the interior of the country, where it's harder to find people involved in them." This identified gap in visibility and connection also highlights the contribution that academia could deepen through action research.

2.2. Construction (2023–2024)

The process of building the Mapa Verde platform was conceived from the outset as a co-creation experience, understood in the terms of Vargo et al. (2008) and Užienė and Stankutė (2015) as a collaborative dynamic in which multiple actors contribute to the creation of value. In total, more than 80 young people and 12 organizations with different profiles participated in these collective events. The first National Meeting of Youth Environmental Action in the country, which brought together 60 young people from different parts of the country, stood out as a milestone. In the field of social projects, the notion of co-creation implies the joint construction of knowledge, tools, and solutions, thus promoting social innovation and horizontal learning. In this case, co-creation encompassed both the technical and communication dimensions of the platform and the definition of its purposes, functionalities, and organizational structure, as outlined in the account of the diagnostic stage, which partially overlaps with the construction stage in Mapa Verde.

Figure 2. Photos during workshops in 2023 and 2024.

Connecting initiatives with external audiences, as a necessity that drives the process, guided decisions about how the mapping and the platform itself will be carried out. As Bryan (2015) warns, even in participatory processes, maps must adhere to conventions that grant them legitimacy in the eyes of external actors, which can lead to tensions with the specific logic of the participating groups:

> No matter how much participation lent legitimacy to the maps, their validity often remained subject to evaluation by judges, state officials, and other outside experts (Rambaldi et al., 2006; Sparke, 1998; Wood, 2010). The maps could challenge disciplinary boundaries and advance political causes, but they still had to be readable as maps. That requirement was more than just a matter of adhering to cartographic conventions. It meant fitting claims and participation into dominant understandings of

> the world, re-inscribing problematic distinctions between nature and culture, tradition and modernity. (Bryan, 2015, p. 253)

According to Calvo and Candón-Mena (2023), the construction phase proposes taking the categories and items prioritized in the diagnosis stage and adding them to a mapping software, enabling diverse communities to complement the information initially collected. In the case of Mapa Verde, throughout the co-creation workshops mentioned in Section 2.1, the diagnostic definitions were simultaneously uploaded to a pilot website. This allowed participants to view the shape that the Mapa Verde was taking, refine the diagnosis, and report the limitations of the resources available (or sustainable over time from a community management perspective).

In consultation with the Advisory Council, UNICEF, and the partner entity focused on civic technology (Data Uruguay), it was defined that Mapa Verde would be a platform based on free software and open data with publicly accessible information. The website allows georeferenced visualization of initiatives and their permanent updating through open forms, enabling any user to propose new organizations, events, or correct existing data. This follows Calvo and Candón-Mena's (2023, p. 33) recommendation to "consider the visualization of information (Perkins et al., 2009) but, at the same time, build a database that is open and can be permanently completed without the intervention of the researcher." Furthermore, the data are available for reuse as open data and the software code is free under the GPLv3 license. This approach allowed digital developments to be tailored to the project's needs and facilitated user adoption, especially by young people, who became active platform participants rather than mere information recipients. Complementarily, to connect with target audiences and attract visitors, profiles were created in commercial social media platforms as part of Mapa Verde's digital ecosystem (Instagram, Facebook, WhatsApp, LinkedIn).

In a second phase, with new changes incorporated into the mapping website and in early 2024, it was tested with a broader group from two user communities: young organized activists and youth interested in environmental action. This was done through in-person workshops at four strategic locations nationwide to facilitate territorial access. These meetings included participatory social mapping exercises identifying local environmental issues from youth perspectives while strengthening networking: a territorial survey (local and national) was conducted, locations with environmental concerns were identified, as well as youth environmental initiatives and problems in each area. Thus, as Buckingham et al. (2018) suggest, mapping physical or geographical elements merges with social mapping focused on human relationships and dynamics. This dual approach visualizes how physical and social environments interact, generating key data for community interventions and understanding communication flows. Although these representations were not directly incorporated into the platform's digital tool, they were fundamental for understanding youth perceptions of their territories, the environmental challenges that they prioritized, and the actors that were relevant for them. These maps, generated collectively on paper with stationery as part of the hybrid map of Uruguay's youth environmental movement, contributed to the recognition of the environmental landscape from a situated youthful perspective and the strengthening of links between physical and social issues.

Consultations with other qualified informants complemented efforts to identify youth initiatives to include in the map. In this multisectoral and multigenerational effort, other civil society actors (such as Civil Society Mapping, Wikimedia), educational centers (secondary and university), multilateral organizations (United Nations International Children's Emergency Fund, United Nations Development Program), and public

institutions (Ministry of Environment and National Youth Institute) participated by providing information and contacts.

By April 2024, the construction phase of the Mapa Verde was considered complete, meaning that sufficient data had been collected and verified to present the platform to the public. In line with Calvo and Candón-Mena (2023) and Stewart (2010), the guiding questions for drawing this line were: Does the map accurately represent the reality of Uruguay's youth environmental movement? And have communities integrated and expressed themselves in it? The answer was mostly yes. And, according to the Advisory Youth Council and institutional allies, making the map public would allow this task to be completed.

2.3. Evaluation

The evaluation, as Calvo and Candón-Mena (2023, p. 34) indicate, is the last phase of the mapping process and "consists of evaluating the information collected from the communities, in order to present the results, identify their possible limitations and reflect on the conclusions drawn from the data obtained." In the case of Mapa Verde, it was carried out at two levels. First, prior to the launch, meetings were held in the shared governance space with the Advisory Council, which was made up of the three youth organizations promoting the project and the main technical partner (UNICEF). Secondly, at the time of the platform launch, a broader group of organized and unorganized young people was convened at a National Meeting on Youth Environmental Action, which included but was not limited to those who had participated in previous co-creation instances. Thus, it aligns with Calvo and Candón-Mena's (2023) proposal to work with key participants and other community members through active group interviews. In these instances, "the mapping, with its data, is exposed to understand the opinion that communities have about them and how they interpret them" (Calvo & Candón-Mena, 2023, p. 34), as a deliberative forum (Cuesta et al., 2008) but with spontaneous dialogues about the representation on the map of the movement of which they are part, enabling a self-diagnosis and the search for improvement strategies (Park, 1992).

Additionally, one year after the platform's launch, a series of 15 in-depth interviews was conducted in partnership with Wikimedistas Uruguay to evaluate the use, meaning, and impact of Mapa Verde from the perspective of young members of the initiatives mapped in Mapa Verde.

The collaborative project development, the specific co-creation instances, and the platform's collective validation, piloting, and testing—along with recurrent meeting and exchange spaces—helped to foster meaningful appropriation by youth, both those with initiatives mapped on the platform and those not yet included. A member of the Youth Advisory Council explains:

> It's not just a map. Maybe it's the same challenge as every time we have to explain that the Movimiento Abeja isn't just about bees. Well, the Mapa Verde isn't just a map. I think the entire process behind building a community, generating exchanges and synergy between groups, looking for the training aspect…I think all of that is an added value that isn't just a map, it's not just a document.

A 14-year-old participant from one of the mapped initiatives expressed:

> I don't think that a map created with less participation would be the same; it wouldn't have meant the same. I mean, maybe the same projects could be on the map, but in the way it was created now, the

> projects are more closely associated with Mapa Verde. We know it more. We liked it more because we interacted a bit….If they had only said "your project will be in the map," we would have been like, "oh, well, just another project," but we wouldn't have been as aware of what it is and we wouldn't have liked it as much because it wouldn't have been as fun.

These efforts led evaluation instances to confirm that the map reflects their interests, languages, and needs. This fulfills Calvo and Candón-Mena's (2023, p. 36) premise that: "the appropriation of the map is greater the more autonomy the community has over its construction, and thus, in addition, the risk of the results being far from their interests and models is minimized." Furthermore, evaluations of the finished platform reflected the joint diagnostic analysis of the limitations that participatory technologies imposed on the visual result and user experience.

Despite the progress made, the Mapa Verde process has not been without challenges and limitations. One of these is the risk of replicating dynamics of exclusion, where some groups may feel marginalized or underrepresented, while others experience ownership or control of the process. As Chambers (2006, p. 6) warns, participatory methodologies can face tensions between the "marginalization of some, and mastery, pride, and ownership experienced by others." From the project's design, efforts were made to mitigate these asymmetries through open verification protocols, periodic instances of collective review, and horizontal decision-making spaces. However, this is a dimension that requires ongoing attention, especially in a context where youth are a diverse, constantly changing group—and not exempt from educational and social inequalities.

Likewise, it is assessed that the dynamism of the youth environmental movement in Uruguay in terms of the activation and deactivation of collective initiatives dictates the need to conceive of continuous participatory mapping as an observatory. As one of the young activists belonging to the consultation council expresses: "Mapa Verde is something alive, it's not something that's closed and that's it, it's something that's being built every day, and I think that's important." The dynamic nature of Mapa Verde means that its evaluation is not limited to specific moments, but rather constitutes an open and ongoing process. To this end, feedback forms, ongoing consultation spaces, and digital channels for suggestions have been enabled and disseminated through the digital ecosystem composed of various social media platforms, allowing for an active dialogue with participating youth. In this sense, the use of open technologies such as open source code or participatory forms reinforces this paradigm shift in which communities can not only create their own maps but also keep them alive.

The presentation of Mapa Verde in academic, community, and institutional settings has also gathered useful feedback. Preliminary results have been presented since 2024 at international conferences and seminars: International Conference on Communication and Applied Technologies (Lima, Peru); Congress of the Centre for Media and Society Studies (Buenos Aires, Argentina); World Association for Public Opinion Research (Florianópolis, Brazil); and the Environmental Communication Seminar-Symposium (Lansing, US). A technical report (working paper) systematizing the experience is being prepared to further disseminate methodological and research findings in Spanish. Dissemination has also reached broader audiences through workshops and fairs for youth, organized by educational centers, public institutions, and multilateral organizations, along with national media coverage. Social innovation, sustainable processes, and empirical insights of the young environmental movements were the most valued attributes of Mapa Verde as an action research project.

Overall, the continuous evaluation of Mapa Verde serves the threefold purpose of ensuring full youth participation in all phases of the process, fostering collective learning, and making ongoing improvements to the platform and the processes associated with its creation, maintenance, and updating.

3. Technopolitics and Counter-Data Mapping

The appropriation of digital tools by social movements has fostered technopolitical practices that transcend conventional uses of technology for communication and information exchange. The notion of technopolitics, defined as the "tactical and strategic use of digital tools for organization, communication, and collective action" (Toret, 2013, p. 20), helps explain how certain actors actively produce alternative narratives that challenge hegemonic meanings of territory, data, and power.

An analysis of the interviews conducted with 22 members of youth environmental initiatives that are part of Mapa Verde shows that, although these organizations actively use digital media to disseminate their actions and messages, they do not perceive themselves as actors of media activism in the classical sense. The autonomous creation of alternative media or the intentional use of communication tools to challenge dominant narratives (Jeppesen & Sartoretto, 2023) is not central in their discourse. On the contrary, their connection with the media responds, to a large extent, to specific operational and communication needs channeled through mainstream digital platforms.

Furthermore, in the case of Mapa Verde, the process of online visibility and the more sustained use of digital platforms arises in conjunction with a project promoted by the university, which reinforces a logic of appropriation rather than a case of self-managed media. This allows us to think of their practice more as a form of community communication supported by institutions than as autonomous media activism. Nevertheless, these experiences do reveal a latent political potential in the way they construct collective narratives, generate collaborative networks, and position youth environmental action in the public sphere, even without explicit strategic planning in terms of communication.

In his article, Bryan (2015) poses a fundamental question: Who makes the maps? This question runs through the diagnostic, construction, and collaborative evaluation phase of Mapa Verde where the design carried out by the research team in consultation with the youth council prioritizes the role of youth in the cartography of the environmental movement, traditionally absent from processes of territorial representation. In this sense, young people position themselves as the axis and co-creators of the map, in an exercise of visibility and affirmation of their existence and environmental action, which broadens the narrative about environmental action in the country by incorporating their voices and experiences.

In the Uruguayan context, precedents exist of mapping social organizations (Mapeo de la Sociedad Civil, n.d.) and environmental projects like the Small Grants Program (Programa Pequeñas Donaciones del FMAM, n.d.) that, while valuable for systematizing civil society environmental action, differ substantially from Mapa Verde's participatory, youth-oriented approach. The Online Civil Society Mapping, supported by various Uruguayan civil society actors, collects and organizes NGO information by work area and location. This directory classifies organizations by areas such as "environment and natural resources," identifying groups dedicated to environmental issues; however, only two of the youth groups identified by Mapa Verde is included there. Its format is not strictly cartographic, as it presents data in a searchable database rather than

an interactive map. In 2021, a young member of an environmental organization celebrated the idea of what was later developed as Mapa Verde, by contrast with the existing map:

> Tremendous! I find it beautiful, incredible. So necessary, so useful, so valuable. Recently, I had to map organized civil society for some activities in Laguna Merín, and there's a website for civil society organizations. Yeah, it was good. I used it, but it was very analog. I didn't really understand where they were located; there weren't many photos, and the social media wasn't there. And I jotted them down, but I couldn't make contact. Having an accessible map seems really good to me. If you go anywhere in the area, you have to work with the people who are there.

Another related experience is the Small Grants Program Project Map, a Global Environment Facility initiative implemented by United Nations Development Program in Uruguay since 2005 and currently coordinated by the Ministry of Environment with participation of the Ministry of Tourism. This cumulative map uses Google Maps to show the territorial distribution of over 180 projects by 325 community organizations across 19 departments from 2005 to 2023, whether finished or ongoing. Although it offers an updated visual tool, it is an institutional registry of internationally funded projects, lacking a participatory methodology or specific focus on youth initiatives—though youth leadership has been a strong action line of the Small Grants Program in the past year.

In both cases, while its platforms play an important role in providing access to environmental or social information, their data production logic differs from participatory social cartographies and most initiatives mapped in Mapa Verde were excluded due to focus or selection criteria. These experiences do not arise from dialogue, co-creation, or PAR, but are limited to collecting and organizing information from a traditional, centralized perspective. This methodological difference is key to understanding the distinct value of a cartography collectively constructed from, by, and for youth involved in environmental action. As Pánek (2016) notes, maps created by state agencies or experts are giving way to those developed by citizens, with information users actively participating in their construction.

Beyond the central role of a group struggling to gain visibility and control the narrative, it's worth asking whether this participatory cartography corresponds to a process of counter-data mapping. To the extent that it challenges hegemonic structures of representation and makes visible historically marginalized territories and social actors, it could be argued that it does.

However, when interviewed in 2025, most youth initiatives in Mapa Verde did not identify it as a "counter-mapping" tool in the strict sense, but as a strategy enabling visibility, strengthening, and connection of emerging actors in the youth environmental ecosystem. As one member of a mapped initiative explains:

> Even though we didn't have new people coming to us because of seeing us on Mapa Verde, when we tell people that we are part of the platform, we see how it has an effect. The map gives us like a validation that we are really a green entrepreneurship, because it is a map where all the green organizations are. It is the kind of validation that we often need.

As Williamson and Connolly (2011) already pointed out, mapping—in this case, digital—becomes in itself a communicative act that not only articulates data but also facilitates open access to knowledge and favors

collective learning processes, an element highlighted by several of the initiatives interviewed. Some of them emphasise that the process helped to provide and share information as well as to learn about new relevant content; others highlight the value of having a space for exchange about current events (especially in meetings or workshops), which keeps the issue on the agenda. The possibility of learning about other youth initiatives in the territory, the actions they carry out, and how they relate to similar challenges was also highlighted:

> It opened our eyes. It was like, 'Look, there's a whole range of possibilities,' because we said, 'Oh, look at all the organisations that are like us,' and we had no idea they existed. So we know that [Mapa Verde] is also a source of information for us: to be able to access partnerships, for example, if we want to do so. Or, I don't know, some specific activity or promote one, such as a beach clean-up. It's a place where we can find information on who to invite or who to partner with for these issues.

From this view, the territorial co-creation process is as relevant as the final product: Many organizations noted that participating strengthened their public positioning, generated new alliances, or boosted integration into broader networks. As Jeppesen and Sartoretto (2023) argue, digital activism and community communication increasingly interconnect in actions prioritizing the relational, situated, and collaborative, beyond traditional protest or militancy repertoires. The Mapa Verde platform thus becomes a communication hub facilitating connections among diverse experiences, promoting critical environmental reading, and fostering the social appropriation of digital tools.

From the perspective of its protagonists, the reasons for becoming involved reveal a slightly stronger focus on connecting with other initiatives than with audiences outside the youth environmental movement, aligning with the predominant imagery in Jeppesen and Sartoretto's case studies on counter data mapping. This spatial-relational imagery values mapping's ability to reveal and revalue community relationships (Jeppesen & Sartoretto, 2023, p. 155). This view reemerges in interviews conducted one year after the platform's launch despite the map not visualizing connections between youth environmental initiatives. Likely, this spatial-relational approach—as Jeppesen and Sartoretto assert—goes beyond organizing information; it alludes to how the process generates a sense of community and shared narratives.

4. Conclusion: A Tool and a Process for Environmental Advocacy

Currently, Mapa Verde is a digital platform under ongoing collective construction, resulting from a participatory process with periodic review, validation, and improvement of its tools and criteria including a protocol for updating and verifying initiatives and information. These processes transform the tool into a collaborative, living observatory capable of capturing changes in Uruguay's youth socio-environmental ecosystem.

By using mapping as a form of communication (Williamson & Connolly, 2011), Mapa Verde contributes to the visibility of the mapped initiatives and boosts their work in external communication, including with other initiatives. Furthermore, the platform and its digital ecosystem organize their messages around key themes such as the SDGs and the identification of areas of work for youth initiatives, creating a thematic cartography (Buckingham et al., 2018) that identifies priority environmental issues for this population. Daly (2008) highlights that social mapping helps unravel structures and relationships within civil society, contributing to public policy formulation and strengthening citizen participation. This analysis contextualizes social action within specific environments, allowing responses adapted to local needs in dialogue with the

national sphere. Thus, Mapa Verde aims to strengthen the visibility, impact, and coordination of environmental youth while promoting a participatory, situated, and transformative cartographic culture.

The Mapa Verde platform was conceived and co-created as a connecting tool among youth committed to the environment and other social, institutional, and community actors interested in strengthening environmental action in Uruguay. Beyond being a consultation tool, its design and use promote a situated understanding of the territory, recognition of diverse knowledge, and network construction to enhance collective action. It echoes Williamson and Connolly (2011, p. 97) who highlight that these developments enable "a more reflective reading, viewing, and understanding of one's environment and facilitate the recording, as well as the protection of traditional knowledge and communal experience of space." Therefore, Mapa Verde is a pedagogical and political tool: It represents initiatives and issues while fostering learning, territorial appropriation, and coordination.

In line with the Development Communication and Social Change principles (Acunzo et al., 2016), Mapa Verde uses its digital ecosystem as a space for co-creating messages that promote sustainability and give visibility to youth voices. This strategy connects with the concept of environmental advocacy (Pezzullo, 2020), where communication not only informs but also empowers young people to act on critical environmental issues, achieving social change from a bottom-up perspective. Furthermore, training processes, both within academia and among peers, strengthen the youth movement, not only in its communication skills but also in its organizational skills.

In a way, Mapa Verde helps rethink the scenarios of youth environmental action, their own practices, and imagine new forms of environmental activism. Both the platform and the Mapa Verde co-creation process configure a hybrid map that links geographic space with the digital environment where youth environmental initiatives operate. In such experiences, it is impossible to separate the physical and georeferenced space—key to environmental issues—from the digital realm, where delocalized activism on global issues like climate change, water management, energy transition, and responsible consumption takes place.

This type of exercise aligns with the notion of countermapping, understood as an emancipatory practice of representation and symbolic and political dispute over territory and data (Jeppesen & Sartoretto, 2023). In this sense, the platform enables a new scenario where youth not only communicate but also reconfigure the sociopolitical landscape of environmental action through their own imaginaries, practices, and community ties.

As Pánek (2016) states, "the process of mapping is as important as the result of the mapping activity" (p. 304). In Mapa Verde's case, this involved designing an open, collaborative system where the map and the supplementary sections of the website (calendar and resource repository) resulted from a dialogic construction between youth and technical, academic, and institutional actors. In line with the distinction proposed by Chambers (2006) between spaces "to which one is invited" and spaces "that are claimed," Uruguayan environmental youth are deploying their actions at both levels: inserting themselves into institutional participation devices, but also generating and co-governing their own platforms for visibility and connection, such as Mapa Verde:

> "Spaces" is now widely used in a largely, though not entirely, metaphorical sense in discussions of participation and power, distinguishing spaces to which people are invited from those that people

> claim. Power and relationships, and individual behavior and attitudes, have continued to move from the radical wings closer to center stage in the discourse and practice of participation and of development more generally. (Chambers, 2006, p. 2)

From a critical perspective, Bryan (2015) emphasizes that maps should be seen as cultural and political tools capable of reconfiguring how power is represented and exercised in space. Along these lines, maps not only inform but also interpellate, mobilize, and influence.

Thus, mapping should be understood as a social practice that rethinks the role of maps in political ecology, as well as situated expressions of knowledge, identities, and territorial disputes, which can generate new forms of politics and collective life. As Bryan (2015, p. 257) points out:

> Attention to the production and use of maps dispenses with empty calls for participation, and instead asks whose knowledge counts when it comes to questions of space and power.

Participatory mapping is consolidating as a tool in social change communication, one that generates knowledge about a complex social reality, such as the youth environmental movement. The Mapa Verde platform facilitates a social cartography (Buckingham et al., 2018) that connects youth initiatives and organizations, and reflects the dynamics of civil society (Daly, 2008) around environmental action. The dynamism of this reality, however, requires that systems be established to enable the continuous monitoring and strengthening of the community generated around Mapa Verde.

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Conflict of Interests

The authors declare no conflict of interest.

Data Availability

The data used in this study is available through the following Mapa Verde's open links: https://mapaverde.uy; https://www.instagram.com/mapaverdeuy (Instagram); https://www.linkedin.com/company/mapaverdeuy?originalSubdomain=uy (LinkedIn); https://facebook.com/mapaverdeuy/?_rdc=1&_rdr (Facebook).

LLMs Disclosure

For transparency, ethics, and academic integrity, we inform that AI tools were used to a limited extent during writing and analysis, under constant human supervision. ChatGPT (OpenAI) assisted in reviewing the style, wording, and grammatical consistency of some interview quotations originally in Spanish, as well as in

revising reference formats per APA (7th edition). Google NL Notebook was used for reviewing textual citations. Automatic translators (Google Translate and DeepL) supported manuscript translation into English, with subsequent author review. Finally, AI features in Atlas.ti software aided coding and qualitative analysis, always interpreted and validated by the research team.

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About the Authors

Victoria Gómez Márquez has a PhD in communication (Dublin City University), a BA in communication, and an MA in social policies and community mediation (Universitat de Barcelona and Universitat Autònoma de Barcelona). She is the research director at the Faculty of Communication (University of Montevideo) and her research areas include environmental communication, communication for development, and educommunication.

Carolina Garzón Díaz has an MA in communication management from Universidad de Montevideo, a BA in social communication from Universidad Central de Colombia, and a postgraduate diploma in digital communication from FLACSO-Uruguay. She is a PhD candidate in social communication at Universidad Austral and is a professor and researcher at the University of Montevideo. Her research focuses on environmental communication and educommunication.

Tatiana Oviedo Curbelo has a BA in communication from Universidad de Montevideo. She trained in leadership and is currently studying cultural management. She is the founder of an anti-human trafficking initiative, a member of the Youth Network for Climate Justice, and she specializes in communication, social engagement, and audiovisual content production.

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Counter-Mapping: Visual Strategies for Alternative Imaginaries

Miranda McKee

York University, Canada

Correspondence: Miranda McKee (mmckee@yorku.ca)

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Abstract

Throughout the pandemic, maps of visual data published in the digital mediascape were used to communicate the global impact of Covid-19. While public and private entities offered "big picture" perspectives, hegemonic visualizations often neglected to address the disproportionate toll of the pandemic on the members of marginalized communities. This article presents findings from a mixed-methods investigation of 12 case studies, comparing eight grassroots counter-mapping sources against four mainstream mapping sources, created by government and academic institutions, that will be referred to here as "hegemonic." The purpose of this study was to investigate how visuals presented online by community-focused counter-mapping collectives differed from those presented by mainstream sources, examining what these differences might indicate about the social imaginaries at play. Case studies from Argentina, Brazil, Canada, and the US produced a corpus of 1,556 images manually collected from online sources. An initial content analysis using NVivo generated quantitative data forming the foundation for later semiotic analysis examining each individual image while also considering the collection holistically. Informed by social semiotics, the findings highlight how counter-mapping employs bespoke illustrations and community insights to portray a more nuanced perspective of the impacts of the pandemic. In contrast, hegemonic maps rely on vector-based graphics that reflect dominant worldviews. Altering the practices of mapping, counter-mapping empowers communities, challenges systemic inequities, and reimagines how visual data shapes public knowledge.

Keywords

counter-maps; Covid-19; critical cartography; digital literacy; media literacy; social semiotics; social imaginaries; visual culture; visualizations

1. Introduction

Throughout the pandemic, maps publishing data in digital media attempted to describe the impacts of Covid-19 worldwide. As populations survived various forms of lockdown, online materials played a significant role in shaping public understanding of the global impacts of Covid-19. Recent research indicates that visual representations in the media significantly impact worldviews, and yet without critical evaluation, this influence goes unchecked (Dan et al., 2021; Garimella & Eckles, 2020; Hameleers et al., 2020; Iyer et al., 2014; Messaris & Abraham, 2001). Maps combine statistical information with spatial location and can convey an objective sense of authority that has the potential to distort data, particularly at a time of heightened public anxiety (Kent, 2020). Kent explains that maps "offer an unbeatable combination of implied authority (as derived from their assumed objectivity and unauthoredness) with a unique capacity for presenting spatial patterns in an instant" (Kent, 2020, p. 188), pointing to ready-made mapping solutions that produce mediocre data representations. He expresses concern about commonly used techniques in Covid-19 mapping, such as graduated circles used to indicate the number of cases or deaths in a particular area. While this technique provides a visual reference for the number of fatalities reported in an area, the format can also misinform viewers regarding which actual area the reported deaths occurred. As maps can never be completely objective, they must be read within a context situating the cartographer's positionality.

Historically, maps have been utilized as tools to support the objectives of colonial and imperial powers, perpetuating existing power dynamics and reinforcing their interests (Firth, 2015). For example, the Mercator projection is a commonly used map of the Earth that is nonetheless significantly distorted. This globe portrays the spherical Earth as flat, centralizing Europe while shrinking the South and expanding the North. Firth explains that, "Maps reflect and perpetuate relations of power, more often than not in the interests of dominant groups" (Firth, 2015, para. 2), recognizing that these distortions highlight the value of critical cartography (Firth, 2015), examining the weaponization of maps while emphasizing the potential of map-making to reimagine the present and possible futures.

Visual strategies employed in both cartography and image making indicate the underlying values and social imaginaries shaping their design. When maps misrepresent information, cartographers may have *intended* to misinform in an effort to seek power and influence as part of the propaganda of imperial and colonial efforts. Alternatively, a map presenting misleading or skewed information could be produced by those relatively unaware that the version of reality they are creating is made from inaccurate data or their own flawed perceptions. While it is difficult to determine the intent of cartographers by simply looking at their maps, critical readings nonetheless consider the context from which mapmakers produce their content as providing important insights.

The research described below examines this problem further by analyzing visualizations produced by counter-mapping collectives in Argentina, Brazil, Canada, and the US. These compare the visual strategies employed in their mapping practices to those of hegemonic, publicly funded cartography in their same countries. In this research, "hegemonic" maps refer to data visualizations designed by "dominant global institutions, reflecting Western epistemological frameworks" (Jeppesen & Sartoretto, 2023, p. 150). In contrast, counter-mapping refers to visualizations that challenge and resist dominant cartographic strategies (Jeppesen & Sartoretto, 2023; Kidd, 2019). While hegemonic maps may focus on representing areas with large populations and/or entities with significant wealth or power, counter-maps resist such

narratives by representing people, places, and objects with data that is often excluded from mainstream narratives (Peluso, 1995). Using the influence of maps as seemingly objective mediums of representation, Nancy Lee Peluso explains that, "local groups' appropriation of the technology of mapping may help to counterbalance or at least offset the previous monopoly of authoritative resources by state or capital" (Peluso, 1995, p. 386), where local groups are reclaiming the power to reimagine what is included and what is excluded. Just as the boundaries enforced by lines on maps function to justify and reinstate land claims by those in power, counter-maps function as forms of community protest that can "greatly increase the power of people living in a mapped area to control representations of themselves and their claims to resources" (Peluso, 1995, p. 387).

