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Afterword: From Number Politics to Infrastructure Politics

Notes on Context and Methods

Stefania Milan

Abstract

Data infrastructures are the scaffolding of the present. This afterword centres on this claim by broadening the question that animates the special issue – what does lived data politics look like? – to the question of ‘where’ it is taking place today. It extends the gaze to the systemic transformation subtending contemporary data production, which I term ‘governance by data infrastructure.’ This pervasive form of number politics represents the most recent rearrangement in matters of governance of the social. It centers regulatory data infrastructures as the preferred mode of managing complexity, bringing the industry to the kernel of the state. Furthermore, the article asks what it means to think from an anthropological vantage point considering these developments, and what fruitful methodological avenues for research this may open.

Keywords: citizen science, datafication, governance by data infrastructure, infrastructure politics, methodological innovation, number politics, regulatory data infrastructure

Data infrastructures are the scaffolding of the present. They generate data in real time, using it not only for value creation but also for decision-making and for monitoring the polity, delegating to algorithms functions that were previously performed by humans. More than ever before, data infrastructures have contributed to turning numbers, indicators and comparisons into the currency of decision-making, governance and public discourse. Number politics shapes the way institutions formulate policies, allocate resources and attempt to anticipate and mould the future. It influences how individuals perceive reality and plays a role in how social groups negotiate identity and otherness.

To be sure, the use of data-tracking technology to discipline populations has its roots in the twentieth century. The ‘informational person’ we know today is the result of sedimentary efforts at, *inter alia*, documenting identity, measuring

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personality traits, distributing credit on the basis of race (Koopman 2019: 115) and formalising the state by collecting population statistics (Desrosières 1998). While the fascination with quantification is not recent, the advance of datafication in society has changed the pace and the pervasiveness of number politics, as well as the range of actors involved in promoting it. What's more, the increasing societal reliance on artificial intelligence (AI) knowledge systems contributes to augmenting the 'mechanical objectivity' (Porter 1995) warranted to quantification and automation, positioning them well above other forms of knowing, feeling and governing.

We know from the literature that numbers and classifications have the power to bring social realities into existence by describing them (Merry 2016). They are able to 'change our relation to what we value and alter how we invest in things and people' (Espeland and Stevens 2008: 419). And in recent years, the mediation of algorithms has contributed to promoting new power dynamics amongst public and private entities (Bellanova and de Goede 2020). Distinct yet adjacent disciplines – from the sociology of quantification to critical data studies, from philosophy to governance studies, from international relations to science and technology studies (STS) – have offered critical readings of number politics. Scholars have exposed how numbers and related dynamics, such as classification, statistical reasoning and ranking practices, bear social consequences (Bowker and Star 2000), how they have a strong relation to power (Davis et al. 2012) and how they actively silence portions of the population (Criado Perez 2019). They have illustrated how numbers broadly defined are used to produce governmentality (Aradau and Blanke 2017), how they are mobilised in times of crisis and emergency (Milan 2020) and how the shift they promote is 'not merely technological, but also social and political, and it therefore confronts us with questions of power, agency and control' (Hintz et al. 2018: 2).

Although scholars have acknowledged the relevance of everyday forms of engagement with data and related dynamics (e.g. Kennedy 2018; Kennedy and Hill 2017; Leszczynski and Crampton 2016; Lyon 2016), to date we lack fine-grained knowledge about how social actors (re)imagine the future by means of everyday forms of engagement with data. The special issue 'Number Politics after Datafication' edited by Moisés Kopper and Hannah Knox addresses this gap, grounding contemporary data politics in the everyday. Diverging from the high-level (Ruppert et al. 2017) and the contentious (Beraldo and Milan 2019) of sociological interpretations of data politics, the issue takes as its focus the many ordinary, often invisible forms of engagement with data, unveiling the underlying ethical and affective processes that make them possible. We learn that data politics does not happen in a vacuum, nor does it unfold according to the books. On the contrary, it oftentimes embraces the unruly and the non-rational, the messy and the unstable, bringing to life unexpected imaginative and affective realities able to intervene in the social world.

In what follows, I complement the kaleidoscopic portrait of number politics after datafication offered by this issue by expanding the perspective to the 'where' number politics is taking shape today. The goal of this article is two-fold. First, I foreground the prominent role of data infrastructure in the latest systemic transformation of number politics thus far, which I term 'governance by data infrastructure'.

Exploring the infrastructure politics of this relatively novel iteration of the governance of the social through the lenses of this issue, I advance three hypotheses about its impact on political agency and the polity more in general. Second, I reflect on the added value of theorising from an ethnographic standpoint and of the methodological implications of this perspective particularly with respect to current citizen science efforts.

From Number Politics to Infrastructure Politics – And Back

From algorithmic-led public service delivery in the United Kingdom to census infrastructure in Brazil, from the Chinese social credit system to the Brazilian quantification tool keeping track of COVID-19 deaths, this special issue has spoken to the ontological plasticity of alternative data practices. Along the same lines, I ask, does the *where* of alternative data practices matter? How can we understand it, and how can we study it? In other words, what *infrastructural politics* emerges amidst contemporary number politics and at its edges?

Data infrastructure is increasingly built into our lives. Think of social media platforms and self-tracking devices, credit card systems and biometric identification in law enforcement. Here, I focus on a specific type of data infrastructure with regulatory functions, what I will henceforth call ‘regulatory data infrastructure’. At the most basic level, regulatory data infrastructures are data-tracking systems that produce data in an automated fashion. Data then feeds (quasi-)real-time decision-making and population monitoring within the remit of state functions, such as public safety, education, public health and population management. Regulatory data infrastructures increasingly take up functions that were once performed by humans within public institutions, intervening in statecraft and democratic practice. They simultaneously inform regulation (i.e. imbuing policymaking with data) and regulate people’s behaviour and movement, access to the polity, and the welfare state (in other words, they ‘make’ the polity through data). The case studies in this issue can be largely ascribed to this sub-category of data infrastructure. They serve as notable examples of the latest development in the governance of the social that I refer to as the ‘governance by data infrastructure’. This trend amplifies ongoing patterns in public management, such as the ‘audit cultures’ (Strathern 2000) and a heavy reliance on ‘expertise’ exemplified by the expansion of the consultancy industry (Mazzucato and Collington 2023).

Regulatory data infrastructure knits together three dimensions of social life: the social proper (e.g. conjecturing the public through naming and numbering practices), the socio-technical (e.g. the many processes through which numbering happens, including data mining) and the governance dimension (e.g. organising, knowing and managing the civic community). As showcased by the authors in this special issue, these three dimensions are entangled in data practices involving multiple social actors often with competing interests. Kopper, Knox and colleagues urge us to bring forward the everyday dimension with its inconsistencies and messiness, its competing moralities, its affective engagements and its unexpected outcomes.

But how are practices and imaginaries of alternative data politics moulded by infrastructure? How, in turn, do they mould infrastructure? To phrase it differently, what is the political work performed by infrastructure? Mobilising the classical sociological trope of 'structure vs. agency', one may ask what space for political work is made within – and inscribed on – (complex, entangled, 'black-boxed') infrastructure. In fact, the transition to algorithmic governance marks 'a shift toward a special form of design-based governance, with power exercised ex ante via choice architectures defined through protocols' (Gritsenko and Wood 2020: 45)—seemingly leaving little space for citizen action.

Adding complexity, the rapid spread of regulatory data infrastructure facilitates the integration of the private sector into the state structure. Governance by data infrastructure routinely employs for-profit contractors 'as regulatory agents, turning private centers of power to state purposes' (Braman 2006: 34). Identity management systems, education technology, but also data centres are exemplary cases. As a result, action and control are diverted away from elected legislators and the citizenry (cf. Lucivero et al. 2020). Think of facial recognition technology. With faces becoming 'another form of data' (Andrejevic and Selwyn 2022: 64), this technology is a key element in government operations – from law enforcement to border controls to access to government services – but state entities alone are not able to develop and maintain the complex system. While governments, notably the United States and China, have played a pivotal role in advancing this technology, the primary service providers in the current landscape are large tech conglomerates such as Google, IBM, Cisco, Microsoft and Apple. Specialised firms like China's Huawei and Japan's NEC also contributed significantly to the ecosystem (Andrejevic and Selwyn 2022). In 2020, an investigation by the tech magazine *Wired Italia* revealed that the municipality of Como, a mid-size Italian town at the border with Switzerland, had implemented a facial recognition system without a legal foundation or adequate safeguards for human rights, and under the pressure of Huawei (Carrer et al. 2020).

Considering the above, I propose three hypotheses regarding the repercussions and social costs associated with governance by data infrastructure. First, regulatory data infrastructures affect our ability to exercise citizenship, that is to say, the capacity to participate in public life (Marshall 1950), encompassing subject and agency formation. Second, regulatory data infrastructures shift power, control and state-making abilities away from state institutions and to the private sector, eroding state sovereignty. Third, landing in profoundly unjust societies, regulatory data infrastructures are prone to exacerbate inequality across multiple dimensions, including economic, as well as class, race and gender disparities.

Yet, like data practices, data infrastructures are not fixed or static. They are amenable to intervention, appropriation, repurposing and subversion. They are subject to questioning, interpretation and contextual influence. Interrogating infrastructural politics entails asking how the context influences the ontological nature of the data; how distinct socio-cultural perspectives shape what constitutes data analysis; in what ways data 'filtered' by regulatory data infrastructure is processed

and interpreted; and finally, how alternative infrastructure can be designed and operated. These questions stem from the conviction that ‘the specificities, contingencies, and everyday practices of data development and use’ are *not* detached ‘from the design of technology’, to use the wording of Kopper and Knox in the introduction to this special issue.