Mark Denil (2011) presents the idea of radical cartography as a stand-in for other, similar phrases (such as counter or alternative cartography). He defines radical cartography as presenting "a major paradigmatic shift which introduces a new vocabulary, grammar, and syntax" (Denil, 2011, p. 10); however, he also admits that the three identified do not themselves neatly align with this definition. In response, I would argue that counter-mapping should not be defined by the necessity of presenting a major paradigm shift, but might simply provide a different, alternative, or counter-narrative to that of hegemonic discourse. While the concept of counter-mapping presented here might align with Denil's notion of radical cartography, which "engages in the construction of a new reality" (Denil, 2011, p. 12), the uniqueness of its data, I would argue, does not make or break a counter-map's legitimacy.

The insights presented below come from a research project evaluating imagery published by a number of counter-mapping case studies (CMCS). An initial quantitative content analysis was holistically performed before diving deeper into examples expanded through qualitative social-semiotic analysis. The objective of the research was to analyze the visual strategies employed by counter-mapping practices, comparing and contrasting them against hegemonic maps to draw out and reflect upon their social imaginaries (Treré et al., 2017). It will be argued that hegemonic maps were found to present an oversimplified summary of Covid-19 impacts, whereas counter-maps provided a more nuanced account of ongoing circumstances.

2. Theoretical Framework

During the pandemic, populations were encouraged to "stay home," and for those lucky enough to have homes with access, the internet became an important device for connection, enabling online media to facilitate learning about the pandemic. The predicament of such an environment summons Susan Sontag's (2002, p. 28) warning, where "reality has abdicated. There are only representations: media." As Covid-19 spread across the globe, so too did various visual representations of the virus (Giaimo, 2020) and its impacts. Reflecting on the visual materials published in response to the pandemic, Sria Chatterjee (2020, para. 3) writes, "the processes of visualisation are implicated in forms of care as much as they are in political violence, surveillance, xenophobia and institutional racism." In particular, Chatterjee warns that the visual mapping of the virus across space over time may be used as an attempt to justify the collection of citizen data repurposed by a surveillance state to control populations.

In a study of visual representations of Covid-19 images, Ana Delicado and Jussara Rowland (2021) refer to Karin Knorr Cetina's (1999) term "viscourse" which emphasizes that images are never neutral and highlights that critical praxis must examine the connections between visuals and their contextual motivations. In this vein,

Delicado and Rowland drew attention to the overuse of stock imagery, maps, charts, and data visualizations during the pandemic, recognizing the pedagogical and practical intentions of this imagery. In their sample, the lack of ethnic diversity in the representation of scientists and healthcare workers relied on preexisting visual tropes, an approach that severely limits the accuracy of the visual information presented.

Stephanie Milan and Emiliano Treré (2020) address the power of who is "counted" in pandemic reporting, expressing deep concerns regarding the neglect and under- or misrepresentation of marginalized communities. The authors stress that data poverty can translate into real dangers as numerical representations influence public responses. While not presented as the overall solution, Milan and Treré bring to the fore marginalized groups who have initiated innovative forms of representation aiming to bring the invisible into view. These counter-mapping collectives champion solidarity and care via grassroots activism to mobilize additional support for vulnerable populations.

In the digital age, a key shift in contemporary map-making practices is the emergence of the prosumer (Celentano & Pittarello, 2012). With the introduction of affordable, collaborative design software, paired with open-access publishing platforms on websites and social media, prosumers are provided with greater opportunities for co-production. This invites collaborative counter-mappers to move from readers to writers, victims to storytellers, and citizens to cartographers. While participatory community-led mapping represents a bottom-up rather than top-down form of critical cartography, scholars caution that there are challenges associated with these approaches. Langlois et al. (2015) draw attention to the long history of using data to track and control marginalized communities.

Elwood (2009) explains that crowdsourced data used in Google Maps has a tendency to overrepresent high-income and popular locations. This suggests that geographic information systems can exacerbate existing inequalities, as Elwood (2009, p. 352) explains, "The geoweb re-inscribes digital divides along existing lines, disadvantaging the poor, racial and ethnic minorities, rural residents, residents of the Global South, and so on." Furthermore, platforms for participatory mapping tend to exclude those who lack the access and/or specific skill sets required to contribute to these platforms, leading to an imbalance in representation even when community input is encouraged.

Bernhard Siegert (2011) provides insight into the function of maps as spaces of representation where instruments can shape and influence thought, revealing the ideologies of the cartographers who design them. Siegert shifted the focus from the relationships between the map and the territory to the relationships between the techniques of representation and their connections to power, emphasizing that "a main feature of the analysis of maps as cultural technologies is that it considers maps not as representations of space but as spaces of representation" (Siegert, 2011, p. 13). This explains that the signs within a map represent "epistemic orders and their struggles for dominance over other epistemic orders" (Siegert, 2011, p. 13). The analysis in Section 4 builds upon Siegert's argument that, as a cultural technique, mapmaking presents the territory as a political reality—a worldview whose power and authority make particular claims.

J. B. Harley's work encourages audiences to decode their maps by reading between the lines, learning to recognize the tropes being employed that challenge their assumed claim to objectivity. He emphasizes "that cartographic facts are only facts within a specific cultural perspective" (Harley, 1989, p. 3), pointing out that European cartography follows a positivist epistemology which suggests that objects in the world are real,

objective, and can be expressed in mathematical terms that offer the "only" path to cartographic truth. The signs and symbols developed within this framework function to support their ideological values while discounting any alternative forms of representation developed outside of them.

Applying Foucault's critique of knowledge to the analysis of cartography, Harley recognized the importance of mapmaking practices existing beyond the hegemonic "standard," writing that, "the map-maker is often as busy recording the contours of feudalism, the shape of religious hierarchy, or the steps in the tiers of social class, as the topography of the physical and human landscape" (Harley, 1989, p. 6). By considering maps as a form of cultural text, Harley (1989, p. 8) encouraged a nuanced, critical, socio-cultural deconstruction of mapping practices, an approach that considers "the history and anthropology of the image" where the narrative quality of maps contains myths represented as truth.

This analysis also engages with the work of Mary Midgley (2001, 2004) who highlights concerns regarding the myths and social imaginaries shaping symbols used in publicly disseminated maps. These myths not only inform map production but also influence the meaning viewers derive from visual information. Midgley assists with the recovery of meaning from cartography, encouraging viewers to consider visual narratives as a whole, recognizing that dominant technologies might lead audiences astray via the reductive metaphysical myths of dualism and atomism.

According to Midgley (2001), the division of body and mind introduced by Descartes has led to a reduction of the mind to the body, where psychiatrists and behavioral psychologists alike reduce their patients and clients to physical mechanisms and external behaviors that ignore their thoughts and feelings. Midgley likens this to a man looking for his lost keys at night, searching only in the spots lit up by the streetlights not because they are more likely to be there, but because it is the easiest place to look. Midgley challenges us to look beyond the spotlight, considering the mind as more than moving parts in a body. In this same way, maps can be understood as more than their reductionist approaches to understanding the world.

The discussion in Section 4 highlights the importance of addressing the intersectional nature of societal challenges as exemplified by the counter-mapping examples selected here. These seek to avoid the oversimplifications plaguing mainstream mapping. The analysis of hegemonic maps and counter-mapping examples reveals the double character of cartography as a medium that can facilitate the oppression or liberation of communities associated with the data presented. The resulting ideas contribute to a broader discourse encouraging a praxis of visual literacy in response to misleading data visualizations and imagery being published in an online mediascape.

3. Methodology

3.1. Methodology Overview

The research described in this article began with the identification of eight counter-mapping collectives and four hegemonic cartographic sources, resulting in a corpus of 1,556 images that were manually collected from online sources. A content analysis was executed on the corpus, using NVivo to track coded signifiers, followed by a close semiotic reading of the case study materials. This multi-method strategy provided multiple entry points, each considering how the visuals presented by counter-mapping collectives differed from those

presented by hegemonic sources, offering data from which to interpret the social imaginaries influencing these visualizations.

Two research questions shaped the inquiry described here:

> RQ1: What semiotic visual design strategies are employed by Covid-19 counter-mapping collectives, and how do they differ from those present in hegemonic maps?
>
> RQ2: What do the identified visual strategies reveal about the social imaginaries at play?

Social semiotics inform this methodological approach, where Carey Jewitt and Rumiko Oyama (2004, p. 2) explain that the "social semiotics of visual communication involves the description of semiotic resources, what can be said and done with images (and other visual means of communication) and how the things people say and do with images can be interpreted." Critical theory further informs the semiotic analysis, encouraging a consideration of the intersecting oppressive hierarchies of race, gender, and class semiotically manifest within the visual data.

3.2. Sample Sets

Developed in conversation with the research team, the counter-mapping case study selection focused on eight sources, all of which covered evictions to a greater or lesser extent. Evictions became an identified topic of concern often overlooked by mainstream Covid-19 mapping, emerging as a focus because (at the time of development in January of 2022) it was clear to the research team that the housing crisis was having a significant impact on the ability of individuals to "stay home, and stay safe" during the pandemic. Despite this, we saw little representation of this factor in mainstream Covid-19 mapping. Eviction-related content provided a catalyst for our initial investigation of counter-mapping sources; however, the identified community collectives produced counter-maps covering topics and content extending far beyond both evictions and Covid-19.

The eight case studies selected originated in four countries: Argentina, Brazil, Canada, and the US (see Table 1 and 2). In contrast, four mainstream sources of Covid-19 data mapping were identified and analyzed from these same countries of origin, including Johns Hopkins University, the Canadian Government, the Argentinian Government, and the Brazilian Government. The research team's expertise, encompassing both North American and South American contexts, informed the selection of these case studies.

To collect the corpus of imagery, each source website was visited, capturing every instance of graphic visual content on the host site via screenshot. While collecting a total of 1,556 images, notes were taken marking emerging themes, recurring tropes, and visual cues. These notes later informed code development. Images included not only visuals recognized as maps, but also data visualizations, photographs, videos, icons, illustrations, and other digital graphics. The conscious decision to include imagery beyond the maps themselves stemmed from an interest in acknowledging the role that surrounding imagery could play in reading the maps. As Harley (1989, p. 9) pointed out:

> To "deconstruct" a piece of writing is therefore to operate a kind of strategic reversal, seizing on precisely those unregarded details (casual metaphors, footnotes, incidental turns of argument) which

> are always, and necessarily, passed over by interpreters of a more orthodox persuasion. For it is here, in the margins of the text—the "margins," that is, as defined by a powerful normative consensus—that deconstruction discovers those same unsettling forces at work.

For example, Delicado and Rowland (2021) noted in their investigation of Covid-19 imagery that the lack of ethnic diversity in scientists and doctors presented in visuals may point toward the ethnocentricity at play in the selection of visual content in Covid-19 communications. Considering this, the study design described here incorporates not only the maps presented by various entities but also considers all visible imagery on the websites, associating these with the relevant maps.

3.3. Content Analysis

Using NVivo qualitative data analysis software, a detailed content analysis was conducted on 953 images collected from counter-mapping sources and 603 images gathered from mainstream sources of Covid-19 mapping. Building on initial observations from the data collection phase, additional themes were explored until thematic saturation was achieved. The codes developed and tracked within NVivo were created and coded by one researcher, meaning that intercoder reliability did not apply. The codes were developed based on the literature reviewed, aiming to collect all relevant data to provide insight regarding the similarities and differences between hegemonic and counter-mapping content. The identified codes tracked particular visual elements including people, flora/fauna, maps, and graphs. Further coding recorded instances of people (singular and plural) in addition to observations regarding whether they presented as male, female, racialized, children, or older adults.

The problems arising from judging such categories by visuals alone were discussed at length within the research group. For example, it is impossible to determine a person's gender identity solely through their visual representation. For this same reason, it can also be challenging to assess if an individual is elderly or not. It was often difficult to decide when to use the code for a "racialized" person due to similar limitations. However, it is worth noting that the initial prompt contributing to the development of these codes asked: Could this person be subjected to maltreatment based on visually defensible social constructions of race, gender, or age? This question returns to the visual nature of the research including subquestions that support a research objective exploring how age, race, and gender were represented in visual data mapping during the pandemic.

While much of the numerical data from mainstream mapping sources was surprisingly similar to that from counter-mapping sources, a few key differences emerged that provided direction for subsequent semiotic analysis. For example, the code "illustration or handwriting" collected data regarding the use of hand-drawn designed elements. The number of these instances was remarkably higher in the counter-mapping examples (63%) when compared with the mainstream examples (28%). These findings provided a foundation from which semiotic analysis could build a closer examination.

3.4. Semiotic Analysis

The discussion in Section 4 focuses on a semiotic analysis resulting from a close reading of a selection of counter-maps and mainstream maps (Figures 1, 2, 7, 8). Midgley's (2001, 2004) work offers opportunities to

re-examine the social imaginaries at play in our expectations of maps. This research highlights the dual nature of cartographic representations in society which can serve as a tool of oppression while also supporting the liberation of marginalized communities. Mapping imagery published by those in power can employ visual methods that reinforce hegemonic ideologies (Siegert, 2011), promoting the continued oppression of marginalized communities (Milan & Treré, 2020). Alternatively, grassroots initiatives offer bottom-up counter-narratives where their maps challenge these same hegemonic assumptions by representing liberatory social imaginaries whose reality is reinforced through visual strategies.

3.5. Ethical Considerations

The corpus of imagery collected and analyzed in this study was sourced from publicly available websites, none of which were accessed behind a paywall or required a private sign-in to function. The data presented is based on an analysis of the imagery collected and did not engage human participants; therefore a human subject research protocol was not required. Explicit written consent was obtained from all of the sources of imagery included in this article. A number of limitations to this study remain, including the constraints emergent from a single-author-led investigation.

The evaluation of the corpus was performed in a systematic and critical manner, drawing upon existing literature and previous investigations (McKee, 2022) while seeking input from the aforementioned team as well as colleagues and faculty in the York and Toronto Metropolitan University Communication and Culture program. At the same time, the positionality of the author as a White, cisgender, able-bodied, Canadian of European settler descent inevitably shapes the way visual materials were interpreted.

4. Findings

4.1. Content Analysis Findings

Tables 1 and 2 provide an overview of the numerical data emerging from the NVivo content analysis which allows for a comparison between content represented in the counter-mapping visuals and that of hegemonic case studies (HCS). These numbers reflected relatively similar results between both sample sets across multiple categories. For example, considering the number of images that included people, compared with the entire collection of images from each case study, the results were relatively similar with an average of 44% in the CMCS versus 37% in the HCS. People who were coded as female-presenting appeared roughly equal in both sample sets, with an average of 57% (CMCS) and 50% (HCS), with the representation of racialized individuals recorded at 19% (CMCS) and 13% (HCS). Recorded occurrences of male-presenting people differed between the two sample sets, with an average of 28% (CMCS) versus 58% (HCS).

Other emergent differences, as previously mentioned, the occurrence of handwriting and illustrated visuals was notable, appearing more often in the CMCS at 63% compared with 28% in the HCS. Flora and fauna appeared more often in the CMCS at 25% to only 5% in the HCS. Bar graphs and line graphs appeared far more frequently in the HCS compared with the CMCS. Taking cues from these initial findings, a semiotic analysis of the corpus was executed to draw further insight from the case studies. Section 4 explores these findings.

Table 1. Summary of content analysis findings for the CMCS.

	Maps		People														Format				Content					
CMCS	% of image maps	Responsive map	Person or people	%	People	%	Person	%	Child	Older	Female presenting	%	Male presenting	%	Racialized	%	Video	Photo	Illustration or handwriting	%	Protest	Graffiti or mural	Flora/fauna	%	Bar graph	Line graph
Anti-Eviction Mapping Project	3%	3	89	44%	73	36%	16	8%	7	3	51	57%	53	60%	36	40%	0	106	77	38%	7	14	20	10%	0	0
Antieviction Montreal	22%	16	42	53%	14	18%	28	35%	1	0	19	45%	27	64%	22	52%	28	60	7	9%	3	7	17	22%	1	0
Eviction Solidarity Network	21%	7	5	15%	4	12%	1	3%	0	0	2	40%	0	0%	2	40%	5	5	16	47%	0	0	5	15%	0	7
Iconoclasistas	29%	0	259	81%	216	68%	43	13%	25	0	158	61%	135	52%	20	8%	0	175	266	83%	1	1	106	33%	0	0
Keep Your Rent—Toronto COVID Evictions	80%	4	0	0%	0	0%	0	0%	0	0	0	0%	0	0%	0	0%	0	0	1	20%	0	0	0	0%	0	0
O LabCidade	50%	31	8	13%	8	13%	0	0%	5	0	5	63%	1	13%	0	0%	0	1	3	5%	0	0	1	2%	5	0
RVAgreen	100%	194	194	100%	194	100%	0	0%	4	0	4	2%	7	4%	1	1%	0	16	194	100%	0	0	194	100%	0	0
The Mapping Action Collective	17%	1	26	45%	15	26%	11	19%	2	1	9	35%	9	35%	3	12%	0	21	38	66%	0	1	11	19%	1	1
Totals		256	623		524	55%	99		44	4	248		232		84		33	384	602		11	23	354		7	8
Median	25%	5.5	34	45%	14.5	22%	6	5%	3	0	7	43%	8	24%	2.5	10%	0	18.5	27	38%	0	0.5	14	17%	0	0
Average	40%	32	77.875	44%	65.5	34%	12.375	10%	5.5	0.5	31	57%	29	28%	10.5	19%	4.125	48	75.25	63%	1.375	2.875	44.25	25%	0.875	1

Table 2. Summary of content analysis findings for the HCS.

	Maps		People														Format				Content					
HCS	% of image maps	Responsive map	Person or people	%	People	%	Person	%	Child	Older	Female presenting	%	Male presenting	%	Racialized	%	Video	Photo	Illustration or handwriting	%	Protest	Graffiti or mural	Flora/fauna	%	Bar graph	Line graph
Government of Argentina Ministry of Health Coronavirus	2%	1	27	66%	25	61%	2	5%	7	2	21	78%	15	56%	2	7%	2	28	13	32%	0	0	6	15%	2	0
Government of Brazil Covid-19	36%	13	2	6%	0	0%	2	6%	0	0	0	0%	2	100%	0	0%	0	0	4	11%	0	0	0	0%	8	10
Government of Canada Covid-19	4%	6	80	40%	24	12%	56	28%	3	7	56	70%	28	35%	27	34%	68	73	28	14%	0	0	11	6%	32	41
Johns Hopkins Coronavirus Resource Centre	9%	7	122	37%	76	23%	46	14%	8	2	62	51%	49	40%	11	9%	2	124	123	38%	0	2	0	0%	24	53
Totals		27	231		125		106		18	11	139		94		40		72	225	168		0	2	17		66	104
Median	6%	6.5	53.5	39%	24.5	18%	24	10%	5	2	38.5	60%	21.5	48%	6.5	8%	2	50.5	20.5	17%	0	0	3	3%	16	25.5
Average	13%	6.75	57.75	37%	31.25	24%	26.5	13%	4.5	2.75	34.75	50%	23.5	58%	10	13%	18	56.25	42	28%	0	0.5	4.25	5%	16.5	26

4.2. Mapping the Problem: Oppressive Cartography

To better understand the problem authoritative mediums like maps represent, it is helpful to consider Midgley's (2004, p. 1) understanding of myths, which she described as both "imaginative patterns" and "networks of powerful symbols that suggest particular ways of interpreting the world." Considering this, the Johns Hopkins Covid-19 Dashboard (Figure 1) visually prioritizes data charting the total confirmed cases and deaths from the virus as well as vaccination doses administered. Orienting these numbers on a North America-centered world map, it describes itself as "the most trusted, accurate source of information available on the pandemic" (Surowiec, 2021, para. 1).

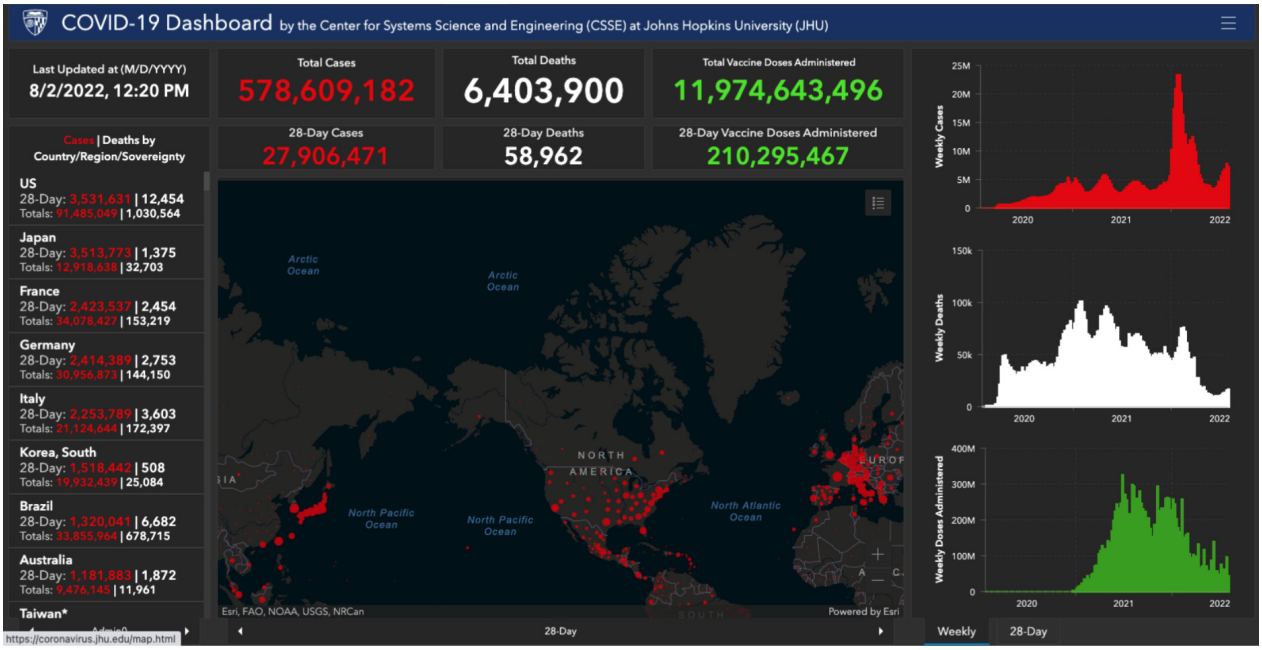

Figure 1. Screenshot of the Covid-19 dashboard updated on August 2, 2022. Source: Johns Hopkins University (n.d.).

In Figure 1, confirmed cases are presented in red, deaths in white, and vaccinations in green. The red numbers demand immediate attention, indicating this is of primary concern, followed by a bright green that suggests associations of growth, life, or hope. As noted by Harley (1989, p. 7): "Much of the power of the map, as a representation of social geography, is that it operates behind a mask of a seemingly neutral science." Questions arise when reflecting on these cartographic decisions. For example, might deaths be a more significant cause for alarm and so be presented in red? How might gender, age, race, income, preexisting health conditions, the climate crisis, food insecurity, multi-generational housing, and/or evictions impact these numbers? Furthermore, what does it mean to represent the global population using numbers and circles? Joanna Redden draws attention to this problem in relation to big data, warning that the datafication of reality can rely too heavily on computation and "may reinforce neoliberal frameworks of meaning over social justice frameworks" (Langlois et al., 2015, p. 33). Chun (2021) and Chun and Barnett (2021) warn that the correlations indicated by big data are being misidentified as causation, impacting how we understand people and their behaviors. In short, the story presented by the Johns Hopkins University Covid-19 dashboard oversimplifies the pandemic by focusing solely on cases, deaths, and vaccinations to describe a far more complex problem.

The visual strategies employed in maps like this one also create a forced distancing between the viewer and those represented by the data. Human beings become dots, held by larger or smaller circles that indicate higher or lower numbers, where anything more-than-human is completely absent aside from a flattened, colorless representation of land masses. The myth that technology is our one and only savior is debunked by Haraway who emphasizes that the world is full of more-than-human entities who we ought to be living-with, making-with, and becoming-with in a world "where who lives and who dies and how might become clearer for the cultivating of multispecies justice" (Haraway, 2016, p. 3). Using the term more-than-human, Haraway refers to animals, plants, microbes, as well as technology and environments, shifting away from anthropocentrism by recognizing our interconnected nature.

As pointed out by Firth (2015, para. 8), "Mapping can also emphasise relations to institutions, landscapes, wildlife and environments, leading people to reconceive their relation to invisible structures or the natural world." These graphic decisions connect to specific social imaginaries, such as Midgley's myths, which can drive decisions to prioritize one visual symbol or strategy over another. The focus on case numbers narrativizes them as a central problem where deaths become a secondary concern, offering vaccination as the primary solution. Many questions remain unaddressed in this representation, such as how limited access to vaccinations impacts death rates in countries presented on the margins of the map including the majority of South America, South, East, and Central Africa, and a significant portion of Asia. It is worth noting that this map is responsive and so allows viewers to scroll to centre these regions. However, it is also important to consider that the "default" view reflects a colonial, hegemonic narrative where North America and Europe remain central.

In *The Myths We Live By*, Midgley takes issue with the contemporary tendencies used to explain phenomena. She writes:

> The reductive, atomistic picture of explanation, which suggests that the right way to understand complex wholes is always to break them down into their smallest parts, leads us to think that truth is always revealed at the end of that other seventeenth-century invention, the microscope. (Midgley, 2004, p. 1)

The digital revolution can be understood as perpetuating an atomistic understanding of the world, justifying algorithmic decisions as "objective" even when driven by codes that operate on zeros and ones. Ruha Benjamin (2019) describes a beauty competition that boasted using software to "objectively" sort pageant applicants resulting in only one winner out of 44 who presented with darker skin. Data sets used to run the software embed the same racist biases that plague society at large, beginning long before the age of technology. The research of Benjamin and others, including Chun (2021) and Alexander Monea (2022), describes examples of technology reinforcing racism, sexism, and homophobia, among other oppressive tendencies. Maps and other imagery circulating online are not immune. As Benjamin (2019, p. 99) points out, "Far from being neutral or simply aesthetic, images have been one of the primary weapons in reinforcing and opposing social oppression." The myths and meaning visually embedded in maps can therefore reinforce hegemonic biases while presenting them as "objective," promoting narratives that are reductive, lack nuance, and do a disservice to viewers seeking knowledge.

4.3. Myths and Meaning: Maps and Seeing

Maps and other imagery aim to tell the "truth" but do not exist in binary camps of either false or true. Instead, representation moves along a spectrum, with each symbol, icon, and graphic decision shaped and informed by intersecting social imaginaries that influence what is seen and how it can be interpreted. In an example from RVAgreen 2050, a project by The City of Richmond, Virginia, their map presents over 190 different layers of data that can be toggled on and off to be seen or hidden at the will of the viewer (Figure 2). While this map was considered part of the eight CMCS, it originates from a government-led initiative that provides a segue between the oppressive and liberatory examples examined here. This map effectively addresses the intersectional nature of pertinent data which significantly impacts our holistic understanding of the pandemic. The map itself is titled the RVAgreen 2050 Climate Equity Index, and according to the website, "can be used to explore factors that could make you and your community more susceptible to harm due to crises such as climate change or the Covid-19 pandemic" (City of Richmond Office of Sustainability, n.d.).