Anthropologist Arturo Escobar observed how ‘policy and planning, as design tools par excellence, deeply structure people’s realities and everyday lives’ (Escobar 2018: xiii). He referred to development policies as social experiments that had gone awry, emphasising the need to reorient design towards achieving social justice. I argue that the same observation holds true for the ‘design-based’ governance (Gritsenko and Wood 2020: 45) typical of governance by data infrastructure, whereby protocols, algorithms and devices *construct* the social interactions and exchanges funnelled through them. This reflects the well-known insight from human–computer interaction scholars Terry Winograd and Fernando Flores that ‘in designing tools we are designing ways of being’ (1986: 11).

Two observations follow, if we pursue Escobar’s invitation to make space for a ‘conversation about possibilities’ (2018: 110). On the one hand, it becomes of paramount importance to situate alternative data practices within the infrastructure they stem from – the socio-technical context – if we are to fully appreciate their ontology and the epistemologies they promote. On the other hand, we must carve out space in our academic practice for thinking about and designing ‘other’ practices of engagement with number politics. This could involve ethnographically documenting current alternative practices, as exemplified effectively in this special issue, as well as participating in creative envisioning exercises. It might mean nourishing empowering research relations and interconnections particularly with the disempowered, and making room for ‘an ethical and political practice of alterity’ (Escobar 2018: xvi) within extant data politics and at its edges.

Thinking Like an Anthropologist. ‘Old’ Repertoire, New Directions?

I conclude this article by reflecting on the added value of theorising from an ethnographic standpoint. This special issue has made apparent the validity of an anthropological approach to the study of number politics, for at least three reasons. First, the discipline is particularly well positioned to elicit knowledge about the social worlds of data politics. It has the ability to foreground the grounded, the everyday, the embodied, the affective, the situated, producing fine-grained, nuanced understandings of number politics. Second, it can shed light on mediation, rupture, malfunctioning – the ‘inconsistencies, frictions, and polyvalences’ (Kopper and Duarte in this issue) – in interplay with the human factor of number politics. Last but not least, the anthropological sensibility pays attention to ‘other’ geographies, extending the gaze beyond the ‘data universalism’ (Milan and Treré 2019) that has characterised much of the research into data politics until today. In sum, anthropology empowers the observer to transcend the realm of ‘ethics in technology’, a distinguishing feature of contemporary discussions on technology harms, into the

‘politics with the small p’ – that is to say, the interpersonal aspects of the politics of data that occur within communities and social groups or at the fringes of the formal, institutionalised realms.

One aspect of exploring quantification in action, which this special issue has not explicitly addressed, pertains to the significance of adopting an anthropological mindset in exploring potential venues for methodological innovation. Traditional anthropological methods, such as auto-ethnography, steadily feature in the toolbox of data studies (Barassi 2017; Vera et al. 2018), as does digital ethnography, apt to wander in the ‘never-ending field’ of big data (Lohmeier 2014). Experimental methods that engage with the everyday, experiential dimension of datafication, such as ‘data walking’ (van Es and de Lange 2020; Powell 2018), or ‘infrastructure walking’, have their roots in an anthropological understanding of fieldwork. However, citizen science – a ‘co-creation’ approach popularised over the last decade within problem-focussed natural sciences, which preaches the involvement of laypersons in scientific research activities – has remained somewhat detached from the insights of anthropology, and the social sciences more in general (Tauginiene et al. 2020; Smaniotto and Passani 2023). Yet, citizen science has a central role in the European Union’s open science policy and features prominently in funding programmes. According to a recent Eurobarometer survey, 60 per cent of European citizens believe that engaging non-scientists in research and technological development guarantees that science and technology align with the needs, values and expectations of society (cited in Beereboom 2021).

Given the notion that data practices, even within the digital domain, can be considered ‘field sites in their own right’ (Boellstorff 2010), and recognising the importance of researchers expanding the ‘space of possibilities’ (Escobar 2018: 112), I argue that adopting an anthropological perspective has the potential to stimulate methodological innovation *also* in participatory research, including co-creation and future methodologies. Such a move could future-proof research on everyday data practices while avoiding extractivist forms of engagement with the field and at the same time contributing to raising awareness about the challenges of number politics after datafication. This might require embracing scenario thinking, ‘circumventing’ context to tactically build community, or even practising ‘devious design’ (Poirier 2017) at the field site. But it might empower us to partake in the “dance” in which our structure of possibilities is generated’ (Winograd and Flores 1986: 163).

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