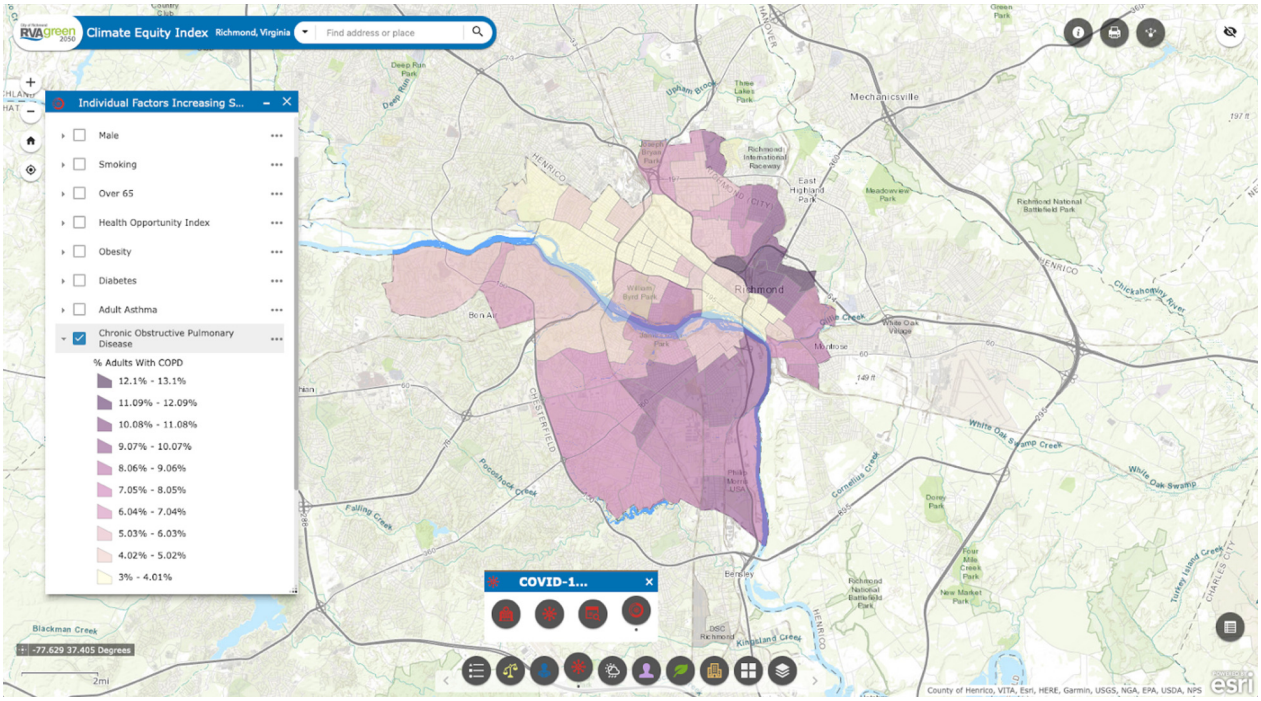

Figure 2. Screenshot of the RVAgreen 2050 Climate Equity Index captured on March 22, 2022. Source: City of Richmond Office of Sustainability (n.d.).

This map provided information about co-morbidity factors that may be heightened in certain areas due to factors including social health and safety. For example: where are people suffering from diabetes or coronary heart disease; where are there high rates of uninsured people, those suffering in areas of high crime, or living alone while over 65; where are there custodial grandparents, single-parent households, low food access, or people living below the poverty line; who does not have access to the internet or a vehicle; where do people live in crowded conditions with limited access to green space; where are the centers that support unhoused people; and where are the senior centers, the vacant lots, the industrial areas and the residential communities? RVAGreen has incorporated layers of data for each of these questions, providing the ability to view more than one at a time. The designers of the project must have acknowledged that problems should be addressed from

multiple angles considering the plethora of factors contributing to ongoing challenges. Natural resources are mapped alongside human health and well-being including lakes, courthouses, and arts districts, alongside areas with populations under 18, minority populations, and voting stations. RVAgreen attempts to show the whole picture (Figures 2 and 3), covering more ground than the Johns Hopkins map in acknowledging the intersecting nature of a problem like Covid-19.

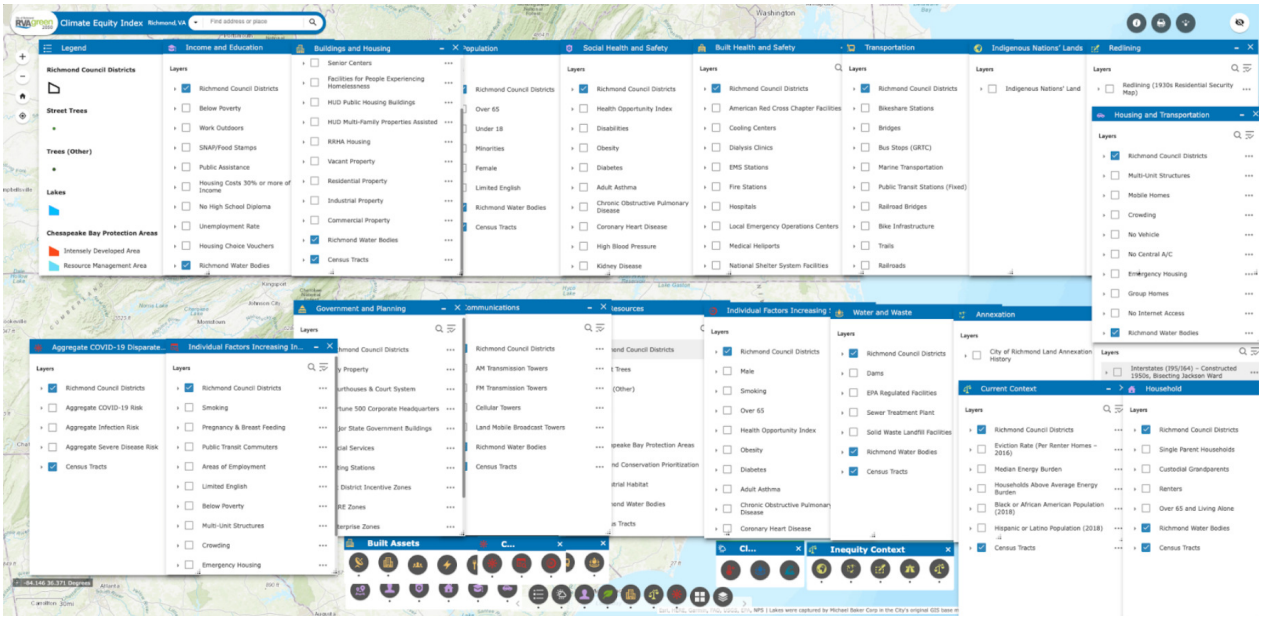

Figure 3. Screenshot of the RVAgreen 2050 Climate Equity Index, captured on April 18, 2023, with as many legend options as possible viewable on one screen. Source: City of Richmond Office of Sustainability (n.d.).

Midgley used maps as a metaphor for understanding dualism and the problem of consciousness, arguing that the answer to these challenges will not emerge from identifying an atomic structure shaping one particular map by then reducing all others to its logic. She explained:

> If we want to understand how this bewildering range of maps works, we do not need to pick on one of them as "fundamental." We do not need to find a single atomic structure belonging to that one map and reduce all the other patterns to it....What we do need is something different. We have to relate all these patterns in a way which shows why all these various maps are needed, why they are not just contradicting one another, why they do not just represent different alternative worlds. To grasp this, we always draw back to consider a wider whole. (Midgley, 2001, p. 82)

There are other ways to represent complex problems rather than reductivism. This may require a closer examination from multiple perspectives that then draws together their complexities to reflect on the whole. When approaching complex issues such as the mind/body problem, a global pandemic, systemic racism, or the climate crisis, we must consider these multiple angles and resist the urge to assume the whole as merely the sum of its observable parts.

The RVAGreen map provides an example of a responsive map that provides a significant level of agency to the user. Reflecting on the numbers reporting how many maps were responsive in the case studies, the results indicate a similar median of 5.5 in the counter-mapping group when compared to the hegemonic

group at 6.5. Yet responsive maps may also represent a false sense of control. While the RVAgreen example provides a nuanced approach to cartographic representation, it also reveals weaknesses in the design that offer us valuable learning opportunities. Figure 3 illustrates one such concern. While the extensive data layers provide an impressive amount of information, it becomes increasingly challenging to navigate as more layers are added. A data narrative could be considered an alternative or addition to this cartographic journey, guiding the viewer through particular layered combinations that may lead to impactful conclusions.

RVAgreen has offered this to some extent in an YouTube instructional video (RVAgreen 2050, 2020), explaining that "some layers, like the 'Stories of Covid-19 Resilience' layer, will display points across the map symbolizing the location of a particular story, factor or city asset" (RVAgreen 2050, 2020, min. 1:26). They point out important intersections such as "climate impacts—extreme heat—urban heat layer" combined with "social vulnerability factors," "social health and safety," and "adult asthma" that may be an important point of focus where "people with asthma are more at risk for severe health impacts under extreme heat" (RVAgreen 2050, 2020, min. 2:56). Narrative explorations bring the viewer along a journey, led by those more familiar with the data, helping to navigate it to make more meaningful discoveries. This, paired with the ability for viewers to explore the data on their own, would enrich the epistemological experiences provided by the map.

Problems with the RVAgreen map also run deeper in its design. The map itself is built using GIS software called esri (n.d.) designed by ArcGIS who boast that "just about every problem and situation has a location aspect," offering services including mapping, 3D GIS, imagery & remote sensing, spatial analysis & data science, field operations, and data collection & management. This map, along with others depending on GIS software, imports preexisting design biases embedded within the software. Midgley's (2004, p. 1) words of warning are apt to consider here, noting that, "our dominant technology shapes our symbolism and thereby our metaphysics, our view about what is real." RVAgreen's legend (Figure 4) illustrates these concerns. The human elements represented provide details through iconographic symbols that oversimplify through a visual strategy extending to the representation of natural resources and climate impacts. As Elwood (2009, p. 353) warns, "some scholars take the position that the geoweb is a new medium for reinscription of existing forms of domination."

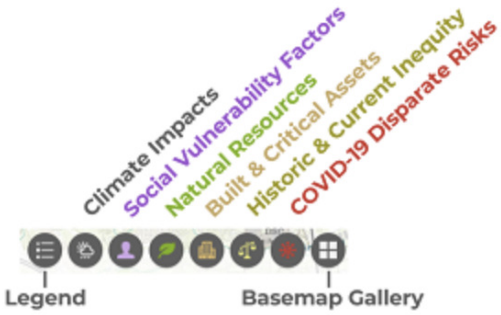

Figure 4. Screenshot of the RVAgreen 2050 Climate Equity Index legend captured on April 7, 2023. Source: City of Richmond Office of Sustainability (n.d.).

It is reasonable to accept that icons used with the assistance of GIS software provide a quick and simplified solution to the problem of symbolic representation. This strategy saves time, particularly if the alternative is to hire graphic designers who must be identified, negotiated with, briefed, and finally paid for their services.

The GIS software eliminates these additional steps, but a further price is paid for their solutions. It is worth revisiting Midgley's point, considering what information is lost by opting to lean on dominant technologies. While the data that RVAgreen is working with is rich with nuance, their visual strategy for selecting icons seems one-dimensional.

Reflecting on the mechanistic oversimplification of the mind/body problem, and other challenges, Midgley (2004, p. 2) writes:

> At present, when people become aware of this imagery, they tend to think of it as merely a surface dressing of isolated metaphors–as a kind of optional decorative paint that is sometimes added to ideas after they are formed, so as to make them clear to outsiders. But really such symbolism is an integral part of our thought-structure.

Midgley's thoughts encourage a critical analysis of what may appear to be turnkey solutions.

4.4. Maps, Myths, and Legends

Returning to the data emerging from the content analysis portion of the research, a clear differentiating factor between the CMCS and mainstream mapping sources is the amount of illustrated or hand-drawn work. Hand-drawn notes, collected from the community, and bespoke illustrations were developed for map-specific purposes where on average roughly 63% of the imagery visible on the counter-mapping case study websites included handwriting or illustrated designs, compared with only 28% in the mainstream sources. Upon examining the case study collections holistically, it became clear that a "human touch" was a crucial factor for the counter-mapping imagery. Representations of people in mainstream sources often employed stock-like, generic images of individuals undergoing testing or vaccination, as well as medical professionals posing for official portraits. Many of the images in the CMCS reflect the value of community input and feature interviews with individuals, photographs of collaborative efforts generating maps together (Figures 5 and 6), and bespoke illustrations speaking to nuance and circumstance (Figures 7 and 8). As Firth (2015, para. 8) explained, "collaborative map-making can be a way to democratise knowledge-production," and these approaches to visual representation were clearly present in the counter-mapping data set.

Reflecting on the numerical data emerging from an initial analysis, the representation of plants and animals was significantly higher in counter-mapping examples, ranging from 0–354 instances with an average of 44 and a median of 14 instances within the counter-mapping visuals. In comparison, the hegemonic maps had between 0–17 references to flora or fauna, with an average of four and a median of three. This may reflect different imaginaries regarding the value of more-than-human life. Looking closely at specific maps, the Iconoslasistas' map titled *Cuerpo-Territorio*, translating to Body-Territory, from 2021 (Figure 7), considers the numerous connections between environmental violence and its impacts on the body. The mapped regions flank the design's left and right sides describing the multifaceted issues plaguing specific areas in South America, connecting these to serious bodily consequences. The legend at the bottom right translates the symbolic icons used to indicate areas of trauma with the land including mining, desertification, destruction of biodiversity, contamination, fracking, and deforestation.

Figure 5. Image of collaborative mural-map painting featured on the Anti-Eviction Mapping Project which depicts the mural in Clarion Alley titled *Narratives of Displacement and Resistance*, highlighting the issue of no-fault evictions in San Francisco, USA. Source: Anti-Eviction Mapping Project (n.d.).

Figure 6. Image from the Iconoclasistas website depicting a body mapping exercise on gender violence from 2016. Source: Iconoclasistas (2020).

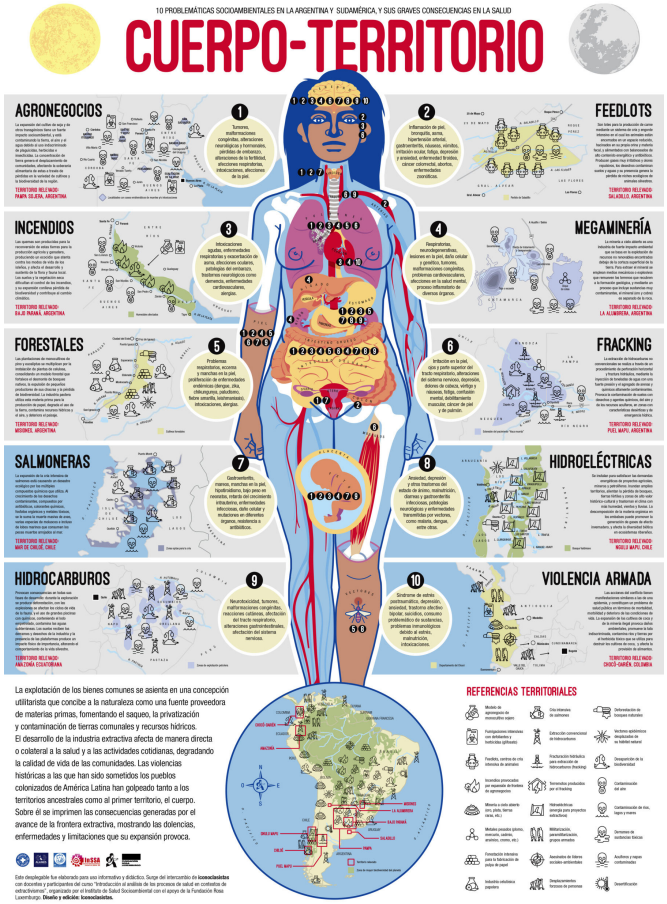

Figure 7. Map *Cuerpo-Territorio*, created by the Iconoclasistas collective, connects the exploitation and violence against territories and the related tolls on the bodies of those who reside in those territories. Source: Iconoclasistas (2021).

The body illustrated in the center of the map is surrounded by 10 numbered collections where ailments correspond with multiple areas of the body that describe the impacts of environmental abuses. As a whole, the map holistically unites problems that are all too often addressed in isolation. For example, armed violence is described in the bottom right, where its geographical representation focuses on the territory of Chocó Darién on the eastern coast of Colombia. It describes via symbols the murder of socio-environmental leaders as well as the forced displacement of civilians, among other serious concerns. The related ailments described in the tenth category indicate issues including: post-traumatic stress disorder, depression, anxiety, substance abuse, suicide, and the related immune disorders that result in afflictions connected with regional violence.

The number 10 appears on the body in the brain and heart and, in this way, we can see the direct connection between violence and trauma in the body. The description at the bottom left points toward the myths or social imaginaries facilitating such violence, namely the idea that nature is an endless source of raw materials, supporting the ongoing extraction and contamination of land for the profit and power of the few, where these extractive activities directly and negatively influence the health and well-being of the bodies living in these territories. A hegemonic, false sense of separation between the body and the land speaks to Midgley's concerns about Descartes's claim of dualism where the body and mind are separate and humanity is not part of nature but distinct from it. These are the myths that shape the way we see the world and can cloud our ability to recognize the connections and intersections leading to a deeper understanding of the problems we currently face as body-territories. *Cuerpo-Territorio* challenges the myth that nature is an endless resource for humans to use and abuse without consequence. The map instead reinforces an entirely different social imaginary that sees our bodies and the land as deeply interconnected and meant to be valued, respected, and treated with care.

4.5. Liberating Cartography

The counter-mapping examples from the Iconoclasistas collective demonstrate an alternative form of data activism engaged in mythmaking through cartographic symbology in their map titled *Mapamundi* or World Map (Figure 8). Looking at this map, the woman depicted in the upper right corner immediately draws the viewer's attention. She summons to mind older representations of fertility goddesses, such as the *Venus of Willendorf*, dating back to circa 28,000–25,000 BCE (Kuiper, 2025). The shape of her body emphasizes life-giving power and the headline underneath her asks, "Who owns this land?" The caption continues, stating:

> In a world where bodies that give life and territories are considered objects of conquest, plundered by neocolonial capitalist acts and threatened by multiple forms of sexist male patriarchal violence, women resist and organise their communities through care economies, protecting common goods and food sovereignty. (Iconoclasistas, 2019)

Her left arm is raised in a gesture of solidarity while her right hand points towards the additional representations of women from six different regions with the text underneath them describing their relationships as economies of care. Following the line of her hand, the gesture leads the viewer to consider the question "who owns the land?" while simultaneously reading the body language of the women who are depicted with two sets of hands holding agricultural tools for harvesting and containers for food. These images speak to the multiple roles taken on by women around the world who care for the land they live on, using it to feed their communities. In contrast, if one is to execute a Google Image Search for the terms "icon

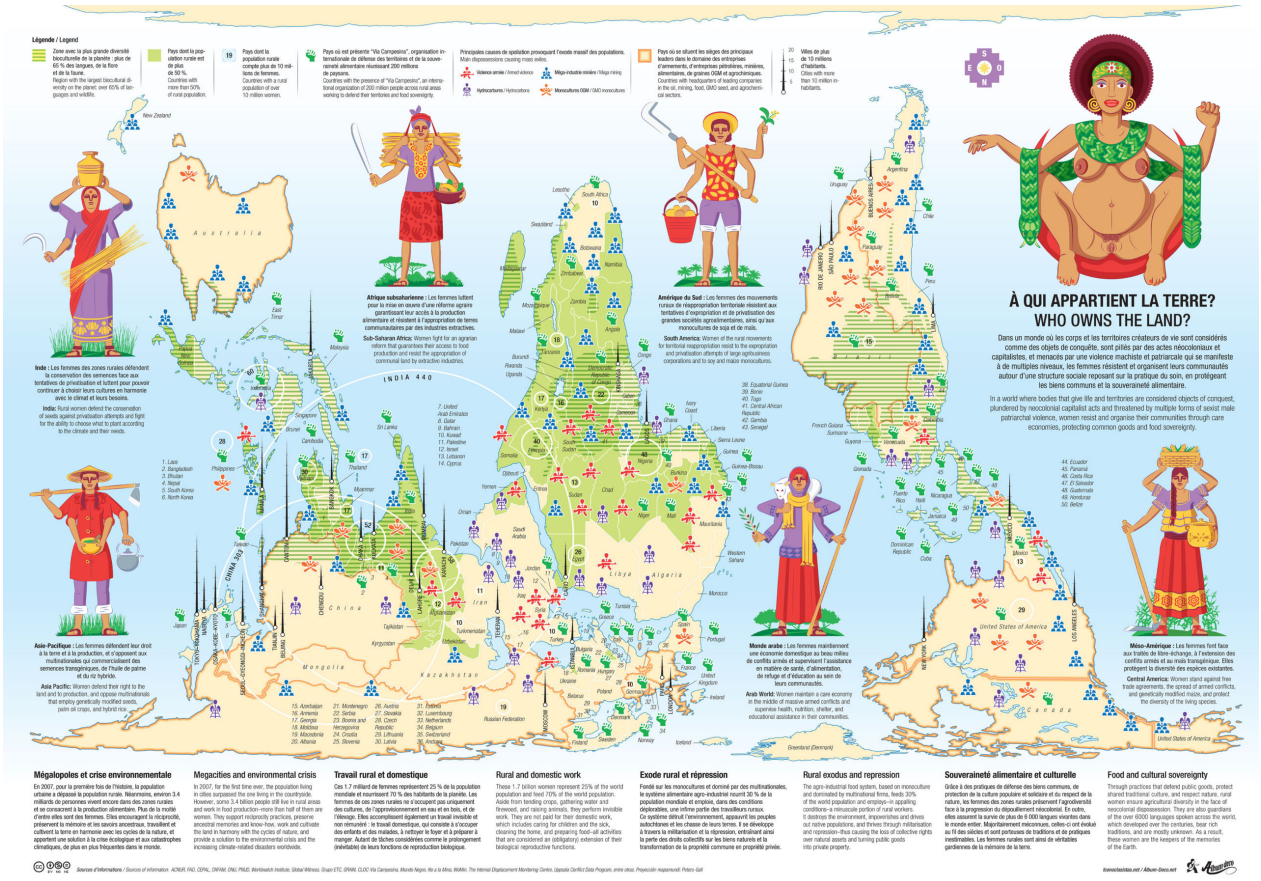

Figure 8. Map titled *Mapamundi*, 2019, created by the Iconoclasistas collective, addresses numerous intersecting problems including patriarchal hierarchies, environmental abuse, colonial violence, and beyond. Source: Iconoclasistas (2019).

for women" or "icon for pregnant woman," the top images are, by contrast, generic and one-dimensional. Much like the illustrated representations of people in the Johns Hopkins Map and the RVAgreen map, maps that rely on predesigned rather than bespoke iconography have women represented with generic symbols, stripped of color, and distinguishing features. Most concerning is that they are frequently portrayed as *doing nothing*. In contrast, research referenced in *Mapamundi* explains that while rural women own only 13% of the land, they produce 70% of the food people consume. It would then be fair to say that these women actively contribute to their communities and that this is visibly clear in their iconic representations in *Mapamundi*.

As Peluso (1995, p. 386) explains:

> Contrary to the conclusion on hegemony that Harley draws from his extensive research on the politics of mapping (1989:301), maps can be used to pose alternatives to the languages and images of power and become a medium of empowerment or protest.

Returning to a holistic view of the *Mapamundi* illustration, it is essential to note that the orientation of the map centers the South at the top of the map and the North at the bottom. Australia, Africa, and South America are also centralized, while Russia, Europe, and North America are foreshortened, appearing at the bottom. According to the Iconoclasistas website, this design strategy was inspired by the Gall-Peters

cartographic representation which features inverted poles (Iconoclasistas, 2019). The Iconoclasistas explain that this design decision holds special relevance as a challenge to Western-centric domination. This cartographic strategy challenges the colonial violence that typically diminishes the Global South both visually and figuratively. By reversing the typical approach to the North/South orientation, Iconoclasistas reject hegemonic myths and colonial social imaginaries and instead visually re-present an alternative imaginary of resistance, providing a powerful example of a liberatory cartographic strategy.

5. Conclusion

The research study presented here provides an exploration of liberatory, grassroots counter-mapping visualizations, comparing and contrasting these examples to hegemonic maps that perpetuate oppressive, reductive ideologies. Through content and semiotic analysis, the examined maps provide examples of visual strategies that reinforce social imaginaries, reflecting the belief systems of the cartographers who produce them. Mainstream sources often relied on visual representation strategies that carry hegemonic biases by using generic icons to convey overly simplified versions of their realities. In contrast, counter-mapping collectives chose innovative, bespoke illustrations and community-focused visualizations which offered a more nuanced approach to storytelling, attending to the multilayered, intersectional nature of their realities. This research on counter-mapping encourages a critical approach, exploring the role of maps and visualizations as forms of public pedagogy which enables us to question their complex relationships to social change. The symbols in maps represent the social imaginaries that drive our value systems with maps offering a unique medium for narration by utilizing spatial, graphic, emotive, and quantitative modes of communication. The visual strategies employed in cartography must therefore be taken seriously as vessels by which to inform and inspire, influence, or mislead the public.

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Conflict of Interests

The author declares no conflict of interests.

Data Availability

Data collected for this research is available upon request.

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About the Author

Miranda McKee, as a researcher, educator, and curator, explores the power of imagery as a form of public pedagogy. Her research examines the role visuals play in the dissemination of misinformation and disinformation on social media within a political context. Miranda is a PhD candidate at York University.

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City Walk as Platform-Native Counter-Mapping: Entangled Resistance and Algorithmic Visibility in Chinese Digital Urbanism

Di Xu [1,2] and Yanyu Chen [1]

[1] School of Journalism and Information Communication, Huazhong University of Science and Technology, China
[2] Philosophy and Social Sciences Laboratory of Big Data and National Communication Strategy, Ministry of Education, China

Correspondence: Di Xu (xudi@hust.edu.cn)

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Abstract

As digital platforms increasingly structure how cities are navigated, seen, and valued, urban walking practices have become sites of both algorithmic capture and tactical improvisation. This study examines the emergence of City Walk (城市漫步) in China as a form of platform-native counter-mapping. This user-led spatial practice utilizes digital tools to document, reframe, and disseminate alternative urban narratives. Drawing on digital ethnography, platform content analysis, and interviews in four Chinese cities, the study examines how participants engage in entangled resistance—tactically negotiating visibility algorithms while remaining embedded within platform infrastructures. Rather than rejecting platforms, City Walk participants leverage them to perform affective spatial storytelling, explore non-recommended routes, and archive marginal spaces. These practices are conceptually situated within the literature on algorithmic resistance, everyday spatial tactics, and critical cartography. While some City Walk content is commodified through lifestyle aesthetics and platform branding, others sustain oppositional potential through semantic drift and infrastructural appropriation. By reframing City Walk as a counter-cartographic practice situated within the logics of platform urbanism, this article contributes to broader debates on digital spatial agency, mediated urban practices, and the politics of algorithmically curated visibility.

Keywords

algorithmic resistance; City Walk; counter-mapping; digital spatial practices; platform urbanism

1. Introduction

As digital platforms increasingly mediate urban spatial experience, practices of perception, mobility, and everyday navigation have become deeply embedded within algorithmically governed infrastructures (Ash et al., 2018; Fields et al., 2020; Kitchin, 2016). In this platform-saturated landscape, urban space is no longer a neutral or passive container; rather, it is produced and regulated as a curated, calculable terrain of algorithmically modulated attention geography (Graham, 2020; Sadowski, 2020). Recommendation systems, behavioral tracking, and engagement-driven visibility hierarchies transform how cities are seen, accessed, and valued.

This transformation is particularly pronounced in China, where platforms such as Baidu Maps, Xiaohongshu, and Douyin (the Chinese version of TikTok) play a central role in structuring urban experience. These infrastructures prioritize commercially viable, interaction-intensive nodes, while marginalizing spaces that are historically layered, socially peripheral, or politically sensitive (Caplan & Gillespie, 2020; Couldry & Mejias, 2019). Under the imperatives of platform capitalism (Srnicek, 2017), algorithmic systems reproduce and intensify spatial inequalities, generating critical interest in the politics of visibility, access, and urban representation (Barns, 2020; Bucher, 2018; E. Fisher, 2020; Smith, 2020). Amid this techno-political landscape, a growing wave of City Walk (城市漫步) practices has emerged, particularly among young users aged 18 to 35. These practices take shape on social media platforms through the documentation and sharing of exploratory urban walks that foreground physical presence, sensorial immersion, and the rediscovery of urban heterogeneity (de Certeau, 1984; Mattern, 2021; Papacharissi, 2015). Unlike state-sanctioned heritage tours or platform-curated lifestyle itineraries, City Walk offers a bottom-up mode of navigating and narrating the city, emphasizing detour, drift, and micro-level storytelling as everyday tactics of spatial reappropriation.

Walking as a form of urban critique has deep historical roots. From the *flâneur* (Benjamin, 1934/1968) to the situationist *dérive* (Debord, 1956/2006), and later the experimental itineraries of collectives like Stalker (Bassett, 2004; Wiley, 2008, 2010), urban walking has long been mobilized to resist dominant spatial logics. City Walk extends these traditions into the digital realm where walking is no longer solely physical but also semantically encoded, socially circulated, and algorithmically conditioned. In doing so, it reflects both continuity and rupture with earlier forms of walking as spatial resistance, retaining the embodied, exploratory impulse while becoming increasingly mediated and platform-native.

In this study, City Walk refers to a digitally mediated and narratively articulated form of urban walking that unfolds within, and in negotiation with, platform infrastructures. Unlike unmediated acts of wandering, City Walk is characterized by its intentional documentation, tagging, and circulation on platforms such as Xiaohongshu and Douyin. Participants do not merely walk; they perform, narrate, and reframe their movements as content. These walks thus function simultaneously as embodied practices and algorithmically legible interventions, crafting alternative spatial imaginaries that challenge dominant metrics of visibility and value. Yet this oppositional potential is complicated by the very infrastructures that enable its articulation. The visibility, circulation, and affective resonance of City Walk are deeply entangled with platform logics of optimization, commodification, and algorithmic filtering (Gillespie, 2010; Leszczynski, 2019; Plantin et al., 2016). As users attempt to reclaim spatial agency through walking and digital storytelling, their actions are continuously shaped, constrained, and sometimes co-opted by the same systems they seek to subvert (Bonini

& Treré, 2024; Velkova & Kaun, 2021). This paradox underscores a key tension: Can spatial resistance retain critical agency when enacted from within platform architectures designed for engagement and control?

To investigate this dynamic, the study conceptualizes City Walk as a hybrid and platform-embedded form of spatial resistance—one that is both constrained by and tactically improvised within algorithmic infrastructures. It draws on theoretical frameworks surrounding platform urbanism (Barns, 2020; Sadowski, 2020), counter-mapping (Anti-Eviction Mapping Project, 2021; Jeppesen & Sartoretto, 2023; Peluso, 1995), and tactical media (Dalton & Stallmann, 2018; Milan, 2017) to investigate how everyday digital practices can subvert spatial hierarchies and produce alternative cartographies of urban experience. Against this backdrop, the study addresses three interrelated research questions: How do young users tactically negotiate and disrupt platform-constructed spatial hierarchies through movement, route deviation, and digital storytelling? How do Chinese social media platforms simultaneously enable and constrain such counter-mapping practices through algorithmic governance? Within a media environment driven by visibility metrics and content commodification, can spatial practices like City Walk retain sustainable oppositional agency? To address these questions, the study adopts a qualitative, multi-method approach, combining digital ethnography, platform-oriented content analysis, and semi-structured interviews conducted in four Chinese cities. It systematically examines how City Walk participants generate affective, embodied, and critical spatial experiences within the affordances and constraints of digital platforms. By situating this practice within the sociotechnical and political context of contemporary Chinese urbanism, the study contributes to ongoing debates in digital geography, media studies, and platform urbanism—particularly concerning the dialectical tension between resistance and incorporation, and the possibility of immanent critique from within platform infrastructures.

2. Theoretical Framework: Platform Capitalism, Algorithmic Governance, and Spatial Resistance

In recent years, a growing body of interdisciplinary scholarship has examined how digital platforms are reshaping the sensory, spatial, and social dimensions of urban life—an emergent field now frequently conceptualized as platform urbanism (Barns, 2020; Fields et al., 2020; van Dijck et al., 2018). This framework shifts the analytical gaze from platforms as neutral service providers to active technopolitical infrastructures that mediate urban governance, spatial production, and socio-material organization. Platforms do not merely facilitate interaction; they structure perception, mobility, and memory through algorithmic recommendation, data extraction, and engagement-based visibility systems (Gillespie, 2010; Leszczynski, 2019). Operating through computational logics, platforms determine which urban spaces are rendered discoverable, valuable, or invisible, based on interaction metrics and commercial viability. As a result, the experience of the city is increasingly shaped by platform-mediated cartographies—curated layers of visibility that foreground optimized sites while suppressing others. This process transforms urban space into a real-time data interface where movement, attention, and affect are continuously harvested and redirected (Crawford, 2021; Mattern, 2021).

2.1. Platform Capitalism and the Governance of Urban Visibility

Platform capitalism, as the dominant logic underpinning the contemporary digital economy, is organized around the datafication, prediction, and assetization of user behavior through platform infrastructures

(Srnicek, 2017; Zuboff, 2019). In urban contexts, this logic extends beyond simple navigation or localized services—it reconfigures the legibility, visibility, and value of space itself (Fields et al., 2020; Mattern, 2021). Through computational hierarchies of recommendation, engagement metrics, and commercial optimization, platform algorithms curate urban space into stratified layers of attention. As a result, highly interactive and monetizable nodes are rendered hyper-visible, while politically sensitive, socially marginal, or economically inert spaces are algorithmically erased or down-ranked (Couldry & Mejias, 2019). This regime has given rise to what has been described as "platform urbanism" or even "the platform as the city" (Plantin et al., 2016; van Dijck et al., 2018). No longer passive intermediaries, platforms function as algorithmic gatekeepers of urban knowledge (Leszczynski, 2019), shaping not only what is visible but also what is knowable within the digital city. The result is a new politics of computational visibility where the conditions of urban experience are governed by engagement thresholds, circulation potential, and platform-defined aesthetics.

In the Chinese context, this logic is deeply entangled with state-led urban development, platform capitalism, and technocratic governance—a tripartite assemblage that structures urban life through data-driven infrastructures. On one hand, state-led developmentalism promotes the integration of smart technologies into urban planning; on the other, platform firms such as Baidu, Tencent, and ByteDance operate as epistemological gatekeepers, shaping how cities are seen, known, and experienced (E. Fisher, 2020; Marvin et al., 2022). Platforms such as Baidu Maps (navigation), Xiaohongshu and Douyin (social media), and Meituan or Dianping (lifestyle services) constitute the infrastructural substrates of everyday sociality and mobility, organizing urban perception through data-optimized interfaces while simultaneously regulating algorithmic thresholds of visibility. This tripartite configuration—state, platform, and city—does not merely reorganize space; it reconstructs the perceptual and epistemic infrastructure of urban life (Crawford, 2021; Marvin et al., 2022). Within this system, urban space becomes increasingly detached from historical depth, community memory, or alternative value systems. Instead, it is re-rendered as a circulation-optimized, consumable, and shareable terrain designed for check-ins, algorithmic tagging, and visual storytelling. The perceived significance of space is no longer anchored in use, memory, or meaning, but in circulability, aesthetic shareability, and platform engagement potential (Langlois et al., 2015; Zuboff, 2019). These processes reproduce spatial hierarchies and power asymmetries, mirroring broader dynamics of data colonialism (Couldry & Mejias, 2019; Ricaurte, 2019). Platforms extract spatial experience as behavioral data, repackage it into algorithmic representations, and redistribute it through monetized visibility systems. Urban narratives, under these conditions, become stratified—some rendered hyper-visible, others algorithmically muted. This ontological shift transforms space itself into a form of digital spatiality (Mattern, 2021; Sadowski, 2020), where visibility, access, and spatial representation are governed less by civic or historical logics than by computational regimes of circulation. This sets the stage for new forms of urban exclusion and inclusion, while also opening space for emerging practices of resistance, appropriation, and reimagination.

This marks a deeper transformation in the cognitive structure of urban experience. What emerges is a form of "cognitive enclosure" (Behrendt & Sheller, 2023) where platforms define not only how the city appears, but also how it is imagined and inhabited. Within this enclosure, urban space is datafied, visualized, and behaviorally modulated. This shift constitutes an epistemological reordering: The city becomes legible only insofar as it aligns with algorithmic logics of value, visibility, and optimization.

2.2. Algorithmic Governance and Spatial Control Mechanisms

Algorithmic governance refers to the regulation of behavior, perception, and mobility through automated, data-driven systems embedded in platform infrastructures (Bucher, 2018; Pasquale, 2020). In urban contexts, this form of governance goes far beyond route suggestion or content delivery. It constitutes a deep spatial control mechanism, shaping how individuals move, what they see, and what counts as legible space within the city (Crawford, 2021; Mattern, 2021). Rather than imposing explicit prohibitions, algorithmic governance operates through ambient modulation—a set of invisible thresholds and filters that guide users along paths of least resistance, highest engagement, or commercial potential. This study identifies three interrelated mechanisms through which algorithmic governance structures urban spatial experience:

First, spatial filtering. Platform recommendation systems prioritize urban nodes with high interaction potential based on behavioral data, location histories, and engagement metrics. Spaces lacking commercial value or circulability are subject to algorithmic invisibilization—not deleted, but submerged in the hierarchy of discoverability (Caplan & Gillespie, 2020; Gillespie, 2010). This filtering reinforces platform logics of spatial value where visibility becomes contingent on algorithmic legibility rather than historical or social significance. This mechanism is particularly acute in Chinese cities, where urban redevelopment often erases informal or migrant neighborhoods from digital platforms altogether. These spaces become what Fricker (2007) calls sites of "epistemic injustice"—their experiences excluded from the datafied record of the city.

Second, the visibility economy. Urban experience is now governed by a visibility economy where content circulates based on likes, shares, comments, and watch time (Couldry & Mejias, 2019; Duffy & Meisner, 2022). This transforms the city into a set of commodified visual units—cafés, alleys, parks—curated for performative display. Platform infrastructures elevate spaces that are photogenic and emotionally resonant while suppressing those that challenge dominant narratives or aesthetics. As a result, the value of space becomes detached from its lived function or cultural significance and instead hinges on algorithmic performativity. The city is continually reassembled into what Ettlinger (2018, pp. 5–6) calls "affordances for productive resistance," but only insofar as they remain platform-compatible—mapped, circulated, and encoded through spatial logics of calculability and interoperability (Wilmott, 2020).

Third, spatial homogenization. Algorithmic dissemination, combined with platform-driven aesthetics, produces spatial convergence. Users are nudged toward stylized templates—vintage streets, curated markets, pastel signage—that align with dominant platform trends. This leads to urban aesthetic flattening where spontaneous, vernacular, or politically charged spaces are excluded from circulation due to low visual or engagement value (Fields et al., 2020; Graham, 2020). This dynamic reflects what Leszczynski (2019) terms glitchy urbanism: a version of the city optimized for platform consumption where the heterogeneous urban fabric is smoothed over by algorithmic preference. The result is not only a homogenized visual culture but also a semantic narrowing of what the city can mean.

Collectively, these mechanisms constitute what Marvin et al. (2022) describe as an "algorithmic enclosure" of urban space. Within this enclosure, movement, memory, and meaning are guided by data flows and optimization routines. Navigation becomes less about orientation and more about behavioral modulation, where the platform gently nudges users toward specific experiences, consumption patterns, and spatial imaginaries.

At a deeper level, algorithmic governance reshapes fundamental rights to the city—not through law or policy, but through infrastructure. As Plantin et al. (2016) argue, platforms increasingly act as quasi-public regulators, redrawing the boundaries of participation and access. Urban subjectivity is no longer defined solely by physical co-presence in space, but by one's algorithmic visibility and ability to produce, circulate, and engage with spatial data. This governance does not operate through direct repression but through ambient constraints—what Bonini and Treré (2024, pp. 23–25) call the "soft power of algorithmic resistance." In this environment, user agency becomes a situated, negotiated, and platform-contingent practice—one that must continually adapt to algorithmic logics to remain intelligible, visible, and affectively resonant.

2.3. Tactical Spatial Resistance and Platform-Dependent Practices

In the face of platform-dominated regimes of urban visibility, a critical question emerges: Can spatial resistance still be enacted under conditions of algorithmic governance? Building on de Certeau's (1984) seminal distinction between strategies (institutional control) and tactics (everyday improvisation), this study conceptualizes City Walk as a form of tactical spatial resistance—a situated, embodied, and often ephemeral urban practice that unsettles the algorithmic ordering of space.

Rather than overt confrontation, such tactics operate through micro-deviations, affective reorientations, and spatial improvisation (Farman, 2014). City Walk participants frequently traverse routes that are non-recommended, algorithmically invisible, or socially peripheral—including abandoned factories, migrant enclaves, or demolished heritage zones. These walks are not just physical movements, but performative acts of spatial re-sensing that challenge the homogeneity, commerciality, and aesthetic flattening imposed by platform infrastructures (Couldry & Hepp, 2016; Mattern, 2021). Such practices reflect what Scott (1990) termed "everyday resistance": subtle, embodied interventions that avoid direct confrontation but nonetheless subvert dominant spatial logics. They also resonate with what Ettlinger (2018) describes as "productive resistance"—counter-practices that emerge from within the very systems they challenge.

Importantly, these spatial tactics are not enacted outside or despite platforms, but rather through them. They constitute platform-dependent practices—appropriating the tools, affordances, and infrastructures of digital platforms to rearticulate spatial meaning. Users deploy geotags, hashtags, aesthetic filters, and short-form narratives not merely to optimize visibility, but to document loss, recirculate marginal spaces, and construct affect-laden counter-narratives (Jeppesen & Sartoretto, 2023; Kidd, 2019). These interventions do not exist in opposition to the platform; rather, they exemplify what Salamon and Saunders (2024) describe as infrastructural resistance—forms of dissent that emerge from within sociotechnical systems through semantic drift, reframing, and tactical modulation.

To theorize this dynamic, the study introduces the framework of entangled spatial resistance. This concept captures the dialectical tension at the heart of City Walk: On the one hand, such practices depend on platform infrastructures for visibility, circulation, and connection; on the other, they seek to subvert, reframe, or resemanticize the spatial logics that those very infrastructures impose (Crawford, 2021; Papacharissi, 2015). Entangled resistance thus refuses the binary between compliance and refusal. Instead, it operates through situated negotiation—where platform affordances are tactically repurposed to produce alternative spatial meanings. Participants do not reject platforms wholesale; they inhabit them critically, leveraging their tools to carve out space for memory, affect, and counter-visibility.

Within this framework, City Walk can also be understood as a form of counter-mapping—a grassroots rearticulation of spatial knowledge that contests hegemonic cartographic representations, often produced by state, commercial, or algorithmic actors (Harris & Hazen, 2006; Peluso, 1995). Contemporary scholarship has expanded the scope of counter-mapping beyond traditional cartographic forms to encompass digital, affective, and narratively driven spatial interventions (Anti-Eviction Mapping Project, 2021; Kollektiv Orangotango+, 2018). From this perspective, City Walk functions not merely as a bodily practice of resistance but as a platform-native cartographic practice—one that uses digital tools to inscribe erased geographies, reclaim subjective spatial memory, and circulate alternative urban imaginaries within algorithmically governed environments.

In short, City Walk exemplifies how spatial resistance today is infra-structurally entangled: enacted through the very systems it critiques, yet capable of producing semantic fractures and affective ruptures within optimized urban landscapes.

3. Methodology

This study adopts a multi-method qualitative design to examine City Walk as a tactical spatial practice within platformized urban governance. By combining digital ethnography, platform content analysis, and semi-structured interviews, the research offers a situated understanding of how young urban users navigate algorithmic visibility, affective mobility, and spatial storytelling in Chinese digital cities (Hine, 2020; Pink et al., 2015).

The researcher assumed the role of a platform-embedded ethnographer, engaging directly with the production and circulation of City Walk content across Xiaohongshu, Douyin, and Baidu Maps. This embedded positionality foregrounds the entanglement of infrastructure, user agency, and embodied meaning-making in algorithmic environments. Empirical data were collected over a 12-month period from June 2024 to June 2025 through three interconnected pathways. Over 500 publicly accessible posts and short videos were gathered from Xiaohongshu and Douyin using keywords such as “City Walk,” “random walking,” and “non-recommended routes.” From this larger dataset, 50 representative cases were selected for close analysis, based on three criteria: spatial deviation from platform-recommended routes; affective narration (e.g., nostalgia, melancholy, curiosity); and tagging or circulation strategies (e.g., hashtags like #HiddenCity or #EscapeTheAlgorithm).

In parallel, 15 semi-structured interviews were conducted in Beijing, Shanghai, Chengdu, and Guangzhou with individuals aged 18 to 35 who actively engage in spatial practices on digital platforms. Participants included students, designers, journalists, and creative professionals. The interviews explored motivations for walking, route selection, affective experience, and participants’ interpretations of algorithmic recommendation systems. All interviews were audio-recorded, transcribed, anonymized, and conducted in accordance with established ethical protocols. In addition, the researcher conducted a series of embodied City Walk field experiments in Beijing and Chengdu, deliberately avoiding platform-promoted landmarks and commercial hotspots. These walks were documented through GPS tracking, fieldnotes, and simulated platform interactions, including real-time location checking, in-app camera use, and attention to algorithmic prompts or content suggestions. This embodied engagement aimed to capture the frictions between physical mobility and algorithmic mediation, as well as the affective and perceptual shifts that occur when walking against or outside platform logics (Light et al., 2016).

Data were analyzed using a combination of thematic coding and narrative analysis (Braun & Clarke, 2006; Riessman, 2008). Thematic coding identified recurring strategies such as anti-recommendation tactics, spatial affect, and platform-modulated visibility. Narrative analysis focused on how users construct counter-cartographic stories through visual, textual, and embodied sequences—often defying platform expectations while leveraging platform infrastructures. Images and videos were also analyzed thematically, focusing on framing, spatial composition, and the affective use of filters, captions, and aesthetic cues.

Rather than treating platforms as uniform environments, the study attends to the relational ways in which interface design, discursive framing, and user practice interact to shape spatial expression. In this context, Baidu Maps, Xiaohongshu, and Douyin exhibit distinct infrastructural dynamics. Baidu Maps emphasizes mobility-based search and commercial indexing, offering minimal capacity for affective spatial storytelling. Xiaohongshu fosters curated, lifestyle-oriented content through semantic tagging, enabling reflective and aestheticized mapping of urban experience. Douyin, by contrast, prioritizes short-form, viral performance and emotional immediacy, often at the expense of spatial specificity. These infrastructural differences shape how City Walk is practiced, circulated, and interpreted across platforms—a dynamic explored further in the analysis.

All research activities were conducted in accordance with ethical standards. Participants signed informed consent forms and all digital content analyzed was publicly available and anonymized. Beyond procedural ethics, the project adopts a reflexive and critical methodological stance in which the researcher, as both participant and analyst, is implicated in the production and circulation of spatial meaning. This aligns with the concept of entangled resistance and situates City Walk as a form of participatory counter-mapping (Calvo & Candón-Mena, 2023), wherein walking, documenting, and navigating converge as modes of situated critique within platform-mediated urban space.

4. Negotiating Algorithmic Visibility and Tactical Spatial Agency

4.1. Route Deviation and Sensory Disruption: Interrupting the Platform-Imposed Rhythm of the City

The City Walk phenomenon in contemporary China draws from a longer trajectory of urban walking as a critical spatial practice. From the surrealist promenades to the situationist *dérive*, from the performative urban drift of the Stalker collective to more recent psychogeographic tactics, walking has historically served as a mode of both spatial exploration and resistance to dominant urban regimes. While these earlier practices contested the bureaucratic or capitalist ordering of urban space, City Walk engages with a new paradigm: algorithmic governance. In this context, walking becomes a means of negotiating visibility, reclaiming sensory experience, and resisting the normalization of movement through platform infrastructures.

Participants engage in a range of embodied and tactical practices designed to circumvent the homogenizing logic of algorithmic recommendation. Rather than total refusal, these practices exemplify what Bonini and Treré (2024) call algorithmic resistance—forms of micro-resistance that are immanent to platforms, operating through negotiation and infrastructural appropriation. In line with Scott's (1985) theory of "everyday resistance," these acts are subtle, situated, and interstitial. They do not aim to dismantle platforms from outside, but to tactically reconfigure them from within. Findings indicate that route deviation is one of the most prevalent tactics, materializing in three interrelated forms. First, "blind walking" involves the deliberate

abandonment of digital navigation tools. Participants engage in unstructured, open-ended exploration that resists platform logics of efficiency and optimization, echoing what Ziewitz (2017, p. 11) terms a "not quite random walk" in algorithmic environments—an experimental practice that foregrounds uncertainty and embodied improvisation. Second, "drift-style exploration" draws from psychogeographic traditions, privileging affective cues, emotional states, and ambient atmospheres over destination and utility. Movement becomes a response to mood, light, or texture rather than mapped intent. Third, "hidden city discovery" entails the purposeful traversal of marginalized, algorithmically invisible spaces—industrial ruins, migrant neighborhoods, or peripheral alleys—places often excluded from platform visibility due to low commercial or aesthetic value.

Together, these tactics enact a form of intentional detachment from algorithmically curated urban rhythms. Through spontaneous movement and the rediscovery of overlooked spatialities, City Walk participants contest the platform's epistemic authority over what is visible, knowable, and worth visiting. Interview data further support this. A 24-year-old filmmaker in Beijing critiqued the repetitiveness of algorithmic spatial curation:

> Every time I open Baidu Maps, it recommends the same cluster of hyper-commercialized places—Sanlitun, 798, Qianmen. These places are optimized for visibility, not for exploration. I started doing "random walks" to escape this repetition, to experience the city without being guided.

This sentiment was echoed across interviews. Eleven out of 15 participants reported intentionally avoiding AI-generated walking routes provided by Baidu Maps or similar platforms, describing them as repetitive and experientially hollow. These forms of avoidance are not merely individual preferences, but speak to a shared critique of algorithmic urbanism—a recognition that digital infrastructures structure not only how we move but what we perceive as meaningful space.

Platform content analysis reinforces this trend. Among the 50 representative posts drawn from Xiaohongshu and Douyin, nearly half explicitly labeled their routes as "non-mainstream." Hashtags such as #EscapeTheAlgorithm and #HiddenCity were not only frequent but also associated with higher-than-average engagement. These tags function as more than metadata—they operate as affective publics (Ahmed, 2004; Papacharissi, 2015) where shared frustration, curiosity, and resistance converge into collective imaginaries of the urban elsewhere. They also serve as counter-mapping devices, linking emotional narratives to spatial deviation in a way that challenges platform-generated cartographies.

Participants frequently emphasized the value of urban serendipity and the pursuit of unmapped textures. A 29-year-old architect in Shanghai reflected:

> There's an entire layer of the city untouched by digital maps—abandoned factories, forgotten alleys, migrant worker neighborhoods missing from platform recommendations. These are the places I seek out because they break the illusion that everything in the city has already been pre-mapped and pre-monetized.

This perspective was widespread. Ten participants described their City Walk practices as direct responses to the standardization and datafication of urban mobility. On Xiaohongshu, one user documented an unstructured walk through Guangzhou's industrial periphery, writing: "No algorithm, no itinerary, no

destination—just wandering through the city's forgotten spaces." Such narratives reflect a desire for de-algorithmized perception and highlight the sensory hybridity embedded in City Walk practices. These are not merely alternative walking behaviors, but acts of embodied critique—engagements with the city that foreground memory, emotion, and presence over platform optimization (Vaughan, 2018).

Building on counter-mapping literatures (Harris & Hazen, 2006; Kollektiv Orangotango+, 2018; Peluso, 1995), this study conceptualizes City Walk as a form of user-generated counter-mapping that unfolds across three dimensions: (a) unpredictable mobility trajectories that evade algorithmic capture and challenge spatial predictability; (b) repurposing platforms as archives, in which digital content becomes a repository of alternative spatial knowledge; and (c) affective and sensory interventions, where walking operates as a perceptual disruption of algorithmic authority. These dimensions reflect not a rejection of platforms but a tactical reworking of their affordances—what Ettlinger (2018) calls "productive resistance."

These practices are infrastructurally entangled and politically ambivalent. As one 22-year-old university student in Guangzhou explained: "We fight the platform with the platform—using hashtags to escape recommendations, using content to resist ranking."

During participatory fieldwork, the researcher encountered similar tensions. In Chengdu's Dongjiao Memory district, Baidu Maps labeled the zone as a "pending development area," implying emptiness. On the ground, however, the space was vibrant—filled with informal markets, mobile vendors, and youth-organized film screenings. When the researcher uploaded this experience to Xiaohongshu using hashtags such as #HiddenCity and #NonRecommendedRoutes, the post received significantly lower visibility than content referencing algorithm-preferred "hotspots." This asymmetry revealed the structural logics of algorithmic visibility reduction and positioned the researcher not just as an observer but as a participant embedded within the very infrastructures under critique.

City Walk thus emerges not merely as a cultural phenomenon but as a site of epistemic negotiation—a contested arena where users reconfigure meaning, visibility, and agency from within platform systems. The walk becomes more than a sensory act; it becomes a cartographic counter-performance, a form of situated resistance that is neither outside nor fully inside algorithmic governance, but always negotiating it from within.

4.2. Counter-Cartography and Affective Mobilization: Rewriting Urban Narratives

City Walk, as an embodied and digitally mediated spatial practice, has evolved into a form of digital counter-cartography—a user-led process of re-mapping urban meaning from within platform infrastructures. While platforms such as Xiaohongshu and Douyin function as algorithmic curators of urban desirability, they are simultaneously repurposed as contested archives—spaces where users document demolition sites, spatial erasure, and vanishing everyday life. These acts do not unfold in opposition to the platform but rather within its logic: a politics of visibility negotiated through content, tags, and affect. This aligns with earlier understandings of counter-mapping as the grassroots production of spatial knowledge that challenges hegemonic representations.

In the platform context, counter-mapping becomes not only about spatial representation, but also about temporal memory and emotional resonance. Participants frequently use digital tools to reclaim spatial memory—archiving residual urban fragments, such as soon-to-be-demolished neighborhoods, to resist the erasure imposed by commercial redevelopment. These digital traces contest both forgetting and the singular aesthetic narrative of the "modernized" city. Through melancholic captions, filtered imagery, and deliberate tagging, users mobilize affective spatial politics—not to incite protest, but to evoke identification, loss, and attachment. Emotion becomes a mode of political engagement, challenging the sanitized, promotional cityscapes pushed by platform algorithms.

This aesthetic-political tension is often negotiated through hashtags, which act as semantic and affective nodes. Tags such as #DisappearingNeighborhoods, #EscapeTheAlgorithm, and #NonRecommendedRoutes do more than organize content; they articulate counter-publics (Papacharissi, 2015) that coalesce around shared spatial dissatisfaction. As noted by a 27-year-old university student in Shanghai: "I know the platform won't recommend this kind of content, but through these hashtags we recognize one another—we find our version of the city." This quote captures the dual function of hashtags: both tactical and relational. They circulate affective narratives but also perform community-building within algorithmically managed space. Through such practices, platforms are not rejected outright but re-coded—used to build what Rob Kitchin might term "digital spatial citizenship" (Cardullo & Kitchin, 2019), where visibility becomes a civic claim.

However, the very infrastructures that enable these counter-narratives also constrain them. Participants frequently report experiences of algorithmic suppression—a form of visibility control that operates through downranking, shadow banning, or non-deletion disappearance. Interview data indicate that four out of fifteen participants encountered sudden engagement drops, suspected moderation, or inexplicable invisibility. A 34-year-old journalist in Shanghai recounted: "I posted a photo series about a community facing forced demolition. A few hours later, almost no one saw it. The platform didn't delete it—but it became invisible." This condition of algorithmic invisibilization (Roberts, 2019) reflects a key contradiction: Platforms appear open but selectively silence content that deviates from commercial or political norms. As Dotson (2012) argues, epistemic exclusion is not always about censorship—it is about which knowledges are allowed to circulate, and which are quietly erased.

Moreover, platforms do not suppress all memory equally. Aestheticized nostalgia—such as retro cafés or stylized hutong imagery—is often algorithmically privileged, while content that foregrounds conflict, dispossession, or displacement is rendered invisible or de-ranked. A widely shared video juxtaposed archival images of a demolished industrial zone with its current form as a luxury mall. The caption read: "This space once belonged to the working class. Now it belongs only to consumerism." This contrast elicited strong emotional reactions. As a 30-year-old software engineer in Chengdu remarked, "If you post about a hutong café, it gets pushed to the top. But if you post about a displaced family, it gets immediately de-ranked. The platform decides which histories are worth remembering." This algorithmic sorting of memory constitutes what could be called a curated memory regime—one in which the past is not erased, but selectively aestheticized for circulation within profitable attention economies. Counter-cartography, then, becomes not only a spatial act but a temporal-political intervention, resisting the platform's memory politics.

Yet, these acts of resistance are rarely absolute. As Burgess (2007) argues, users develop "platform vernaculars"—expressive norms adapted to the affordances and constraints of particular infrastructures.

In the case of City Walk, these include visual composition techniques, captioning strategies, and carefully timed posts designed to evade moderation while still maintaining visibility. This form of tactical compliance reveals a nuanced mode of agency: not withdrawal but strategic alignment with platform logics to sustain counter-narratives under algorithmic governance. Such practices illustrate a core paradox: Resistance from within is always at risk of absorption. Counter-mapping content may be de-ranked, commodified, or even incorporated into official city branding. As one user wryly noted in a comment thread, "They'll turn our ruins into tourist routes soon." This underscores the fragility of oppositional space within platform systems—not because resistance is futile but because it is always entangled.

City Walk's digital layer, then, should not be romanticized as autonomous or purely subversive. Rather, it operates as a terrain of immanent critique—a site where visibility, memory, and meaning are negotiated through continuous infrastructural tension. Through visual archiving, emotional circulation, and hashtag-based assemblage, users construct performative cartographies of resistance. These are not maps in the traditional sense, but felt mappings—situated spatial imaginaries grounded in loss, longing, and the refusal to forget.

4.3. From Resistance to Commodification: City Walk and the Logics of Platform Co-Optation

While City Walk initially emerged as a tactical response to algorithmic urbanism—through route deviation, affective witnessing, and counter-cartographic experimentation—it increasingly encounters absorption into the very platform infrastructures it once sought to circumvent. This process reflects what scholars have termed algorithmic capture under platform capitalism: the transformation of dissent into circulation, and resistance into monetized visibility. Platforms do not merely neutralize critique—they incentivize it, actively reconfiguring oppositional gestures into profitable content forms. This dynamic constitutes a form of recursive enclosure in which critical spatial practices are continuously folded back into platform logics through algorithmic ranking, commercial partnerships, and experiential branding. What once operated as spatial refusal becomes stylized as curated serendipity—an aestheticized performance of urban discovery that simulates difference while reinforcing the homogenizing tendencies of platform-mediated urban experience. The result is not pluralism, but pseudo-heterogeneity: the appearance of spatial diversity filtered through algorithmic preferences.

Platforms such as Xiaohongshu and Douyin deploy recommendation engines, traffic-based promotions, and monetization pathways to convert the contingent, affective practices of City Walk into marketable visual formats. The rise of influencer-led guides—e.g., "Best City Walk Routes" or "Urban Strolling Checklists"—signals a shift from spontaneous drift to pre-scripted itineraries, often linked to brand sponsorship or tourism campaigns (Salamon & Saunders, 2024). The platform does not merely host these transitions—it actively engineers them through its visibility logics. This transformation is directly perceived by users. A 32-year-old photography blogger based in Guangzhou illustrated this shift: "No one looks at my posts about industrial ruins. But if I switch to old streets, cafés, and retro filters, it instantly goes viral." Such algorithmic preferences privilege aestheticized, emotionally palatable content, while marginalizing critical or politically charged spatial narratives. Over time, users internalize these logics. A 28-year-old freelance designer in Beijing reflected: "At first, I wanted to escape mainstream recommendations. But now I find myself thinking about what kind of content is more likely to be seen. Gradually, I've become the kind of content creator I originally wanted to resist." This illustrates how platform algorithms, through the differential allocation of visibility, guide user practices from dissenting expression toward self-disciplining reproduction.

This shift is not merely perceptual but structural. Hashtag metrics reveal that posts labeled with #CityWalk consistently garner more engagement than untagged content. This encourages not only individual creators but also brands, marketers, and local governments to appropriate the vocabulary, aesthetics, and rhetoric of City Walk. What began as a grassroots expression of spatial agency is increasingly institutionalized as a lifestyle media genre.

At the municipal level, this process is formalized through curated routes, festivals, and redevelopment projects. A 35-year-old planner in Shanghai described: "The government is now rebranding previously demolished areas as 'ideal City Walk destinations.' It's a spatial cycle: first erasure, then aestheticization, then commodification." This cycle—demolition, rebranding, and monetization—exemplifies how counter-mapping practices may be absorbed into governance-led placemaking. Platforms reinforce this trajectory through algorithmic curation. A 29-year-old photographer in Guangzhou explained: "I used to document old neighborhoods, but no one paid attention. It wasn't until I added filters, background music, and cinematic framing that the algorithm began to promote my videos." Here, visibility is not neutral—it is conditioned by platform-specific aesthetics, attention economies, and moderation protocols. As users adapt to these constraints, the line between resistance and performance becomes increasingly blurred. The 2024 launch of Xiaohongshu's "Official City Walk Guide" marks a decisive moment in this transformation. User-generated routes are now formalized into platform-certified itineraries, ranked by popularity and engagement. While framed as discovery, the mechanism reinforces experiential homogenization and spatial standardization. A 32-year-old architect involved in urban regeneration in Chengdu commented: "We were documenting spaces on the verge of demolition—now the platform tells you which street to walk, which café to visit. This is no longer resistance; it's just another algorithmic path." Features such as check-in badges, point rewards, and visibility metrics further integrate City Walk into gamified data production loops. The critical and socio-political charge of early walking practices is replaced by a logic of participation that privileges metrics over meaning.

This recursive co-optation reflects a deeper structural condition: platform capitalism's ability to aestheticize critique and commodify dissent. As M. Fisher (2009) argues, capitalist realism operates not through the suppression of resistance, but through its profitable incorporation. Zuboff (2019) similarly diagnoses predictive commodification as the transformation of human experience into raw material for algorithmic modulation. Under such a regime, visibility becomes not a right but a reward for compliance with platform norms.

However, City Walk practitioners are not entirely passive. Many continue to engage in subtle forms of semantic displacement and tactical deviation. Through hashtag manipulation, euphemistic captions, and experimental visual formats, users attempt to evade suppression while preserving critical intent. These strategies exemplify what Milan and Treré (2020) describe as de-domesticated use—an immanent form of critique that operates within technical systems without fully conforming to them. The evolving trajectory of City Walk reveals that resistance is not a binary, but a field of tension, ambivalence, and negotiation. Its political potential lies not in its purity, but in its capacity to open micro-fissures within dominant infrastructures. City Walk becomes a cartography of contradictions: at once a disruption and a commodity, a refusal and a performance. Within the recursive dynamics of platform governance, urban agency is not defined by escape, but by the ability to tactically rearticulate meaning—to walk, write, and map otherwise, even under algorithmic constraint.

Importantly, not every City Walk is an act of resistance. While this study emphasizes City Walk as a tactical engagement with algorithmic infrastructures, it also acknowledges that many participants do not self-identify their practices as oppositional. For some, City Walk is primarily a form of aesthetic immersion, emotional expression, or leisurely exploration. In this regard, the figure of the modern-day Chinese flâneur—wandering with curiosity but without explicit political intent—remains useful in expanding our understanding of affective urban agency. As Elwood (2006) argues, spatial practices frequently operate beyond the binary of co-optation or resistance, unfolding instead within a spectrum of everyday meaning-making.

Moreover, many participants simultaneously seek visibility and critique visibility; they may optimize their content for engagement while expressing discomfort with commodification. This ambivalent position does not invalidate their agency. Instead, it reflects what Milan and Treré (2020) term immanent critique: a form of resistance that unfolds within systems, not against them. City Walk, therefore, should not be reduced to a singular oppositional movement, but understood as a heterogeneous assemblage of spatial practices—some resistant, some aesthetic, others exploratory. What unites them is a shared engagement with the algorithmic city and a desire to re-narrate urban experience on their own terms.

5. Conclusion

This study has examined how young urbanites in China engage algorithmically mediated infrastructures through the emergent practice of City Walk. Moving through the city on foot, yet embedded in mobile platforms and social media interfaces, participants enact a form of spatial practice that is at once affective, tactical, and infrastructurally situated. Through route deviations, digital counter-mapping, and hashtag-mediated storytelling, users renegotiate what is visible, desirable, and knowable in platformed urban space. Framed against the backdrop of platform capitalism, this study traced how algorithmic governance reshapes urban agency—not by enforcing absolute control but by modulating participation, aesthetics, and circulation. It showed how resistance is no longer solely oppositional or external, but increasingly entangled within the very systems it seeks to subvert. Participants do not retreat from platforms; rather, they inhabit them critically, enacting what Bonini and Treré (2024) describe as algorithmic resistance—a negotiation of power from within.

To analyze this phenomenon, the study introduced the concepts of platform-dependent tactics and entangled spatial resistance. The former describes resistant gestures that emerge inside and through algorithmic infrastructures; the latter captures the recursive, negotiated, and often contradictory nature of these practices. Together, they help reframe resistance not as rupture, but as semantic drift, repetition with difference, and infrastructural improvisation. City Walk is not entirely new. It sits within a longer genealogy of urban walking as critique. From surrealist *dérives* and situationist drift to the transurban practices of the Stalker collective (Wiley, 2008, 2010) and contemporary psychogeography (Bassett, 2004), walking has long served as a method of spatial reimagination. What distinguishes City Walk is its platform entanglement—its simultaneous rejection of one type of platform (navigation apps) and embrace of another (social media platforms), transforming walking into a networked, participatory media event.

Empirically, this study drew on one year of multi-sited fieldwork, fifteen semi-structured interviews, and digital ethnography on Xiaohongshu and Douyin. Through these methods, it documented how spatial narratives circulate through platform vernaculars—hashtags, filters, captions, and engagement strategies—forming what

might be called vernacular cartographies. These do not merely represent space but perform agency under algorithmic constraint. Yet these practices unfold within a structural paradox. The same platforms that enable visibility also suppress dissent and aestheticize critique. Algorithmic infrastructures reward nostalgic, visually polished content while downranking politically charged or emotionally raw narratives. Even practices born in critique—such as walking through demolition zones or documenting informal neighborhoods—are susceptible to commodification, gamification, and institutional appropriation. This reveals not the futility of resistance but its transformation. Resistance is not dissolved; it is stylized, anticipated, and sometimes recirculated as authenticity. Still, resistance persists—not as purity, but as immanent critique (Milan & Treré, 2020), enacted through ambiguity, reframing, and strategic use of platform affordances. These tactics open micro-fissures within dominant infrastructures, sustaining the possibility of alternative spatial imaginaries.

This study contributes to the scholarship on counter-mapping by expanding the concept beyond formal cartographic production. Drawing from Peluso (1995), Harris and Hazen (2006), and Kollektiv Orangotango+ (2018), it conceptualizes City Walk as a performative counter-mapping practice—one that operates through the tools and grammars of social platforms to render visible what is algorithmically concealed. These acts of mapping do not chart coordinates; they trace affect, memory, and movement, transforming digital fragments into spatial critique.

City Walk also reflects a broader condition of digital urbanism in the Global South, where algorithmic governance intersects with state-led redevelopment and platform infrastructures. In this context, the city becomes a contested interface, and digital infrastructures emerge not only as mechanisms of control but as tactically appropriable, emotionally expressive, and semantically reconfigurable terrains of practice. Walking thus becomes a media act—a way of writing back to the city as it is being rewritten by code. Moving forward, future research could engage in cross-cultural comparisons of platform-mediated spatial resistance, exploring how similar practices unfold in cities shaped by different urban histories, infrastructural inequalities, and political regimes. This includes examining how platforms selectively promote pseudo-diversity, shaping the conditions under which critique becomes visible or is rendered invisible. Additional attention might be given to the convergence of aesthetic and emotional labor in digital spatial storytelling, and to how users navigate the tension between engagement and erasure.

The rise of City Walk reminds us that in algorithmically organized urban environments, resistance does not disappear—it mutates. It becomes embedded, situated, and recursive. It manifests not through grand confrontations, but through semantic negotiation, spatial improvisation, and platform reappropriation. In this sense, to walk is not only to move through the city, but to rewrite it—to make visible what the algorithm hides, and to open up new ways of knowing, sensing, and inhabiting the digital city from within.

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Conflict of Interests

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About the Authors

Di Xu is a professor at the School of Journalism and Information Communication at Huazhong University of Science and Technology and a research fellow at the Philosophy and Social Sciences Laboratory of Big Data and National Communication Strategy. Her research focuses on digital media, algorithmic governance, and spatial imaginaries.

Yanyu Chen is an undergraduate student at the School of Journalism and Information Communication at Huazhong University of Science and Technology. Her research interests include digital ethnography, platform cultures, and affective spatial practices, with a focus on how media shapes everyday urban experience.

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ARTICLE

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Remapping the Legacy of Enslavement: Street Names, Stealth Stickers, and the Living Black Atlas

Derek H. Alderman [1] and Joshua Inwood [2,3]

[1] Department of Geography and Sustainability, University of Tennessee-Knoxville, USA
[2] Department of Geography, Pennsylvania State University, USA
[3] Rock Ethics Institute, Pennsylvania State University, USA

Correspondence: Derek H. Alderman (dalderma@utk.edu)

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Abstract

This article interprets the Stealth Slavery Sticker Campaign, a grassroots counter-mapping project led by the artist-activist collective Slavers of New York, as a chapter in the broader Living Black Atlas. Started during the racial reckoning of 2020, the campaign placed unauthorized stickers on street signs and other surfaces across Brooklyn to reveal suppressed histories of slavery embedded in commemorative place names. The stickers transformed daily encounters with taken-for-granted road names into unexpected opportunities to confront prominent historical families who profited from enslavement and to acknowledge the contributions of enslaved Africans in shaping the city. The collective framed their campaign as a "guerrilla educational" action that disrupted memorial landscapes, challenged discourses of white innocence, and provoked broader conversations about racial justice and accountability. At a time when official institutions are increasingly retreating from confronting racism, small, temporary interventions, such as these Stealth Stickers, can play a crucial role in encouraging critical audits of commemorative infrastructures, layering counter-narratives onto public spaces, fostering embodied confrontation with historical truths, and remaking everyday places through bold, unexpected acts of resistance.

Keywords

Black counter-mapping; commemorative justice; memory-work; Slavers of New York; white innocence

1. Introduction

1.1. A Reckoning on Nostrand

The public can unexpectedly stumble upon histories of racial injustice in the most ordinary spaces. *The New York Times* captured one of those encounters:

> Last month, Vanessa Thompson stepped outside the juice bar where she works on Nostrand Avenue in Brooklyn and noticed a green and white sticker on a light pole. She leaned in for a closer look. "John van Nostrand was a slave owner," it said. "According to the US census in 1790, the (Van) Nostrands owned 6 people." Ms. Thompson, who is Black, was dumbfounded. "I didn't even know anything about that," she said. "He could've owned me." (McShane, 2021)

When Vanessa encountered the sticker on Nostrand (Figure 1), the US faced a nationwide reckoning over race and remembrance. Starting in the summer of 2020, after the murders of George Floyd, Breonna Taylor, and Ahmaud Arbery, the country engaged in intense debates about the long-standing public valorization of racist historical figures. Statues, museums, highway markers, school mascots, and named places became highly charged arenas for these debates (Brasher et al., 2025; Emba, 2020; Gensburger & Wüstenberg, 2023; Richards et al., 2025).

Black Lives Matter (BLM) activists and allies called for removing monuments and renaming streets, schools, and parks honoring Confederate generals, enslavers, colonizers, KKK leaders, and segregationist politicians. Place names were key targets because of their ubiquity and how they embed and legitimize a particular view of history into daily narratives, performances, and movements (Alderman et al., 2024).

Figure 1. Stealth Slavery Sticker on Nostrand Avenue, Brooklyn, New York. © Michelle V. Agins and *The New York Times*, used with permission (McShane, 2021)

These de-commemoration struggles highlighted a key dissonance in American society: a contradiction between our values of inclusion and the continuing civic reverence shown to figures promoting oppression and white supremacy. Activists argued that this dissonance between everyday commemorations and US claims of equality reflected the ongoing, unresolved role of race and how racism is remembered in public spaces (O'Neill, 2021).

The green and white decal that Vanessa faced, along with many others walking through Brooklyn, was part of the Stealth Slavery Sticker Campaign organized by the artist-activist collective Slavers of New York. The group donated its time and resources to walk the city and place unauthorized informational stickers on road signs, light poles, subway stations, trash cans, and historical plaques, highlighting streets named after historical families who profited from the African slave trade (Madrigal, 2022). The stickers referenced historical records in displaying the estimated number of people enslaved by the streets' namesakes (Swindall, 2021).

The Stealth Stickers occupied a small but provocative place in the urban scene. Some opponents quickly removed them. For example, in the fall of 2020, "all of the stickers on Bergen Street in Brooklyn disappeared within an hour of going up" (McShane, 2021, n.p.). The Bergen family owned at least 46 people in 1810, according to the Slavers of New York. In other instances, the stickers remained—either physically on the landscape or through photos, news stories, social media, and word of mouth—shaping public discussion about slavery's legacy in New York. The Slavers collective revealed more than 200 family names on streets and public places connected to slavery. By 2021, the group had pasted over a thousand stickers across the city to confront residents with this hidden history.

1.2. The Guerrilla Education of the Slavers of New York

The Stealth Slavery Stickers represented a quieter and more subversive form of memory work compared to BLM protesters toppling and defacing monuments or city crews hauling statues and street signs to storage. Instead of advocating for renaming sites, the Slavers of New York intervened by layering historical truths onto public spaces to create what they called a "guerrilla educational" action. By juxtaposing official and "insurgent heritage" (Novoa, 2022) within the same space, the collective challenged the neutrality of street names, exposing their ties to enslavement, prompting dialogue on racial justice, and challenging the assumption that slavery played little role in New York. The Slavers joined a long history of political and pedagogical oppositional tactics meant to unsettle dominant social narratives and raise critical consciousness among people (Freire, 2005; Marighella, 1971). Labeling these stickers as "guerrilla" helps us understand how counter-memory work does not need to take monumental forms, especially when we need to insert unsanctioned, resistant lessons about the past into everyday spaces where official memory falls short.

Elsa Eli Waithe, a Black comedian and artist, helped start and lead the Slavers of New York alongside two non-Black collaborators—Maria Robles, a researcher, strategist, and advocate for students of color, and Albanian American artist and educator Ada Reso. The inspiration for The Slavers of New York arose during the early Covid-19 lockdown, when Waithe came across an online post featuring a 1790 census record listing family households in Brooklyn, including the number of enslaved people in each household. They quickly noticed some of the enslaver families' names also appeared on major nearby streets. After the murder of George Floyd inspired memorial protests, Waithe worked with Reso, a roommate at the time, to explore the educational potential of this discovery. As Waithe explained in an interview:

> Oh, wow. These are pretty prominent streets. I wonder how readily known this information [about families participating in slavery] is?…I wonder how many people know about the streets? We should figure out a way to get this in front of people. (Waithe et al., 2021, n.p.)

The importance of placing the history of slavery and Black struggle "in front of people" went beyond historical completeness. For Waithe, this knowledge was essential to public acknowledgment and atonement for the harms that had been erased or forgotten. They emphasized that documenting the histories of enslavement behind street names was not about directly advocating for a renaming of those roads. Instead, Waithe saw that the power of the Stealth Stickers lay in provoking dialogue that could lead to change, if people chose to do so. On this point, Waithe said: "I think if more people knew what their street was named for, or who it was named after, we can then foster another conversation about what it looks like to name and claim your neighborhood" (as cited in Raskin, 2021, n.p.).

The "guerilla" work behind the Stealth Stickers involved more than just publicizing slavery's imprint on New York; it also included efforts to turn archives into sites of activism. A key part of the stickers' educational approach was expanding the histories of slavery from the archives to street poles, embedding them directly into people's daily geographies. Robles was already conducting extensive archival research on slavery before joining the Slavers collective. She traced enslaver family names through census data, runaway slave ads, newspapers, and other records, mapping their presence across more than 500 locations in the city (Waithe et al., 2021). Robles' work helped determine where stickers would be placed and what detailed content they would include, making a suppressed past accessible and understandable to an unsuspecting public.

The insurgent pedagogy of the Slavers collective sought to challenge the silent dominance of named spaces and reveal how enslaved history was hidden in plain sight. Beginning our article with Vanessa walking along Nostrand Avenue is significant. Nostrand was one of the first streets targeted by the Stealth Slavery Sticker Campaign. Waithe noted the violence of finding many streets named after enslavers running through Black neighborhoods, with residents unaware of their racist histories (Waithe et al., 2021). New York's public spaces had long left the trauma of enslavement "unmarked and unremarked" (Tyner et al., 2012).

The power of the Stealth Stickers lay in catching passersby off guard, letting them uncover uncomfortable truths without protection. Communication becomes stronger when woven into the material infrastructures, mobilities, and spatial habits of life, thus reshaping how public space is experienced, contested, and imagined in new ways (McQuire, 2016; Morley, 2009). Reso, who focused heavily on the visual design of the Stealth Stickers, noted that the group abandoned the time-consuming idea of creating metal additions for official street signs because those could be easily removed by city officials (Tedford, 2022). With help from a local Black-owned printer, Comik Ink, they selected a sticker that could be produced quickly and in large quantities, then placed it on various urban surfaces—all in support of the guerrilla educational goal. The stickers were meant to resemble official street signs while also drawing communication cues from the familiar subway MTA service change notices that New Yorkers habitually check (Tedford, 2022). These choices helped turn daily encounters with familiar streets and street names into unexpected confrontations with the histories of racism, prompting the public to situate themselves in relation to the street name and its commemorated past. Vanessa, from our opening vignette, is encouraged to confront how Nostrand's legacy of white supremacy intersects with her own identity and place within the city. As a Black woman, she was employed at a business on a street honoring a family that, in her words, could have "owned me."

1.3. Objectives of the Article

The Stealth Slavery Stickers provide a valuable example of how community activists creatively use data, visualization, and storytelling to pursue historical justice and influence people's physical, cognitive, and emotional engagement with spatial memory. Our hope in this article is to provide conceptual language that highlights the analytical significance and political brilliance of the Slavers of New York's Stealth Slavery Stickers as a form of anti-racist memory-work and guerrilla education, and the salience of that activism in responding to the current political climate of retrenchment and resistance to racial reckoning. We view the Stealth Stickers as a moment of Black counter-mapping. The Slavers of New York appropriated the names of places and, by extension, the places themselves, to create and layer geographic knowledge that "talks back" (hooks, 2014) against a tradition of erasing Black history. In doing so, the Slavers transformed street names into emotional geographies and ethical frameworks for reconsidering the lives, struggles, and contributions of the enslaved. By adding new meanings to the city's text and spatial system of orientation and navigation, these stickers remapped how people perceive, move through, and interact with urban spaces and their associated memories (Jia et al., 2021). More than static, fetishized documents and databases often linked to traditional maps, these Black counter-maps are better understood by the work they do—guiding viewers and users not just physically and geographically but also politically, raising awareness and encouraging alternative connections with place and history (Yessler & Alderman, 2021).

Our interpretive framework situates the Stealth Slavery Sticker Campaign within the Living Black Atlas. The Living Black Atlas is an initiative that highlights, learns from, and shows solidarity with underrepresented counter-mapping practices, geographic knowledge creation, visual storytelling, and place-making politics that African Americans and their allies have long used in the fight against white supremacy (Alderman & Inwood, 2023). We view the guerrilla-style placement of stickers by the Slavers of New York in public spaces as a form of cartographic memory-work that pinpoints specific coordinates—namely, streets—where the ideology and practice of white innocence are directly challenged. Contesting white innocence on New York's lived street map disrupts a long-standing ignorance and denial of the city's involvement in the history of slavery and racial violence, as well as the erasure of Black people's struggles and contributions (Inwood, 2018; Pulido, 2023, 2025). We conclude the article by highlighting broader lessons from the Stealth Slavery Sticker Campaign. The tactics employed by the Slavers of New York may be particularly valuable in today's political climate, where official government bodies and agencies are either unable or unwilling to engage in difficult conversations about racial inequality or to pursue commemorative justice.

Our understanding of the Stealth Slavery Sticker Campaign is based on secondary sources, news coverage of the activism, published interviews with key figures in the collective, and public responses to the stickers. This article represents the first step toward a larger future project that will explore the motivations, counterarguments, design processes, and effects of this street-level reimagining of urban memory and naming. Although the Slavers collective was multiracial, we refer to the Stealth Sticker Campaign as "Black memory-work" and "Black counter-mapping." Elsa Eli Waithe's initial discoveries and questions inspired the Slavers of New York collective. Their views on place, memory, and accountability as a Black New Yorker living within and navigating the city grounded the project and shaped collaborations with Reso and Robles. Waithe, Reso, and Robles established their collective's epistemic stance, political goals, and intended outcomes by addressing the silences surrounding Black life and slavery in New York. While acknowledging that interracial coalitions have long supported the Living Black Atlas, we also recognize that such coalitions often involve negotiations and sometimes tension, a theme explored in the article.

2. On The Living Black Atlas

2.1. Theoretical Foundations

The Living Black Atlas draws inspiration from scholarly work in critical cartography and the rapidly expanding interdisciplinary field of Black geographies. Critical cartography views mapping not as an ideologically neutral or purely technical activity but as a political and cultural process that both reflects and challenges—or even reshapes—systems of power, racialization, and memory (Crampton & Krygier, 2005). Counter-mapping is a key feature of critical cartography, which involves creating maps that do not necessarily adhere to conventional cartographic standards and data norms, but instead challenge dominant spatial narratives and power structures (Dalton & Stallmann, 2018). Counter-mapping, along with the broader movement to decolonize maps, often highlights that historically marginalized groups—including indigenous communities, people of color, and women—have long produced maps that carry meaning for their lives, value their contributions and struggles, and serve as tools for social mobilization (Alderman & Inwood, 2023; Dando, 2017; Rose-Redwood et al., 2020). In many cases, counter-mapping supports a wider "restorative/transformative data science" paradigm, which redefines what constitutes data and storytelling, challenges existing power structures, and centers marginalized knowledge and experiences (D'Ignazio & Klein, 2023).

Black geographies encompass a range of interventions grounded in historical materialist and feminist traditions of critique, often confronting the reality that anti-Blackness is deeply ingrained in society's practices, spaces, economies, and histories. Yet, reclamation is also part of the project, as scholars emphasize that the humanity of Black communities challenges and extends beyond racism. This perspective highlights a rich, ever-evolving history of Black creativity, resilience, and resistance that develops anti-racist forms of geographic knowledge, creates spaces of freedom, and envisions and designs more equitable spatial futures (Hawthorne, 2019). Black geographies challenge traditions of Western thought and practice, including cartography, that tend to depict Black communities as "ungeographic" or placeless (McKittrick, 2006). Because mapping is a social power dynamic, Black people and places have long been reduced to data points on maps, often portrayed in pathologizing ways, and associated with crime, poverty, blight, and poor health (Eaves, 2020). As political tools of governance, surveillance, and control, mapping practices have historically contributed to Black dispossession, segregation, and even erasure in the service of settler colonialism, racial capitalism, and nationalist and urban agendas (Alderman et al., 2025; Hawthorne, 2025).

Part of the violence caused by traditional cartography is epistemic, dismissing and downgrading Black ways of knowing and world-making while also denying "full knowledge of how racism works against and harms oppressed communities" (Inwood & Alderman, 2021, p. 3723). The Living Black Atlas is a "restorative" alternative to these cartographic inequalities, a reorganization of mapping focused on truth-telling and making interventions in how Black communities and their experiences are perceived, understood, and valued publicly. These efforts are essential to their healing from "histories of bondage, oppression, and generational poverty" (Lanier & Hamilton, 2020, p. 20). Alderman and Inwood (2023) argue that the Living Black Atlas can enrich and challenge orthodox ideas of cartography by incorporating and learning from Black lives, geographies, and knowledges that have long been neglected in scientific, governmental, and academic spheres. For those working within these spheres:

> Recognition of the Living Black Atlas is not just about acknowledging diverse, alternative mapping traditions but building a solidarity with them, making amends for past cartographic and social violences…and contributing to a reformation of the map itself and its ethical registers [and possibilities]. (Alderman & Inwood, 2023, p. 8)

2.2. Black Counter-Mapping Traditions

While the Living Black Atlas is an academic framework, it is most deeply shaped by generations of everyday Black social actors and communities who have created their own organic traditions of mapping, data activism, and storytelling as part of living with, against, and beyond racism (Cunningham, 2022; Hanna, 2024; Inwood & Alderman, 2020). These traditions join other liberatory Black-led efforts in settlement, commemoration, ecology, education, and infrastructure development (Hale, 2024; Hyman, 2025; Potter et al., 2024; Purifoy, 2023; Roane & Hosbey, 2019; Winston, 2021). The Living Black Atlas centers knowledge created through the lived experiences and spatial struggles of Black communities, often expressed through grassroots organizations and activist networks rather than limited to academic or professional "experts." Black community members, working both independently and in multi-racial coalitions, have long produced powerful forms of organic public intellectualism (Wright, 2019). These resistant traditions, in turn, have birthed generations of Black scholars and professionals whose geographic knowledge production is inseparable from this history of activism (NorthStar of GIS, n.d.). El-Amin (2019, p. 19) states that "Black people have [long] made and lived in their own maps," rather than always being limited by traditional, white-defined geographic boundaries and definitions that fail to capture the full scope of Black creative expression and lived realities (Hunter & Robinson, 2018). Black mapping appears across various historical periods, supporting the "plurality" of Black geographic and social struggles (Bledsoe & Wright, 2019).

Some of these Black cartographies have been used directly as tools for protest. In the early 20th century, the NAACP mapped locations and frequencies of lynching murders to advocate for federal legislation protecting Black Americans (Alderman et al., 2021). The research department of the 1960s civil rights organization SNCC created "power maps" to identify and track the power structures and institutions supporting racial discrimination in the Deep South (Inwood & Alderman, 2020). Since 2008, a group of Black women called We the People of Detroit have mobilized data and mapping, along with education, to demand greater water justice for poor Black neighborhoods, whose health and social vulnerability are disproportionately threatened by municipal water shutoffs (Sysling, 2024).

Moving and traveling have long been essential for the survival, resilience, and freedom of Black people, leading them to navigate hostile landscapes by creating cartographic tools and wayfinding strategies that transcend traditional physical maps. The body itself can serve as a form of mapping as it moves across places, forming socio-spatial connections in self-determined ways. Those who liberated themselves from slavery deployed advanced environmental knowledge and landscape reading to avoid capture (Miles, 2024). Later, travel guides such as the *Negro Motorist Green Book*, produced through painstaking compilation, field reconnaissance, and crowdsourced data, were created by and for Black travelers to bypass denied services and threats common on highways during the Jim Crow era (Bottone, 2020).

Black mapping also emerges as an artistic form that is equally political. Early- and mid-20th-century illustrator Louise Jefferson created pictorial maps that highlighted Black historical figures, institutions, and

cultural landmarks across the US, asserting the legitimacy of people of color within a predominantly white nation (Yessler & Alderman, 2021). More recently, when artist-activist Tonika Lewis Johnson developed the Folded Map Project, she photographed and compared addresses on racially segregated sides of the same street in Chicago. Johnson has highlighted socio-economic disparities between the paired addresses and encouraged residents from the north and south sides to communicate and socialize with each other to bridge divisions caused by racism (Lane, 2020). Johnson's folding of Chicago's street map reflects how the Living Black Atlas is inherently improvisational and relational, creating a form of cartography dedicated to a feminist ethics of care and collaboration, rather than simply sharing information about the world.

2.3. Processual Mapping and a Black Sense of Place

Describing the Living Black Atlas as "living" recognizes that these alternative cartographies are in a constant state of emergence as Black communities appropriate, transcend, and redefine traditional ideas about mapping in response to social change and struggle (Alderman & Inwood, 2023). The value of Black mapping lies not in detached data visualizations or official scientific standards, but in how it reflects the politics of Black life and is actively used for freedom-making, community-building, healing, and self-determined acts of living, working, and finding joy and respite (Allen, 2020).

The Living Black Atlas demonstrates what McKittrick (2011) famously referred to as a "Black sense of place," an intimate yet contested sense of being and belonging. This sense of place can highlight resistance, creativity, and alternative geographies through which Black communities express their presence, histories, rights, and visions for a just future. Yet, it also includes knowledge production and storytelling focused on the painful exclusions, struggles, and violence that shape Black connections with place (e.g., Morrison, 1970) as well as discussions with Afro-pessimist thought (McKittrick, 2006).

Fully understanding the Living Black Atlas requires viewing maps through a process-oriented lens, which values lived experiences and emotional geographies that form the foundation of cartographies. Maps are dynamic, open-ended processes of knowledge creation that come from not only data points but also from contingent, context-dependent relationships among people, places, and power (Kitchin & Dodge, 2007). Notably, a process-oriented perspective recognizes the generative agency and performative effects of maps. They not only record reality but also actively help shape it (Corner, 1999; Crampton, 2009; Del Casino & Hanna, 2005).

The Living Black Atlas is not just a static collection of map artifacts with its value limited to its representational messages. Instead, the Atlas is better understood as a social-cartographic practice embedded within and supporting a larger project of Black world-making and "livingness" (McKittrick, 2021). Black livingness reveals the liberatory power of storytelling, showing that Black humanity exists beyond pain, statistics, or marginalization. This acknowledges that Black communities have long told their stories on their own terms as they create places where they can belong and work toward abolition, opportunity, and safety. By viewing the Atlas as part of this broader politics of Black storytelling, we can see the many forms that Black counter-mapping and geographic knowledge production can take, including things like the Stealth Slavery Stickers.

2.4. The Stealth Slavery Sticker Campaign as a Chapter in the Atlas

Nimoh (2025) examines how Black residents in Washington, D.C.'s Anacostia neighborhood utilize storytelling to create maps of their communities that underscore their sense of place. These maps contest or *unmap* traditional, white-dominated cartographies that often exclude or distort Black places, even those places like Anacostia with long histories as Black community hubs. Residents also *remap* their community to develop knowledge systems and storytelling practices vital for surviving racism and to affirm belonging on their own terms. Seemingly neutral or common-sense spatial categories and inscriptions, often reinforced through traditional place naming and mapping, obscure the relational nature of how exclusion and belonging are imagined and materialized through narratives, symbols, and memories (Price, 2004).

As a chapter in the Living Black Atlas, the Stealth Slavery Sticker Campaign marks a pivotal moment in the process of unmapping and remapping urban space and memory. The oppressive power of New York's street names, as it becomes mapped onto documents, asphalt, and people's perceptions and interactions, comes from the fact that the names don't readily seem to be part of a history of racism. Their everyday appearance masks the idea that the city is built historically upon enslavement. The Stealth Stickers challenge the symbolic power of urban names, even if only temporarily, by questioning the conventional portrayals of specific, prominent city landmarks and founding families as unrelated to race and politics. In doing so, they open space for a counter-narrative about memory and location that affirms the existence and importance of the history of racial injustice and oppression. While the stickers are clearly meant to expose and highlight the historical complicity of certain New York families in slavery, they also function as a physical and political overlay—adding a layer of meaning to the map of everyday spaces—filled with an explicitly Black perspective on place and shared knowledge of the past. The Slavers of New York transform places with commemorative names and the maps of meaning they form into sites of racial reckoning. Stealth Stickers work to reframe the meaning of streets, buildings, and other public areas by inserting the story of the enslaved into a visual and narrative space that the place name historically dominated, a space that was once solely controlled by the enslaver.

Enslaved Africans are referenced on stealth stickers only by number (e.g., "the (Van) Nostrands owned 6 people"), and McKittrick (2013) has rightly highlighted the problems with reducing Black life to mere numbers. However, this quantified Black presence causes an emotional rupture in how memory is mapped onto the city's geography. Although the stickers appear only to inventory the enslaved, comparing these counts with those who held Black people in bondage adds an ethical weight, drawing attention to previously unindicted enslavers and a demand for accountability. Enumeration, in this respect, is not just about tallying lives but also about unsettling silences. In the future, pairing the stickers with additional public storytelling and a more detailed counter-mapping of the specifics of enslaved lives would reveal greater humanity behind the numbers.

Counter-mapping, in general and especially in the context of Black livingness, refers to cartographic storytelling that (a) pushes back against historical and contemporary discrimination and power structures that would erase or delegitimize Black ways of being in the world and (b) challenges traditional notions about what maps and data should look like and the work they should do (Yessler & Alderman, 2021). The Stealth Slavery Sticker Campaign embodies both forms of Black counter-mapping. First, it challenges dominant spatial narratives by exposing the hidden histories of slavery embedded in the names of New York streets, thereby asserting commemorative justice within spaces that would otherwise sanitize or silence these

legacies. Second, the stickers defy cartographic convention because they don't resemble maps in a traditional sense. They nonetheless conduct cartographic work by marking space, disrupting the visual consumption of landscapes, and inviting the public to engage in re-mapping the meaning of everyday environments.

As Kelley (2021) argues, Black geographic knowledge has long existed in creative cultural productions not confined to the official tenets of geography and cartography. The Stealth Stickers are part of this tradition of fugitive mapping, which involves the extra-legal affixing of historical narratives about slavery's legacy onto signposts and other urban surfaces, viewed by some as vandalism and by others as revolutionary truth-telling. Kelley (2021) also draws our attention to the capacity of words and narratives themselves to operate as "prose-maps," which work to narrate and disseminate geographic knowledge about Black life previously written out of conventional conceptualizations of cartography.

The highly localized way Stealth Stickers are placed and experienced doesn't create a single, unified view of New York. That very characteristic is key to the counter-mapping performed by stickers. Traditional cartography has long claimed to provide a complete and objective picture of the world, without acknowledging the biases and exclusions inherent in mapping (Crampton & Krygier, 2005). The Stealth Stickers, through their guerrilla approach of meeting people where they are, re-map urban memory through everyday encounters, as people move through the city, one street at a time, thus unsettling the idea of a single, definitive map. If a wider cartography is created by the Slavers collective, then it underscores a deep irony. New York promotes itself as a place of refuge and opportunity, celebrating the Statue of Liberty and Ellis Island, yet simultaneously downplays its historic profits from enslavement and continues to valorize enslavers through the very names of its public places.

In sum, the Stealth Sticker Campaign is a vital yet previously under-examined chapter in Living Black Atlas. It reveals and expands the role of mapping in social struggles and as a tool for resistant memory-making. The stickers work to redefine how the public produces knowledge about race, showcasing a Black presence—though not entirely or unproblematically—within spaces that uncritically commemorate historical enslaver families, and encouraging people to engage with and navigate landscapes and histories in more just ways.

3. Memory-Work of Contesting White Innocence in New York

3.1. Black Counter-Mapping as Memory-Work

As we have suggested so far, the Living Black Atlas explores a wide range of Black spatial expressions that have served (and continue to serve) various social and political purposes. Memory and commemoration are central to affirming Black life and legitimacy in the face of inequality. They have been the focus of notable Black counter-mapping—such as documenting and preserving Nashville's hubs of musical innovation destroyed by highway construction in the 1960s, and the emotional atmospheres created by the Equal Justice Initiative's monuments and markers to remember victims of racial terror lynching (Bliss, 2024; Carter, 2024). Moving from an oppressive society requires a reckoning with past injustices and engaging in what Till (2012) and D'Ignazio and Klein (2023) call the "memory-work" of publicly confronting histories and ongoing legacies of discrimination. This memory-work includes efforts, in various forms, to create new commemorative structures and practices that challenge inequalities in representing historical injustices and highlight silenced Black lived experiences within dominant narratives of memory and space. Memory-work actively challenges and aims

to repair the sanitized and exclusionary stories traditionally told by the dominant society about perpetrators and victims of racial injustice. The power of this memory-work lies not only in changing narratives about the past but also in fostering dialogue and building social capacity to accept responsibility for historical injustices rather than denying them (Till, 2012).

Hanna (2024) highlights maps, especially Black counter-mapping, as a form of memory-work. He focuses on John M. Washington, a formerly enslaved man who escaped bondage and created a map in the 1870s detailing "where his experiences of enslavement and emancipation unfolded" in Fredericksburg, Virginia. As Hanna notes, Washington's cartographic work was not just for himself or his personal recollection but aimed at a broader audience and was part of a political effort to shape collective or social memory. His map directly challenged efforts by white Southerners at the time to erase the truth of enslavement from national memory as they violently ended Reconstruction and began rolling back Black political and economic rights. During this period, the nation saw the rise of the "Lost Cause myth," which downplayed and denied the brutal realities of slavery. The Lost Cause quickly captured the minds of many white Americans and was embedded in numerous memorials, from street names to statues to souvenirs at plantation museums (Potter et al., 2022). According to Hanna (2024), scholars and National Park Service officials have recently republished and widely circulated Washington's map to challenge the continued influence of the Lost Cause and its denial of the realities of slavery.

Alderman et al. (2025) also explore Black-led mapping as a tool for memory-work that not only acknowledges the historical harms of racism but also addresses more recent injustices of ignoring and denying those truths. They observe a recent increase in mapping activism, where Black communities and allies utilize cartography, archival methods, and data science to recover public recognition of the anti-Black effects of various harmful practices and policies beyond just slavery. Ongoing community-based cartographic and memorial initiatives across the US document the displacement and destruction of communities of color caused by urban renewal and interstate highway projects, as well as racial segregation and economic exclusion related to redlining and whites-only restrictive covenants (Binoy, 2022; Walker & Derickson, 2023). Though not always explicitly stated, much of this Black counter-mapping fundamentally challenges how "white innocence" is embedded in and normalized through traditional maps, memorials, named places, and other everyday spaces.

3.2. White Innocence and Rupturing Northern Denial

Many of America's commemorative spaces reinforce white innocence, a set of discourses and practices that deny or erase the critical role of racial inequalities, including slavery and settler colonialism, in shaping and maintaining the nation (Pulido, 2025). White innocence recognizes that notions of hate and privilege do not fully explain how white supremacy is created and sustained through memory. Racial dominance can come from a state of denial or unawareness among white individuals about the realities of racism and their role in supporting it (Inwood, 2018). A white innocence perspective closely examines the powerful influence of seemingly simple historical and spatial narratives, which often silence or distort the stories of Black and Native peoples and their ongoing struggles, all while disavowing white individuals and institutions from any connection to or responsibility for white supremacy.

According to Pulido (2025), this lack of honest accounting of a racialized past that supports white innocence has proven crucial for maintaining the US settler state because it offers a troubling "moral legitimacy" in the

face of histories of racialized violence and dispossession. Pulido also notes that embedding and preserving white innocence in cultural memory, because it often leads to a centering of prominent and seemingly heroic white historical figures over people of color, can create an "empathy gap," which limits or prevents public identification with traditionally minoritized groups. This issue of rebalancing the distribution of empathy is a significant concern for counter-mapping activism, as Black memory-workers seek to do more than ensure historical fairness or accuracy. More deeply, they aim to change how broader audiences perceive, discuss, and feel about the place of Black people in those histories. Although not a primary focus of Pulido's discussion, the whitewashing of history that underpins the politics of innocence-making—and the resulting inequalities in empathy and emotion—can be deeply internalized by historically oppressed communities of color, sometimes fueling acts of resistance but also dampening political consciousness and critical awareness.

While the Stealth Slavery Sticker Campaign can be seen from many perspectives, we interpret it as a challenge to white innocence and a crucial part of its guerrilla educational goal of reshaping how people understand New York's history of slavery. Elsa Eli Waithe saw evidence of a destructive innocence regarding enslavement's legacy in Brooklyn, whether happening consciously or subconsciously, and spoke about the consequences of this lack of public awareness: "A lot of people don't know what's around them. And if you don't know what's around you, then you have a hard time affecting any sort of change" (as cited in Swindall, 2021, n.p.).

Ada Reso explained why the Slavers of New York sought to move histories of enslavement out of the archives and into public view, emphasizing how racism embedded in place naming continues to shape contemporary inequalities faced by New Yorkers:

> Mainly, our goal is to just educate people about the legacy of slavery and how it persists in the present day. We don't advocate for changing the names in any way. We hope that, if people feel so inclined to change names, they create their own groups and engage in political action. What's really interesting is that some of the naming of places for slavers happened more recently than you would imagine. Like Boerum Hill wasn't called "Boerum Hill" until 1964 or so, when that name was resurrected as part of the gentrification of Brooklyn. You can see directly the entanglement of the history of slavery and gentrification. Bringing this man's name back into the neighborhood is a symbol of violence. The persistence of these names and links carries this space through history (as cited in Waithe et al., 2021, n.p.).

The Slavers of New York recognized that genuine racial reconciliation stems from cultivating a relational understanding between the past and the present (Tedford, 2022). The strength of the Stealth Stickers, as a street-level community counter-remapping effort, lies not only in exposing denied racialized histories but also in linking them to ongoing disparities, such as the use of enslavers' names to market gentrifying neighborhoods that displace Black residents. As Jansson (2019) reminds us, the politics of gentrification are mediated through cultural signs and symbolic place-making, including, in this case, street naming.

The Slavers of New York viewed street names as powerful tools for confronting the denial of slavery because of their deep integration into daily life and role in navigation. Waithe understood that the city's early street names had become disconnected from the histories of the people they honor (Tedford, 2022). Place names comprise a few words and can't narrate history in the same detail as museum exhibits or monument inscriptions. These narrative limits often lead street names to further erase the problematic

histories they commemorate. The Slavers were not only challenging the reinforcement of white innocence regarding the complicity of the city's early families in supporting slavery; they were also opposing the role of street names in institutionalizing and maintaining that denial of history.

In deploying the Stealth Stickers, the Slavers collective developed a creative visual tool to enhance the storytelling of named streets and public spaces, aiming to increase awareness of these hidden histories and alter people's connection to and perception of their environment. The uneven politics surrounding how and why specific family names become memorialized in public place identities, along with the Slavers' concern about the histories of racism associated with those families, partly motivated the Stealth Sticker Campaign. They understood that the same economic power driving the enslavement of Black people also influenced which names appeared on road signs. Waithe challenged that power and explained how the projection of white innocence and denial of racialized power led to biased and incomplete cultural memory: "Some of the folks [honored on street names] were just people who had land. People who had money. So why does that get remembered? Why does that get into culture?" (as cited in Swindall, 2021, n.p.). In response to accusations that they were making trivial issues, Waithe argued: "In the grand scheme of things, is the street name oppressing me? Maybe not as much as the justice system does, but it just goes to show how pervasive, how down to the capillaries of racism, that it affects [the names of] our streets" (as cited in Sarai, 2021, n.p.).

Also essential to the creation of the Stealth Slavery Sticker Campaign was the murder of George Floyd, the growth of the BLM movement and protests, and broader national discussions and debates about whether it is appropriate to glorify racist historical figures through sites of remembrance. Waithe noted that some of the motivation behind the stickers came from a conversation they had with a white friend about removing a Confederate statue in Waithe's hometown of Norfolk, Virginia (McShane, 2021). The friend dismissed the statue and its ties to slavery and racism as just a "southern issue," which Waithe found strange and wrong based on census records showing how New York families had enslaved Black people. In explaining how white people and institutions try to deny responsibility for racial injustice, Inwood (2018) describes the practice of "spatial confinement," which involves keeping memories of racism limited to specific places or regions, preventing understanding of how systemic and widespread its legacy really is.

While the Slavers of New York aimed to reveal the hidden history of enslavement behind prominent families and places named after these influential figures, they also sought to challenge the broader denial of northern involvement in slavery. During a media interview, Maria Robles noted that the region's collective memory and self-image often erased the history of enslavement and explained how researching the history of street names worked to break the illusion of northern white innocence. She discussed how the Slavers collective's guerrilla education altered her own view of the city's past and its roads:

> I started to think about how slavery happened in the North as well, and how we never really talk or hear about it. Not talking about it is a way of essentially erasing the history. It's always, "Oh, that happened in the South and it was bad. But we're [in the North, we're] liberal and great and so progressive." And while that might be true in some regards, it's certainly not true historically. Obviously, the slave trade existed in New York as well. But it isn't always obvious to many people. I then started thinking about the street names in my neighborhood, Flatbush. Lefferts, as in Prospect Lefferts Gardens, shows up a lot [in slave owner data]. Who are these places named after? I started researching in Brooklyn, but then expanded to the rest of New York. (Waithe et al., 2021, n.p.)

The Stealth Sticker campaign was not the first time we saw a challenge to the idea of white innocence regarding northern, especially New York, involvement in the trading and owning of enslaved people. The 1991 discovery of an African burial ground in lower Manhattan, containing the remains of thousands of free and enslaved souls, and Black community resistance against the site's erasure became a point of reckoning for a city that had long portrayed itself as morally separate from the South's legacy of slavery (Frohne, 2015). While the stickers are a smaller, unofficial, and more fleeting record of northern racism than the burial ground, which is now a popular national park site, they form a memory map of unjust white and Black relations that confronted people at many street corners and lampposts, and they speak to a widespread scale of enslavement in New York City that scholars have begun to document thoroughly (Harris, 2023).

Although not the primary focus of most public discussions about the Slavers of New York, the stickers did more than challenge the denial or erasure of New York's connection to slavery. It also made important—even if limited—steps toward creating an embodied public map that showed, from one historic household to another, the vital role enslaved Black labor played in building and shaping New York City (Getachew & Kebede, 2022). By displaying the number of enslaved people held in bondage by individuals and families, the stickers ensured that the achievements of streets' namesakes are not only viewed differently morally but also understood in the context of the Black labor that built their wealth. Importantly, there is a long-standing white innocence or denial about the wealth historically created on the backs of enslaved Africans. This wealth has influenced generations of investment and development in the North and across the country, continues to ripple through and generate capital, prompting us "to ask what we collectively owe to enslaved people and their descendants?" (Inwood, 2023, p. 49).

3.3. Public Reception and Tensions of Stealth Stickers

The effectiveness and impact of counter-mapping and memory-work depend on how broadly these efforts spread across various places, connect with, and influence other social groups and struggles, and foster dialogue and potential political action. When asked about people's reactions to encountering the stickers and being forced to confront, rather than disavow, the historical realities of slavery and racism, Waithe, Reso, and Robles reported receiving widespread support for their efforts, even as many people expressed shock and repulsion by the named streets (Raskin, 2021). We do not yet have a complete understanding of the impact of the Stealth Slavery Sticker Campaign; that would require a separate study. However, we do know that this counter-mapping initiative set off public reaction, both on the streets and within the media. The Slavers collective made strong posts about their Stealth Sticker Campaign using their then-active Twitter (now X) and Instagram accounts (Sarai, 2021). Their aim to challenge dominant narratives of New York's racial history, especially regarding slavery and racism, was widely shared at the time through social media and local and national media coverage (e.g., McShane, 2021; Raskin, 2021; Waithe et al., 2021). This demonstrates how Stealth Stickers not only brought material disruptions to New York's streetscapes but also circulated across virtual platforms, influencing digital place-making (Halegoua & Polson, 2021).

The Stealth Stickers were discussed during a New York City mayoral debate in June 2021: "Residents and even debate moderators used the project as an opportunity to ask candidates whether they would change streets and institutions bearing the names of enslavers if elected" (Sarai, 2021, n.p.). Stuyvesant High School is another strong example of the Slavers of New York's broader impact. The school honors "Peter Stuyvesant, the director-general of the Dutch colony that gave rise to New York, [and who, in the 17th century,] enslaved 15

to 30 people on his 62 acres" (McShane, 2021, n.p.). The collective's targeting of Stuyvesant through stickers helped inspire students to research his role in slavery and other injustices and frame debates about possibly changing their school's name (Jia et al., 2021).

The Slavers collective recounts facing opposition from some white New Yorkers unwilling to confront history. For example, a man yelled at and followed one of Waithe's friends, who volunteered to put stickers on Bergen Street. A white resident of Carroll Gardens tore down affixed stickers (Sarai, 2021; Waithe et al., 2021). But what was especially striking were the reactions of Black residents, who, like this person with a Nostrand address, said: "It doesn't make me feel proud of living on this street" (as cited in McShane, 2021, n.p.). Waithe told Sarai (2021, n.p.) that other Black passersby's reactions ranged from citing "the pain of being reminded of the history" to "feelings of apathy about why this is a worthy enough cause to take up." Responses from Black residents became even more charged when the multi-racial makeup of the Slavers collective became clear. For instance, some expressed concern upon seeing stickers placed in Black neighborhoods by collective members perceived as white. Ada Reso recalls her own experience with this:

> Once he [Black resident] read [the sticker], I saw his face drop and he's like, "Why are you posting this? I don't want to be reminded of this. We've moved past this."…And he also made a comment about me…."White people coming into this neighborhood, can't you do something more useful instead of digging this up?" (as cited in Sarai, 2021, n.p.)

While the Living Black Atlas is rooted in Black visions and lived experiences, its counter-mapping and memory-work can be supported by collaborators from diverse racial backgrounds, including white allies (e.g., see Alderman et al., 2025). However, as the Slavers of New York example demonstrates, these multiracial collaborations—though beneficial in many ways—can also be sources of tension. Reso and Robles acknowledged the importance of not "making decisions for Black people about how they should reckon with the history of slavery" (Waithe et al., 2021, n.p.). Yet, their involvement reveals the complex politics of representation that arise when traumatic histories are brought into public spaces. The reception of the Living Black Atlas can vary depending on who is perceived as delivering the message, especially when communities are managing their own unresolved wounds, trust issues, and the need to safeguard their memory-work and neighborhood boundaries.

4. The Difference a Sticker Makes: Counter-Mapping in the Age of Retrenchment

Some may overlook the political importance of placing stickers on street signs or utility boxes. We tend to see resistance and re-education as necessarily significant or dramatic, but the Living Black Atlas invites us to rethink this. It highlights the geographic knowledge, counter-maps, and storytelling of everyday Black activists and communities—working independently or in multiracial collaborations like the Slavers of New York—to challenge white denial, dismantle racial systems, and resist silencing Black voices and histories.

The Stealth Slavery Sticker Campaign appears inactive now, and some of its goals have yet to be achieved, like creating a mobile app and an online map of New York's slavery history. Nevertheless, the Slavers of New York teach valuable lessons about memory-work, counter-mapping activism, and guerrilla education. Their tactics in Brooklyn transformed everyday memorialized and named spaces into sites for confronting racism and fighting for justice. This insurgent pedagogy is especially crucial today amid setbacks in civil rights and neglect of socially responsible commemoration and place name reforms.

The second Trump administration is hampering efforts by government agencies, universities, and historical sites to promote truth about the nation's racialized history and current racism (Chappell, 2025). The grassroots counter-mapping efforts by the Slavers of New York are not only interesting academically but also politically essential. Marginalized groups' heritages have always risked being co-opted, sanitized, and used by the settler state responsible for discrimination and violence (Rose-Redwood, 2016), but this is especially the case now. Without state accountability for confronting difficult histories, developing disruptive strategies in public spaces becomes crucial for forcing reevaluations of heritage. As addressing systemic racism becomes increasingly reduced in schools, libraries, and national parks, small acts like placing stickers on light poles or subway signs may serve as vital tools to promote critical questioning of social injustices and power structures.

We do not suggest that Stealth Stickers alone can accomplish all the memory-work needed in America. This issue is more than just the sticker. Critical cartography emphasizes de-fetishizing maps, revealing the labor involved in mapmaking and how maps perform social roles (Tyner & Tyner, 2025). Behind the Stealth Slavery Stickers are practices of counter-memory and counter-mapping that have applicability beyond simply subverting the New York streetscape.

4.1. Critical Heritage Audits

Central to the Stealth Sticker Campaign was a grassroots audit of New York City's historical and geographic records, including identifying families who profited from Black enslaved labor and recognizing streets bearing their names. D'Ignazio et al. (2022) discuss the broader value of communities using critical audits to challenge oppressive heritage landscapes by quantifying and visualizing the scale and structure of social injustice that would otherwise be normalized, and exposing how Black, Indigenous, and other oppressed groups are silenced and excluded within public memory and space. While audits—and the stickers they may produce—are not, by themselves, enough to create change, they have the potential to inspire new community-led political education and calls for institutional accountability and reform.

4.2. Symbolic Accretion

The Slavers of New York demonstrated the political significance of layering different commemorative messages within the same space, engaging in what is known as "symbolic accretion" (Dwyer, 2004). The process of adding diverse meanings and stories about the past to the landscape can provoke the shock, questions, and debates that challenge dominant, power-laden interpretations of history. This is especially true in cases like the Stealth Stickers, where an insurgent message about heritage is linked to an official and seemingly unquestioned narrative. Such practices, whether authorized or not, can have value far beyond New York. As current government-led efforts to remove racist monuments and place names become more difficult, and as some activists advocate for overlaying much-needed context and a Black perspective onto existing landscapes of memory, a tactic of accretion may prove increasingly significant.

4.3. Walking as Cartographic Memory Practice

Moments of counter-cartographic memory work are energized when audiences consume and internalize them, helping to co-construct acts of resistance through their bodily engagement and participation with

these “spatial narratives” (Potter et al., 2022). The Slavers of New York recognized the value of their stickers in interrupting and disrupting people’s everyday experiences of walking, requiring them to physically stop, look up, read, react, and perhaps reflect on their location within a broader context concerning the memorialization of historical enslavers. A realization that may be valuable to other communities is the insight made by scholars of the Stolpersteine Project: the installation of small, cobblestone-sized brass plaques set into European sidewalks in front of buildings where victims of Nazi persecution once lived freely before being deported or murdered. More than mere transport, walking is a key part of how people confront historical truths, especially when they encounter those truths along their daily routes, often unintentionally (Cook & Van Riemsdijk, 2014). Walking represents an embodied form of mapping practice capable of de-stabilizing dominant stories, identity formations, and spatial structures, all while “opening possibilities for alternative systems of living [and knowing]” (Powell, 2024, p. 9).

4.4. Guerrilla Place-Making

Finally, the Slavers of New York collective inspires scholars and activists to recognize the importance of reclaiming and rewriting everyday spaces through bold, unexpected acts of resistance. Insurgent memory-work, counter-mapping, and grassroots education derive their political force from being spatially grounded. The Stealth Slavery Sticker Campaign’s power lies not only in what it says about a racially fraught past but also in its support of a broader tradition of “guerrilla place-making,” low-cost, community-driven disruptions of sanctioned uses of public space that amplify the voices, needs, and histories of marginalized groups (Hou, 2010). These interventions vary in form and style, reflecting the diverse identities and interests of those engaged in place-making. This variability is not a weakness but a strength. If we are to challenge the state’s tightening grip on what can be seen, said, and remembered, this requires turning a variety of ordinary places and infrastructures into sites of reckoning and guerrilla education, from parks and bus stops to crosswalks and sidewalks. Brooklyn’s stickers represent more than a message; they constitute a method for remapping public spaces, reshaping the public’s connection to those spaces, and resisting the memorial silences that sustain white innocence.

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The authors have no conflicts of interest to declare.

Data Availability

No new datasets were generated in this study. All findings are based on publicly available news reports and online sources, which are cited in the article and can be consulted to verify the analysis.

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The authors used Grammarly and ChatGPT for proofreading and grammar suggestions only. This included limited use of AI for the structuring of sentences and word choice.

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About the Authors

Derek H. Alderman is a Chancellor's Professor at the University of Tennessee and past president of the American Association of Geographers. He is a cultural geographer examining counter and restorative cartographies of the African American Freedom Struggle, emphasizing commemorative justice and grassroots mapping to contest racism and imagine just futures.

Joshua Inwood is a professor of geography and senior research associate in the Rock Ethics Institute at Pennsylvania State University. His research examines racial capitalism, white supremacy, and political geographies of democracy and inequality. He writes widely on neoliberalism, truth commissions, and the ethical challenges shaping contemporary human geographies.

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ARTICLE

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Mapping Platform-Mediated Proximities With the TikTok Global Observatory

Salvatore Romano [1], Miazia Schueler [2], Natalie Kerby [3], and Davide Beraldo [4]

[1] Interdisciplinary Internet Institute, Universitat Oberta de Catalunya, Spain
[2] AI Forensics, France
[3] AI Forensics, The Netherlands
[4] Institute for Logic Language and Computation, University of Amsterdam, The Netherlands

Correspondence: Davide Beraldo (d.beraldo@uva.nl)

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Abstract

Considering TikTok's increasing geopolitical influence, this article presents the TikTok Global Observatory (TKGO) as a case of data-reappropriation and introduces the concept of platform-mediated proximity as a counter-data mapping framework for data activist research. While TikTok enables global connection beyond local and cultural boundaries, its content is sensitive to locally specific conditions to which the platform provides no public insight. To counter this lack of transparency, the TKGO makes data for global and cross-national analysis of TikTok feeds available and navigable to the research community. The TKGO is an archive, updated daily, that collects the metadata of videos scraped from the non-logged-in web version of TikTok's for you page (FYP) across 197 countries and territories. The tool's main feature is a geographic map that allows users to view, filter, sort, and extrapolate the FYP data as prioritized in different geographical locations. This offers a unique access point for researchers, journalists, and activists investigating cross-national trends, content moderation, and content promotion. In this article, we firstly present the TKGO and contextually position its development in the contentious politics of data access, archiving, and mapping practices. Secondly, we elaborate on the notion of platform-mediated proximities, a conceptual lens that highlights how TikTok remediates geographical proximities through algorithmic content recommendation. Lastly, we apply this framework to the mapping of a three-month sample of the TKGO data, showing how TikTok's cross-national content prioritization patterns generate new geographical boundaries, observing regional and geopolitical clustering as well as notable exceptions.

Keywords

algorithmic audit; counter-data mapping; data activism; for you page; social media monitoring; TikTok

1. Introduction

In the wake of the Cambridge Analytica scandal, many platforms restricted access to their research application programming interfaces (APIs), a key means to procure insights into platforms' content (Bruns, 2021), making platform accountability efforts more complicated. In 2022, the European Union adopted the Digital Services Act (DSA), creating legally enforceable transparency obligations, including the crucial requirement to grant vetted researchers access to enable independent third-party scrutiny. Nonetheless, in 2023, major restrictions affected API-based research tools such as CrowdTangle (a monitoring tool for Facebook and Instagram), Pushshift (an archive of Reddit posts), and X's (formerly Twitter) academic research API. Recent inquiries show that, despite the Digital Services Act's ambitious provisions, platform compliance has so far remained limited (Trans et al., 2024).

For example, TikTok's virtual compute environment, a secure environment for conducting research on sensitive data, revealed some major limitations: Raw data cannot be downloaded and researchers must embed their analysis in scripts that TikTok pre-reviews, which return only aggregated outputs, often after long, opaque delays (Rincón et al., 2025). On the other hand, academic access via TikTok's research API is not a remedy: Persistent errors in the engagement metrics (Pearson et al., 2025), incomplete or inaccurate documentation, and undocumented exclusions mean that some publicly visible content is missing from the API, alongside other known limitations (Entrena-Serrano et al., 2025). More broadly, platform-provided access points (e.g., ad libraries and standard APIs) enable content retrieval and only limited metadata but they do not give researchers access to the concrete, user-level impressions needed to analyse personalisation and targeting (Beraldo et al., 2021). These gaps compromise standard audit methods like data donations (Araujo et al., 2022) and sock-puppets (Sandvig et al., 2014), as they rely on the accuracy and completeness of the data made available by the platform.

Another important point, central to this contribution, is that none of the data access methods provided by TikTok allow for the analysis of its recommender system, nor do they allow for the analysis of how videos are suggested to users according to their location. Considering the growing interdependence between platforms and nation-states (Flew, 2023), enabling researchers to investigate the geographical dimension of platforms' recommender systems is crucial.

Despite TikTok's rapid global diffusion, systematic evidence on cross-national variation on TikTok remains limited. In particular, the literature lacks an analysis that couples broad country coverage with a longitudinal perspective capable of tracking changes over time. The TikTok Global Observatory (TKGO) tackles this issue by archiving recommendations as they appear on the for you page (FYP) of non-authenticated users across several countries and territories. It provides a live updated dashboard where researchers can explore the recommender system's outputs across the world. The TKGO reclaims data from TikTok and makes it available to researchers interested in cross-country analysis and in monitoring the geopolitical dimension of the platform. Introducing and illustrating this case, the present study offers an exploratory cross-national, time-aware examination of TikTok's FYP, focused on the question: How does TikTok's recommendation algorithm re-mediate geographical patterns?

This question is particularly salient in light of the contrasting tensions between, on the one hand, the push toward cultural homogenization driven by the circulation of content on global platforms and, on the other

hand, the push toward cultural fragmentation promoted by resurgent nationalism. The former would point toward a more integrated ecosystem, in which users across countries are largely exposed to the same content, whereas the latter would suggest the emergence of isolated, country-specific TikTok spheres.

This article is structured as follows. First, in the literature review, we discuss the political implications of TikTok's content diffusion, then we reflect on the implications for cross-national data mapping and the way in which social media can create a new type of proximity that is not only geographical, but also algorithmic. Second, we present the TKGO as a case of data re-appropriation and counter-mapping. Third, in Section 4, we describe the dataset and the analysis framework developed in this study. Fourth, in Section 5, we present our analysis of the global reach of TikTok's recommendation system and of the resulting re-mediation of geographical proximity. Finally, we discuss the implications of localized recommendations on TikTok and the way the platform segments its content based on users' location data, claiming that monitoring and mapping geolocated recommendations are essential to keep platforms accountable.

2. Reappropriating TikTok Data as a Case of Counter-Data Mapping

Despite affording global connectivity, the platform ecosystem is highly sensitive to local conditions and cultural boundaries (Rogers, 2019). In terms of content circulation, social media operate as a double-edged sword (Balogun & Aruoture, 2024): On the one hand, they contribute to cultural homogenization by enabling the global circulation of cultural trends; on the other hand, they can function as resources for promoting diversity, offering spaces for documenting and celebrating local cultures.

In geopolitical terms, concerns are emerging around the rise of a "splinternet," the fragmentation of a once single open online space into isolated spaces shaped by national borders and corporate infrastructures (Lemley, 2021). Not only have governments in various cases intervened at the legal, commercial, and infrastructural levels in order to reinstate control over information diffusion (Pallin, 2017), but private platforms operating globally have also adapted to regulations and political pressures on a national level (Biddle et al., 2020). For example, a 2022 investigation on TikTok showed how, shortly after Russia's invasion of Ukraine, the platform banned access to all non-Russian content for Russian users by removing an estimated 95% of previously accessible international content (Romano et al., 2023). Such a severe content restriction entailed the direct contribution of TikTok (Romano et al., 2022), highlighting local politics and platform power as a barrier to access for local users. This underscores the importance of understanding content prioritization policies across national borders.

Given the restrictions that platforms impose on data access, reappropriating data becomes essential to achieve this goal. For the sake of transparency and scrutiny of globally opaque social media algorithms, conceptualizing and visualizing cross-national recommendations can offer alternative perspectives on how and where content is disseminated. We understand this as a case of counter mapping, i.e., the alternative mapping of space that bears the potential of exposing power dynamics and creating new perspectives about power (Aleman & Martinez, 2024). Considering the centrality of data reappropriation and alternative mapping, such initiatives fall in line with the consolidation of counter-data mapping within the repertoire of media activism (Jeppesen & Sartoretto, 2023), a tendency rooted in the broader paradigm of data activist research (Kazansky et al., 2019; Milan & van der Velden, 2016). For example, the Mapping Police Violence project reappropriated and visualized data on police killings to expose their systemic nature and underlying

racial patterns (Dalton & Stallmann, 2018). During the Covid-19 pandemic, marginalized communities appropriated data to create alternative maps that revealed social and racial inequalities obscured by official dashboards (Jeppesen & Sartoretto, 2023). Similarly, D'Ignazio et al. (2025) document counter-data initiatives that produced alternative databases and maps to make visible under-recorded cases of feminicide. In this vein, data circulating on social media, despite being tightly controlled by platforms, can be reappropriated and critically visualized through counter-mapping practices, as illustrated by our study of TikTok.

Reaching 1,59 billion users, TikTok has become one of the most popular and influential social media networks (Dixon, 2025) since its global launch in 2017. The platform allows its users to create and upload videos through various editing functions, enabling experimental audiovisual expressions of creativity (Cervi & Divon, 2023). Its distinct and highly personalized algorithmically-curated feed (the FYP) is TikTok's primary feature, which allows users to discover new content other users have uploaded (Ionescu & Licu, 2023).

TikTok is growing in political and geopolitical relevance. A steadily increasing number of young adults are using the platforms as a source of news (Tomasik & Matsa, 2024). Encouraging a playful approach to politics and activism, it reportedly lowers the barrier to political participation (Cervi & Divon, 2023). However, the algorithmically-driven feed risks intensifying echo chambers and fuelling polarization (Li et al., 2025). Insights into how the platform's data-driven algorithms work, meaning how content is prioritized or hidden from public consumption, remain undisclosed by the company. Illuminating this opacity serves as a form of contention and resistance in datafied societies (Beraldo & Milan, 2019). In this sense, TikTok data is not neutral; it is inherently political, reflecting and reinforcing societal power dynamics while shaping the information that users encounter, the communities they engage with, and the broader public discourse.

Mapping cross-national recommendations on TikTok enables the research community to monitor the type of content that circulates on and is promoted by the platform. This opens up a number of analytical directions, including dissecting the logic of virality, mapping cultural trends, and tracking the spread of misinformation. The focus of this article, however, lies on what we term "platform-mediated proximity"—i.e., forms of proximity among countries mediated by algorithmic recommendations. Proximity, conventionally understood as geographic spatial relations, can be reinterpreted through the logic of algorithmic distribution as cross-national similarities in recommended content implicitly establish forms of cultural or discursive links. These are not necessarily dictated by spatial proximity but are shaped by the interaction between platform governance and country-specific policies. This underscores how platforms act as mediators of cross-national connections as they play an active role in producing cross-country relations as opposed to simply reflecting existing relationships between countries. Therefore, platform-mediated cross-national proximities can themselves be understood through the lens of counter-data mapping. Similarly to how grassroots counter-maps reveal and withstand "hegemonic narratives through a process of social cartography" by uplifting "community experiences and epistemologies" (Jeppesen & Sartoretto, 2023, p. 153), examining cross-national recommendations can help materialize the otherwise hidden logic of platform power.

With this article, we emphasize the importance of enabling and empowering civil society actors, educators, researchers, and journalists to challenge this power through accessible methods (Kazansky et al., 2019) by enabling third-party audits and further scrutiny of the cross-national dynamics of content curation. Furthermore, we contribute to studies of algorithmic governance by reconceptualizing the notion of

cross-national proximity from the perspective of a platform's recommender system. Such a framework can contribute to exposing harmful platform dynamics at a transnational level and to making space for new forms of accountability.

3. The TKGO

This section briefly describes the TKGO, a case of counter data mapping developed by the non-profit organization AI Forensics, on which the present study is based. The TKGO archives local versions of TikTok's FYP and maps them to enable cross-national research and to monitor the dynamics of platform-mediated proximities. Hence, we conceptualize it as a case of data reappropriation and counter-mapping that takes a "critical stance towards datafication" and contests its power relations (Beraldo & Milan, 2019).

3.1. Downloading FYP Data

Since December 2022, the TKGO has been collecting FYP from the HTML page of the TikTok website data four times per day across 197 countries and territories. Every instance of data collection retrieves an average of eight recommended videos (in a range between five and nine), corresponding to the (variable) number of videos that TikTok preloads on its webpage upon access, for a total of around 5,000 daily videos. It relies on a quite stable and simple data collection technique that does not require account creation.

The data is collected from the videos displayed when accessing tiktok.com/foryoupage using a browser configured exclusively for this purpose without being logged in and without any interaction with the website (meaning no scrolling, liking, or other actions). Specifically, we used cURL (a command-line tool that lets you transfer data to or from a server) to download the JSON file with the first batch of videos, including their metadata, that TikTok preloads on the homepage for users. TikTok preloads these videos for people accessing TikTok via a web browser to avoid waiting times between interactions with the first videos and the following ones. Once the user starts to scroll or engage with the first batch of preloaded videos, new batches of on average eight videos (in a range between five and nine) are loaded one after the other (TikTok, 2020). In the case of this data collection, only the first pre-loaded batch is considered, as the other batches are loaded only after the user engages with the first batch (TikTok, 2020). In this case, the platform likely predominantly selects the videos based on two variables: the country of the IP address used and the time of the request. While it would be interesting to complement our data with the subsequent batches, doing so would require a substantially more demanding infrastructural setup as it would necessitate simulating user interactions to manually load additional content.

3.1.1. Residential IPs Network

To investigate the different FYP recommendations across countries, TKGO replicates each data collection instance across all the IPs available on Bright Data, a service that offers residential IPs across the world. Residential IPs are generally considered better for research purposes than virtual private networks, which route web requests through a location different from the physical location of the device making the request. Virtual private networks' IPs are usually publicly known, hence even if they mask the real location of a user, it is quite easy for a system to detect that the user is dissimulating their location. Conversely, residential IP services make an additional effort to not publicly disclose the list of IPs they use, making it almost impossible

for platforms to detect them. This allows the tool to evade TikTok's attempts to identify and block users who are manipulating their location. Therefore, we replicate the data collection across 197 countries and territories (see the list of countries in the Supplementary File for a full list).

3.2. TKGO: A Public Tool

The web application of the TKGO is composed of a main map of the world and a sidebar displaying the globally top recommended videos and their respective metadata (e.g., description, author, engagement metrics). By selecting a single country on the map, the sidebar displays the top recommended videos for that specific country. It is also possible to select a specific timeframe or to query for a specific keyword, highlighting where videos containing that keyword are recommended (see Figure 1).

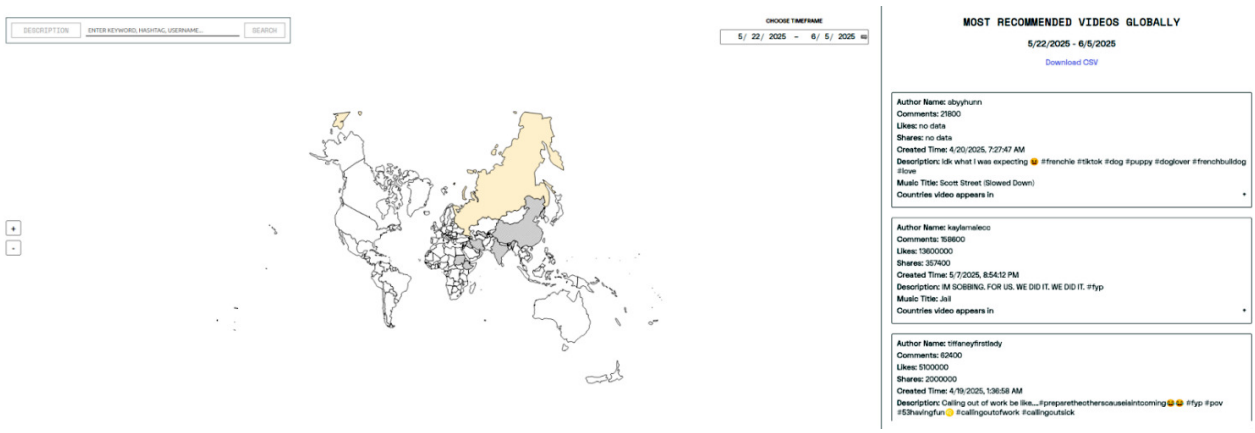

Figure 1. A screenshot of the TKGO: A world map with a word and time filter on the left, and a sidebar with the recommended videos list on the right side. Source: AI Forensics (2025).

All the collected data is made available to researchers in two different ways: to the public, through TKGO as a web application, showing an interactive map to explore a limited set of the most prominent recommendations; and to vetted researchers, through ad hoc requests, providing access to the entire collection in the form of CSV files.

3.3. Limitations

We acknowledge that unlogged-in access to the FYP through a web browser is not how most users access TikTok since TikTok's algorithm relies on personalization, presenting users with content related to previously inferred interests. While this implies that the TKGO data cannot be used to study algorithmic personalization and individual filter bubbles, the cross-country nature of its data provides a unique opportunity to study global content circulation and to understand how the platform remediates geographic boundaries.

Moreover, the preloaded recommendations served to non-logged-in users act as a showroom of the platform, targeted to potential users with the aim of luring them into the system. This means that, most likely, these recommendations do not include borderline and or niche content but rather a collection of content generic enough to cater to different categories of users. For the sake of exploring

platform-mediated proximities, this type of content is better suited than personalized recommendations that would introduce much more variability.

TKGO's data collection, even if longitudinal and cross-national, cannot be considered exhaustive. With residential IPs, it is not always known in which specific areas of a certain country/territory the access point is given. In some countries, however, regional differences are quite relevant, calling for even finer-grained local collection. Further, the frequency of data collection, set to four times a day, is arbitrary. Increasing the frequency of recommendations would generate a more representative sample.

3.4. Ethical Issues

According to TikTok's Terms of Service, Developer Terms of Service, and Community Guidelines ("How we combat," 2024), the platform forbids the scraping and collection of data. However, within the context of the European Union, Article 40, paragraph 12 of the Digital Services Act states that publicly accessible data (e.g., public posts, visible metadata) should be accessible in real time to researchers inside and outside the EU (Regulation of the European Parliament and of the Council of 19 October 2022, 2022, Article 40). The European regulation allows public scrutiny of potential systemic risks that platforms could pose to society, such as negative effects on civic discourse and electoral processes that could arise from cross-national disparities. We view the regulation as a possible remedy for the long-term information asymmetry between platforms and users/researchers. We argue that our data collection supports the process of enforcing Article 40 (12) to hold the platform more accountable and allow for independent assessment of potential risks related to its recommender system.

The entirety of our collected data is stored on secure servers hosted in Europe, encrypted at rest, with a data retention period of a maximum of two years. Data older than that is accessible to researchers only after anonymization. In general, TKGO does not provide the full list of content collected but makes available in its public web version only the content published by users who have more than 500,000 followers, which we treat as high-visibility content of public interest. Access to the full dataset is provided only through a vetted research request process designed to balance transparency, reproducibility, and privacy, consistent with the context-sensitive, harm-minimizing approach to data storage and dissemination recommended by the Association of Internet Researchers' Internet Research Ethics 3.0 guidelines (Franzke et al., 2020).

4. Methodology

The findings presented in this article are an illustration of possible analytical directions afforded by the TKGO datasets. As detailed in this section, we focused on a subset of the sample and performed an exploratory analysis centered around the framework of platform-mediated proximity.

As explained earlier, the TKGO collects up to nine videos four times a day from the FYP of non-logged-in users based in each of the 197 countries and territories considered. To display the possible analytical directions of the tool, we focus on the nine weeks ranging from December 9, 2022, to February 9, 2023. Upon inspection of the dataset, it became clear that a few inconsistencies in the data collection required further data cleaning. To equalize the number of videos collected per instance (generally ranging between five and nine), we aggregated observations into weekly intervals and verified that weekly counts were

relatively consistent for this time period (they ranged between 36,367 and 39,761 recommendations). Then we analyzed country-level distributions and excluded 17 countries with fewer than 130 observations per week to ensure reliable comparisons.

Our final dataset consisted of 15,963 video recommendations. Each dataset entry consisted of the following metadata: A unique video identifier (a numerical identifier of the recommended video); a country code (the ISO-2 code of the country to which the video has been recommended); the curl time (the datetime at which the data collection was performed); and DiversificationID. The DiversificationID is a topical label automatically generated by TikTok that is not available through official channels like TikTok's API but only through web-scraping, and can be used to assess the general content of the videos (Semenova et al., 2024). In this study, we did not analyze any personal information of accounts with fewer than 500,000 followers.

Our analyses focused on patterns emerging from the recommendations of TikTok content across countries and territories worldwide. First, we computed the distribution of videos per country. This allowed us to evaluate to what extent TikTok's videos are recommended globally, or conversely, to what extent TikTok's FYP is country-specific. We then focused on the 52 videos that were recommended in at least 100 countries. A cursory content analysis was conducted on this sample of videos in order to get a sense of what kind of content is pushed on a more global scale by the platform.

The core of our methodological contribution consists of the operationalization of a relational-geographical approach to the study of recommendation patterns. For this, we use network analysis as a framework to map relations and compute metrics about countries based on the patterns of co-recommendation expressed by our dataset. First, we created a bipartite graph, a network graph connecting nodes belonging to different classes, linking each video to the country to which it was recommended. Then we applied a so-called "projection" in order to convert it into a unipartite graph (i.e., a network graph connecting nodes belonging to the same class); in other words, we transformed the video-to-country graph into a network graph in which countries are connected among each other (country-to-country graph) based on patterns of co-recommendation. We used the network graph visualization software Gephi (https://gephi.org) to visually map the projected network graphs (mapping country-to-country relations) and to visually inspect their general properties. We used the force-directed layout algorithm ForceAtlas2 to spatialize the nodes of the graph, meaning that the closer two countries appear visually, the more video recommendations they share.

As a result, we were able to map the algorithmically-mediated spatial relations among countries for which we collected TikTok recommendations, and compare them to other geographical and cultural patterns. We inspected these relations visually through the network graph. However, computationally, we developed three indexes that characterized the structure of the country-to-country network, and plotted their evolution over time: the isolation index, the proximity index, and the regionality index.

The isolation index is a node-level index (i.e., an index related to each individual country) that measures the extent to which a country tends to receive country-specific recommendations; hence, it is more disconnected from the global recommendation network:

- For each video node, we first compute its locality as the inverse of its degree (i.e., number of connections); videos connected to fewer countries will get a higher locality weight.

- For each country node, isolation is measured as the ratio between the sum of the locality indexes of each neighbour (i.e., video connected to the country) and the number of the node's neighbours.
- If a country's recommended videos are widely recommended to other countries, then the country is less isolated. If it has no video at all, it is treated as fully isolated.

In other words, the isolation index measures how much a country relies on local videos (either country-specific or connected to a few other countries), rather than more global ones.

The proximity index is an edge-level index (i.e., an index related to the connection among countries) that measures the extent to which a pair of countries tends to receive common recommendations, hence resulting in them being particularly close to each other in the overall network:

- For each projected edge (i.e., link among countries), a weight is defined as the number of recommendations that the two countries share.
- The weight is subsequently normalized, dividing its value by the smaller number of recommendations among the two countries (which corresponds to the maximum value the weight can have), in order to account for the uneven number of recommendations per country we collected.
- If two countries share many of the same recommendations, their proximity index will be higher. If two countries do not share any recommendations, their proximity index will be zero.

In other words, the proximity index measures how close two countries are in terms of TikTok's content recommendations.

The regionality index is a graph-level index (i.e., an index related to the overall network among countries) that measures the extent to which countries within the same geographical region (e.g., continent) tend to receive the same recommendations, as compared to countries belonging to different geographical regions:

- For each projected edge (i.e., link among countries), a proximity index is calculated as above.
- Internal proximity is calculated as the sum of the proximity of countries belonging to the same geographical area. Total proximity is instead the sum of the proximity among all existing country pairs.
- The regionality index is calculated as the ratio between internal proximity and total proximity provided.
- If recommendations tend to be shared among countries within the same region, the regionality index will be higher.

In other words, the regionality index measures the extent to which recommendations tend to stay within certain geographical regions, rather than transcending them.

5. Findings

5.1. Video Distribution Across Countries

In Figure 2, we can see the distribution of videos across countries on a log-scaled axis, so the steep left-to-right drop reflects orders of magnitude: most videos are recommended in 1–5 countries, and counts fall rapidly as reach expands, yielding a highly skewed, long-tailed distribution. Our analysis shows that

69.28% of the content is recommended in only one country, comprising most of the recommendations; 90.50% are recommended in no more than four countries, and 98.39% of the videos are recommended in 20 countries or fewer. Only a small minority of videos (0.07%, 52 videos) reach more than 100 countries—the true global breakouts. Occasional small spikes at specific country counts may stem from market availability, geo-targeting rules, or coordinated distribution patterns. Here, "reach" means the number of distinct countries with at least one recommendation for the video across the three months, not the volume of recommendations within each country.

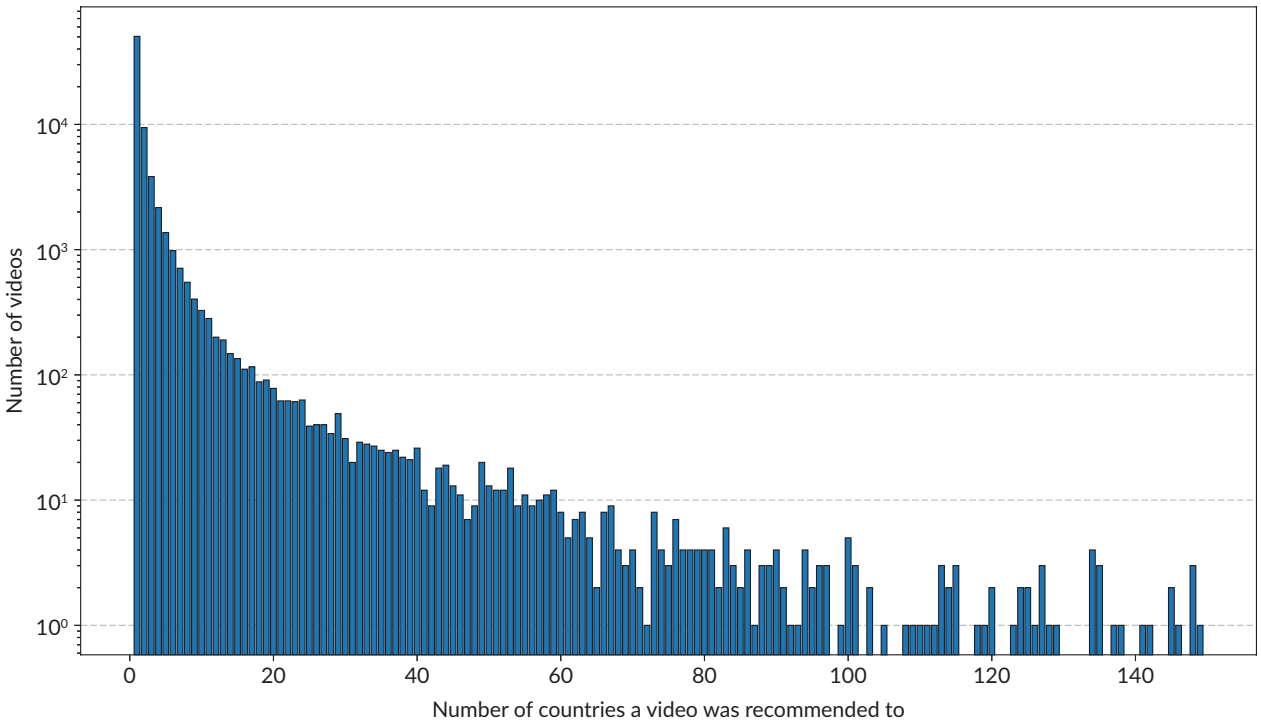

Figure 2. Distribution of videos by the number of countries they were recommended in.

To better understand the types of videos that are most recommended across countries, we conducted a qualitative analysis of the top 20 most recommended videos in our dataset, and we considered only two channels in the top 20 that had more than one video appear. This analysis is supposed to only give a glimpse of what type of qualitative analysis can be done with the dataset, but further researchers should expand the scale to make observations generalizable.

We found that the influencer Kristina Kika Kim (@kikakiim) has the highest presence in the top 20 videos, with eight total videos appearing. Kika Kim also published the most recommended video in our data collection, with 2,513 occurrences, almost one thousand times more than the second most frequently recommended video (1,469 occurrences), where she shows a makeup routine (represented in Figure 3). Kristina Kim is a 22-year-old Japanese TikTok star based in Kazakhstan, and primarily working for American and Asian audiences: She is known for creating lip-sync, point-of-view, and dance videos on the platform.

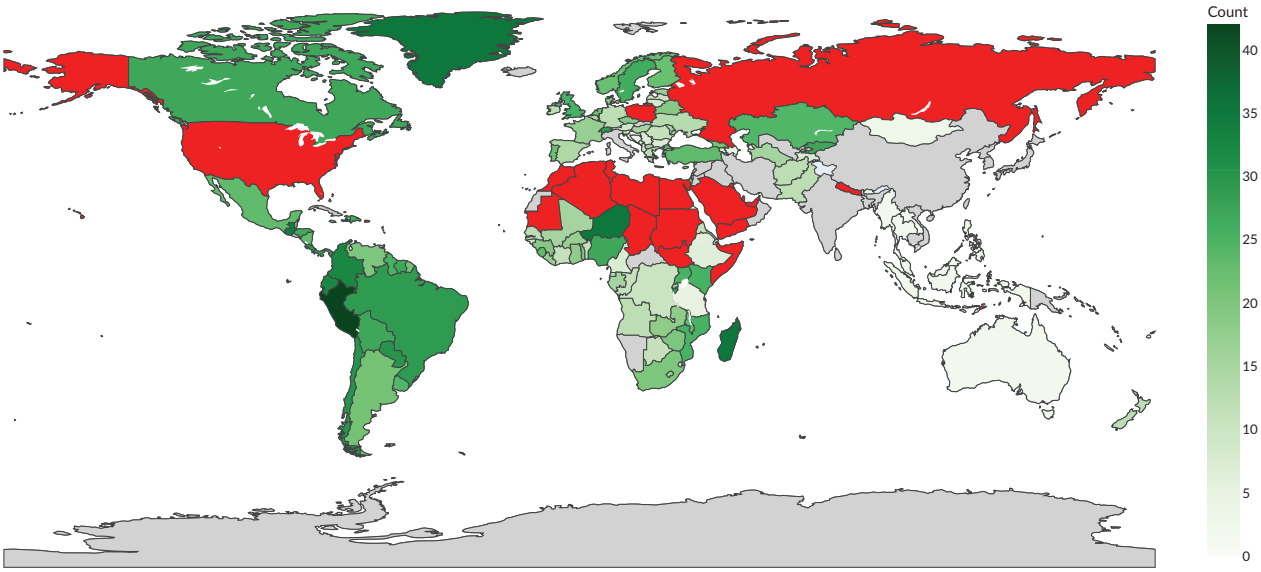

Figure 3. Geographical distribution of the most recommended Kristina Kika Kim video. Note: Recommended countries are shown in green, non-recommended countries in red, and those with unavailable data are in grey.

There is only one other influencer who appears more than once (three times) in the top 20 most frequently recommended videos in our dataset: the French TikToker Deborah Yowa, known for creating ASMR food content. Her TikToks feature her eating different foods following a list of emojis in the form of a challenge. Her most recommended video has 926 in our dataset (represented in Figure 4).

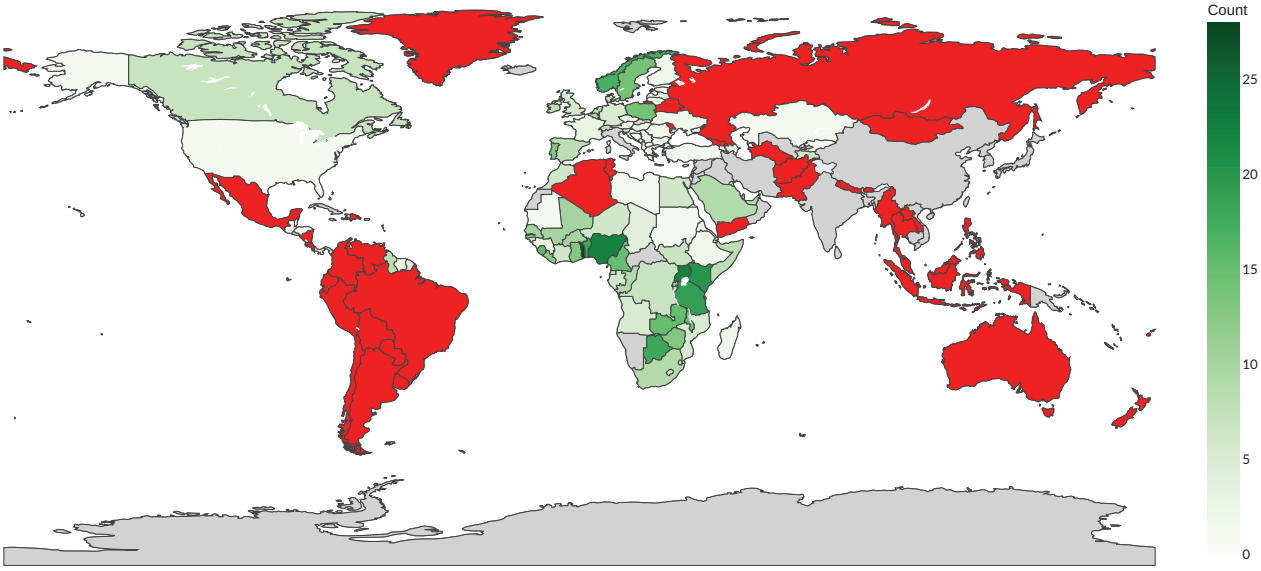

Figure 4. Geographical distribution of the most recommended Deborah Yowa video. Note: Recommended countries are shown in green, non-recommended countries in red, and those with unavailable data are in grey.

In general, looking at the topical labels (called Diversification IDs) attributed by the platform to the top 20 videos, the set seems to be skewed toward short-form, visual entertainment, and lifestyle, which is recognized to be typical TikTok content. The dominant themes are dance and performance ("Finger Dance & Basic Dance,"

"Singing & Dancing," "Lip-sync," "Talents"), alongside food content ("Cooking," "Food Display," "Mukbangs & Tasting," "Food & Drink"), and personal care and style ("Hair," "Beauty & Care," "Beauty & Style"). There are also two videos identified with family-oriented clips ("Babies," "Family & Relationship"), but they could also fall into the category of dance and performance, as they only mention "father" and "son" but in an ironic way, while showing some dance moves. Only one video contained a direct ad of a product, in this case, a phone cover, and it is the video with the fewest likes, comments, and shares among the top 20, suggesting that its presence could be related to a non-organic diffusion of the content such as through a paid advertising campaign. Looking at the most frequent labels attributed by the platform to the videos recommended to only one country, we can see a similar distribution: The most frequent are again performance, lip-sync, comedy, entertainment, and lifestyle. In practice, what we found was mostly highly shareable clips like dance challenges and lip-syncs, cooking and tasting reactions, and beauty routines aimed at the mainstream public; those videos are dominant in our dataset, likely reflecting their overall prominence on the platform, and they are also more likely to be recommended to users who are not logged in, rather than more niche content.

All the videos in the top 20 were recommended in at least 118 countries, and some in up to 154 (the most recommended videos from Kika Kim), meaning all of them were videos with an almost global reach. No video reached the whole list of countries in the timeframe we analyzed and the differences in geographical reach are quite prominent, even among the most recommended videos. As we can see, comparing the countries in which the most recommended videos from the two influencers are shown, the differences are striking. While Kika Kim is quite often recommended in South America, Deborah Yowa is completely absent from there, and instead, she is present in North Africa, where Kim is not being recommended.

5.2. Geographical Patterns in the Co-Recommendation Network

Figure 5 represents the network graph connecting countries based on patterns of co-recommendations. This means that the more two countries are recommended the same set of videos the more connected they are, and the closer they are displayed in the network visualization. The nodes representing the countries have been colored according to their respective continent, so that an assessment of the clustering of colors in the graph space provides an idea of the extent to which classical geographical proximity maps into platform-mediated proximity. The visualization refers to the overall timeframe of nine weeks.

A visual analysis of the graph provides a number of insights into how TikTok remediates classical patterns of geographical proximity. While the few quasi-global videos discussed before provide a backbone of universal connectivity, a number of distinctive patterns emerge. Most of the countries (around 150) are grouped in a macro cluster, while some (e.g., Bangladesh, Russia, US) are pushed to the periphery of the graph—i.e., they are isolated from the global recommendation network. Despite the overall background of connectivity, we can observe that certain connections among countries are being foregrounded, as noticeable by thicker edges. The distribution of the colors of the nodes indicates that countries tend to cluster around pre-existing regional groups—not only continents, but also finer-grained regional divisions such as North Africa and Sahara-bordering countries or the ex-USSR countries in Europe. There are, however, a few exceptions to this like Puerto Rico, Guam, and Niue. A more precise analysis also revealed some unexpected connections such as Mongolia and Micronesia, Monaco and Albania, and Gibraltar and the Faroe Islands.

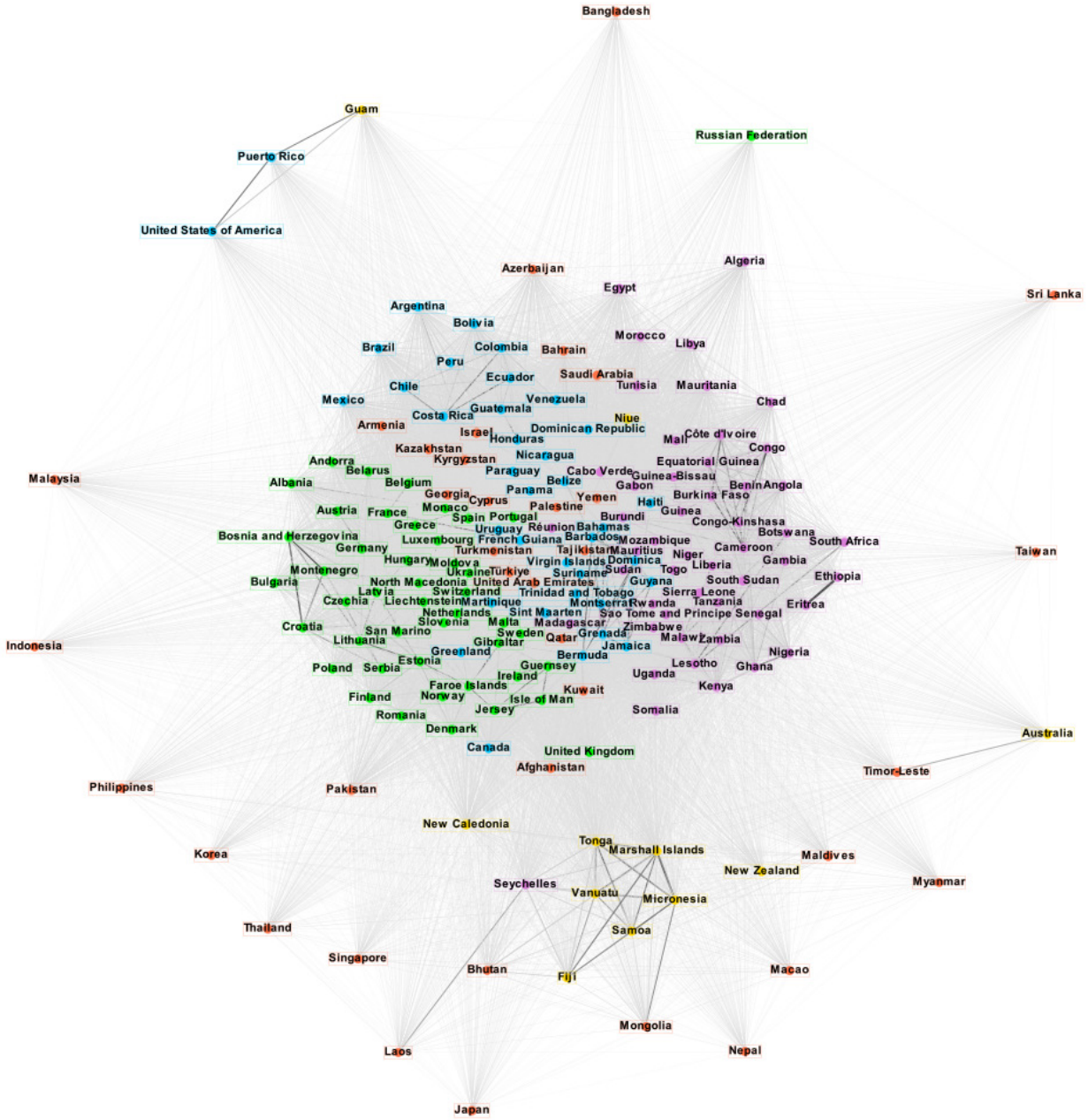

Figure 5. Country-to-country network graph (projection of country-to-video). Note: The colors are according to continents—Africa is violet, America is blue, Asia is orange, Europe is green, and Oceania is yellow.

In order to evaluate more precisely which countries tend to be served country-specific recommendations, rather than sharing recommendations extensively with others, we computed an Isolation Index. Table 1 reports the 20 countries that are most isolated from the global recommendation network. We can observe how most of these countries belong to South-East Asia and Oceania, and include several islands. Notably, countries like Russia and the US are both significantly isolated from the global network.

Moving to inspect the stronger connections, Table 2 lists the 20 pairs of countries that score the highest in terms of proximity. This index, corresponding to the weight of the country-to-country network, measures the extent to which two countries tend to have the same content recommended to them. We can note how

the pairs of countries sharing the most all belong to the same geographical region. The most tightly connected regions appear to be the Horn of Africa, the Baltic countries, the Balkans, Micronesia, Polynesia, and the Caribbean.

Table 1. List of top 20 countries per isolation index.

#	Country	Isolation Index
1	Bangladesh	0.98
2	Sri Lanka	0.95
3	Taiwan	0.91
4	Indonesia	0.91
5	Nepal	0.90
6	Japan	0.88
7	Malaysia	0.88
8	Russia	0.86
9	Myanmar	0.84
10	Korea	0.83
11	Thailand	0.82
12	Philippines	0.82
13	Singapore	0.79
14	Australia	0.78
15	Laos	0.72
16	Guam	0.69
17	New Zealand	0.68
18	US	0.68
19	Maldives	0.66
20	Puerto Rico	0.64

Table 2. List of top 20 country pairs per proximity index.

#	Country1	Country2	Proximity Index
1	Ethiopia	Eritrea	0.58
2	Micronesia	Marshall Islands	0.50
3	Latvia	Lithuania	0.43
4	Tonga	Micronesia	0.42
5	Barbados	Bahamas	0.41
6	Grenada	Dominica	0.41
7	Vanuatu	Marshall Islands	0.40
8	Grenada	Barbados	0.40
9	Tonga	Marshall Islands	0.40
10	Dominica	Barbados	0.40
11	Tonga	Samoa	0.40
12	Serbia	Montenegro	0.38
13	Croatia	Bosnia and Herzegovina	0.38
14	North Macedonia	Montenegro	0.38
15	Vanuatu	Tonga	0.38
16	Vanuatu	Micronesia	0.37
17	Bosnia and Herzegovina	Montenegro	0.37
18	Latvia	Estonia	0.37
19	Montserrat	Dominica	0.37
20	Isle of Man	Jersey	0.36

The tendency of countries to cluster according to pre-existing regional borders has been measured as the regionality index—i.e., the proportion between (weighted) edges within regions (in this case, continents) and the total. In the timeframe considered, this score is 0.34, indicating that despite the overall regional clustering, there is room for non-regional connections.

6. Discussion

By analyzing the recommendations served over time on the browser version of TikTok's FYP to unlogged-in users, we can compare the content delivered to users by manipulating only their IP address location. Even in a timeframe of nine weeks, we can see threads consolidating across the world, giving us a glimpse into the logic that drives algorithmic recommendations on the platform. The data shown to all users accessing the homepage without logging in and without any interaction with the platform represents the most public type of data that can be found on TikTok, and is therefore a useful way to study the showroom of the platform around the world and how algorithmic recommendations shape the content served around the world.

6.1. Virality Is Never Really Global

As we saw, analysing the videos' distribution across countries and comparing the geographical reach of the most frequently recommended videos in our dataset, even the most viral videos are not recommended all over the world but only in a subset of countries, which seem to be chosen not randomly but rather according to where a certain user base might be more present. In the example we made, it seems that content can be spread across a continent in a quite homogeneous way (as in the case of South America for the most recommended video in our dataset), but can be excluded from other regions like North Africa.

Our analysis suggests that there is not a single type of virality if we look at virality from a cross-national perspective. Saying a video is viral because it generated a lot of engagement and interactions might be reductive, as we should always geographically locate virality. It is as important to know a video is viral as to know *where* the video is viral. Once a video becomes viral in a certain region, it will then be recommended in proximate countries, but this does not mean that it will necessarily achieve a global reach. It seems that similarities across countries, like regulation, language, and cultural and geographical proximity, are key to understanding how TikTok's algorithm works across the world. To study these factors contributing to defining the virality of content, we designed the proximity, isolation, and regionality indexes.

6.2. Proximity

Creating a network graph of the countries based on the number of recommendations they share, we can see that the geographical proximity of countries and territories plays a major role in determining which content is suggested where. Countries on the same continent tend to cluster together, such as Europe, Africa, and South-Central America, and are grouped together in different parts of the network graph. At the same time, not all the continents are so proximate to each other based solely on continental appurtenances. Particularly, Asia is clearly divided into two: West Asian countries like Armenia, Israel, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, Georgia, Türkiye, the Arab Emirates, Yemen, Palestine, Qatar, and Kuwait are quite distant from East Asian countries. These East Asian countries, like Malaysia, the Philippines, Korea, Taiwan, Singapore, Laos, Japan, Nepal, Macao, and Myanmar, seem to have fewer connections to the main cluster at

the center of the graphic. Instead, they remain on the periphery of the network, possibly suggesting they might have more country-specific recommendations and some common recommendations shared among them as West Asian countries. Similarly, many of the island countries belonging to Oceania and like New Caledonia, Tonga, Marshall Islands, Vanuatu, Micronesia, Samoa, Fiji, and New Zealand are clustered together and some of them have among the highest values of proximity like Micronesia-Marshall Islands (0.50), Tonga-Micronesia (0.42), or Vanuatu-Marshall Islands (0.40), possibly reflecting the relatively limited volume of locally produced content in these countries. More generally, many of the top 20 country pairs by proximity index involve geographically close, small-population countries. This pattern may indicate that smaller countries generate less distinct content and therefore receive largely overlapping recommendations, as if they were treated similarly by the algorithm. Interestingly, while most of the West Asian countries receive among the highest values in the isolation index—indicating that they occupy peripheral positions in the network and are not strongly connected to one another—the island countries from Oceania, although located outside of the main cluster at the center of the network, are closely connected. As a result, they do not show up in the top 20 isolation index table, due to the strong connections between them. This example refines Lemley's (2021) account of the "splinternet," showing that before two countries fully sever ties, partial internet blocks plus shared social platforms can produce an algorithmic split that isolates them without cutting them off entirely.

Also, inside the European continent, some countries share more recommendations, creating a sub-region with stronger relations between states. For example, Latvia, Lithuania, and Estonia (ex-USSR), Bosnia and Herzegovina, Montenegro, Croatia, and Serbia (ex-Yugoslavia), are closely connected: Latvia–Lithuania (0.43), Serbia–Montenegro (0.38), and Croatia–Bosnia and Herzegovina (0.38). They are among the countries that are more strongly related to each other, as they share not only geographical proximity but also cultural proximity, which results in platform-mediated proximity. It is important to note how such strong connections do not necessarily involve countries with a shared (official) language, a factor that could help explain the algorithmic proximity even more.

6.3. Isolation and Content Moderation

At the same time, Oceanian island countries share many recommendations with other island countries like the Seychelles, which belong to the African continent, which cluster in a different part of the network. Another country that does not cluster together with the other countries of its continent is the Polynesian Pacific island of Niue: Even if it is a state "freely associated" with New Zealand and geographically positioned in Oceania, it shares most of its recommendations with South American countries and some African countries instead of grouping together with the other Oceanian island countries. Similarly, the US shares many of the recommendations with Puerto Rico (situated in North America) and Guam (part of Oceania), two of the US territories defined as "permanently inhabited territories" where citizens acquire US citizenship by birth, and they elect non-voting members to the US House of Representatives who can introduce new legislation. Those three countries have a high isolation index score (between 0.69 and 0.64), and they appear in the top 20 list of the most isolated countries, showing that their closeness is also distancing them from the rest of the countries, probably because the US has a high volume of new content published and a lot of country-specific recommendations. Interestingly, the US Virgin Islands, although a permanently inhabited US territory, does not receive recommendations similar to those of the US, Guam, or Puerto Rico. Instead, they cluster with the main group, suggesting either the absence of a distinct set of recommendations or

alignment with geographically proximate countries. This indicates that the platform does not treat the US Virgin Islands as algorithmically close to the US, despite their comparable legislative status.

Looking at the most isolated countries with the highest values in the isolation index, besides the East Asian countries that show a similar pattern of being outside the main cluster, we also find countries like Russia and Bangladesh where specific censorship rules have been approved. After the large-scale invasion of Ukraine started on the 24th of February 2022, Russia blocked several non-Russian social media, accusing them of non-compliance with the "anti-fake news" law (Troianovski & Safronova, 2022). Researchers have shown that TikTok was not among the platforms blocked, even though a major update on the type of content recommended to users with a Russian IP was developed, making most of the international content not accessible for them and creating a sort of nationalized version of the platform able to comply with the strict censorship regulation (Romano et al., 2022). Similarly to Russia, Bangladesh, the most isolated country in our dataset, banned TikTok for a period in 2021 after a human trafficking network was found to have been using it to recruit young users. After being reintroduced, TikTok was definitively banned from Bangladesh in 2024, as an act of repression against the quota reform movement (Turzo, 2024). While it was not banned during the period considered in our dataset, it is possible to consider that the platform was recommending a more isolated subset of content in this country to avoid further problems with regulators. TikTok was also banned from government devices in December 2022 in Taiwan, during the timeframe considered in this article, and it was banned in 2018 in Indonesia for a few days. Similar cases also happened in most of the other highly isolated countries. This could suggest that political pressure from national governments against the platform with specific regulations could lead the platform to create a more moderated version of the app in certain countries, highlighting how algorithmic recommendations are driven by different socio-economic factors, not only technical developments, including regulations and political events, as described by Bucher (2016). As she argues, algorithmic power is conditional and eventful; real-time counter-mapping of censorship and platform systems shows it is exercised at specific moments, in conjunction with other forms of power, rather than continuously possessed (Bucher, 2018).

7. Conclusion

In this article, we presented the first global and live-updated dataset of geolocated recommendations on TikTok. The TKGO represents a new opportunity for researchers to explore the geographical dimension of algorithmic content's prioritization and moderation. Its data collection is independent from any platform interference and represents a working example of data re-appropriation and counter-mapping in the field of algorithmic studies.

The geographical distribution of some of the most recommended videos in our dataset suggests that virality is never truly global, but rather regional. The country-to-country network and the proximity, regionality, and isolation indexes that describe its structural properties provide a replicable framework to study and monitor the relations among countries emerging from algorithmic recommendations. Our analysis shows how TikTok's recommender system tends to follow pre-existing geographies such as continents and sub-regions. However, it also shows how some countries are more isolated than others, meaning they have a more country-specific set of recommendations. We also found cases of countries not following the general schema of the continents and subregions, but rather following regulations and legislative boundaries. The TKGO counter-data mapping effort can help reduce the opacity surrounding the platform-mediated proximity effect.

The present study comes with limitations, and we point out ways to improve the reliability of our analysis. First, due to its exploratory nature, this study focused on a timeframe of a few weeks, whereas the dataset now comprises about three years of data. Monitoring the evolution of these indexes over time could provide near-real-time insights into platform politics across different geographical contexts. Second, another limitation concerns the small number of videos collected in each observation. This is an inherent constraint of our data collection technique, which does not allow us to automate scrolling to retrieve additional content. As a result, it is possible that videos appearing beyond the first page are systematically different from those initially pre-loaded. Implementing such a setup would require substantially higher bandwidth, rendering it unsustainable in practice. Future work that explores content beyond the first set of pre-loaded videos would help strengthen the reliability of our results. Third, on a similar note of statistical reliability, a more in-depth assessment of the patterns explored here should include a focus on within-country variance, in order to assess whether the observed cross-country variance is explained by geographical factors rather than by a generally highly variable composition of recommendations.

There are also a number of analytical directions that this article did not consider, but that represent a useful expansion of our approach. First, in this study, we checked the distribution of the most recommended videos across countries but we did not check the diffusion of the most viral videos. This different angle could be used to find more discrepancies and similarities among countries, as well as to study the platform's logic of virality. Second, we did not systematically engage with the content of the videos upon which the scrutinized proximities depend. In particular, we did not systematically assess the effect of shared language, likely an important variable—albeit, according to our findings, not always a determinant. Understanding the role of (minority) language in driving platform-mediated proximities will help shed light on TikTok's cultural politics. Similarly, we only conducted a qualitative exploration of the 20 most-recommended videos in our dataset. This does not allow us to reliably identify the drivers behind their popularity, as doing so would require a substantially larger sample and systematic statistical analysis. Our goal in this section is simply to provide a glimpse of the content we encountered; a larger-scale quantitative analysis would be needed to draw more generalizable conclusions. Finally, further initiatives could replicate the data collection and analysis framework we presented in this article on other platforms, enabling comparative analysis and establishing a cross-platform observatory.

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Conflict of Interests

The authors declare no conflict of interest.

Data Availability

All the data collected for this study are available on request to researchers able to meet privacy standards. A version of the dataset without accounts with less than 500,000 followers can be accessed on the website of the TikTok Global Observatory. The measures on data protection for this article have been reviewed by the Ethics Committee of the Universitat Oberta de Catalunya and approved with the code CE25-TE31.

LLMs Disclosure

The authors employed generative AI tools to refine grammar and sentence fluency. The authors have reviewed and validated all submission content.

Supplementary Material

Supplementary material for this article is available online in the format provided by the author (unedited).

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About the Authors

Salvatore Romano is head of research and co-founder of AI Forensics. He is also pursuing an industrial PhD at the Interdisciplinary Internet Institute (IN3) in Barcelona. His research focuses on platform accountability and algorithm audits, investigating how digital systems impact society.

Miazia Schueler is a researcher at AI Forensics with a focus on digital methods and algorithmic injustices. Using qualitative and quantitative audits, she examines racial and gendered discrimination through a decolonial Black feminist lens. Contributing to algorithmic scrutiny and platform accountability, she navigates the intersection of tech, society, and justice.

Natalie Kerby is a researcher at AI Forensics. Her research focuses on platform accountability, algorithms, resistance, and alternatives.

Davide Beraldo is an assistant professor of new media, data, and information at the Institute for Logic, Language, and Computation at the University of Amsterdam. His research lies at the intersection of critical media studies, computational social science, and the epistemology of complexity.

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