

Critical Dashboarding

On collective design practices of urban infrastructures

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Introduction

Frameworks of so-called smart cities have shifted in recent decades from infrastructural concerns with connectivity (1990/2000s) to data-driven optimization of sustainability (2010s) and, more recently, to a paradigm focused on ubiquitous environmental sensing (Powell 2021). Urban space has consistently been conceptualized throughout these various re-imaginings as an agglomeration of various data flows that need to be both controlled and regulated. This is in line with historical analyses of the city as an object of computational practices (Beverungen and Sprenger 2017). Urban dashboards are often posited as the pivotal digital interface through which to access the city as an information space to be governed from a central point, one comparable to the historical function of maps as instruments of knowledge and power.¹

In my contribution, I will draw upon insights from the digital humanities (Drucker 2013; D'Ignazio and Klein 2020), from interface studies (Wirth 2023), and from critical mapping projects in urban studies (Weissenrieder 2023) to explore the dashboard's potential as a *critical interface*. The development of critical cartography and approaches of counter-mapping in specific will guide the endeavor to pivot the dashboard interface towards becoming a central site for the negotiation of new understandings of the city as a shared environment that is shaped by participatory practices. A similar discussion has taken place around digital methods (Rogers

1 First ideas for the present paper were developed during the preparation of a speculative design workshop titled "Experimental Urban Dashboard Designs for Mundane Data" scheduled in the context of the conference "Digital Futures in the Making: Imaginaries, Politics, and Materialities" at the University of Hamburg in September 2022 (annual conference of the German Society for Cultural Anthropology and Folklore Studies, DGEKW). I warmly thank my co-organizers Johanna Fischer, Inga Reimers, and Daniel Schulz (HafenCity University Hamburg) for the inspired conversations. Even though the workshop needed to be cancelled last minute, many of our common ideas have lived on and led to the present paper.

2024), and in the digital humanities in general, in which the idea of re-purposing digital technologies towards scholarly and activist ends is prevalent. I would like to stress the commonalities between critical mapping projects on the one hand and the tactical use of digital media in digital methods approaches on the other by highlighting the interface character of urban dashboards, and thus their processual, constitutive and relational character (Hookway 2014).

Questions that will guide this endeavor include: How might urban dashboards be re-imagined, not as an integral part of an infrastructure of optimization, but rather as an interface for collective urban imagination? How might we envision the process of engaging in collective design practices of urban dashboards themselves as an active exercise in re-thinking city infrastructures in their relation to city dwellers?

In what follows, I will first provide a brief overview of how urban space is usually characterized in historically variable frameworks of computing the city, including (but not limited to) explicit smart city frameworks. The city is most often posited as a computational object that needs to be made governable and accountable vis-à-vis shifting municipal and corporate agendas. The following section will then focus on urban dashboards, as the central interface technology in these frameworks, and will review literature from urban studies in which the employment of dashboards has been investigated both conceptually and empirically. In the fourth section, I will introduce my understanding of critical urban dashboards. I will begin by taking stock of recent design initiatives that surround urban dashboards. This includes work carried out by the City Science Lab at HafenCity University Hamburg on participatory urban planning (Weber and Ziemer 2022) and by the [urban interfaces] research group at Utrecht University on “frictional urban interfaces” (De Lange 2018). This is followed by a theoretical discussion, ranging from key orientations in critical cartography on the one hand and digital humanities discourses on the other. The concluding fifth section will attempt to integrate the theoretical considerations and practical efforts discussed and will reflect on how practices of critical dashboarding could potentially help to articulate alternative “urban intelligences” (Mattern 2021) that are grounded in the lived realities of city dwellers.

Computing the city

The history of “knowing and governing cities through urban indicators” (Kitchin, Lauriault, and McArdle 2015) is older than the more recent proliferation of smart city initiatives around the world. Various indicators on economic, health and social phenomena have been used in city-benchmarking projects, which track the performance of cities against each other, since the early 1990s (Kitchin, Lauriault, and McArdle 2015, 7). The motivations for this competitive performance tracking can be traced back to two developments: the first concerns sustainability agendas

promoted by the United Nations and the second concerns the push to transform the management of cities according to the demands of efficiency and transparency which is often accompanied by public-private partnerships, if not the wholesale privatization of the functions of urban development. These two goals – ecological sustainability and economic efficiency – remain the driving forces behind current smart city agendas that increasingly employ digital media and sensors to provide data about various urban processes, often in real time.

The more recent history of smart city initiatives is itself characterized by a series of epistemological, technological and political transformations that Alison Powell (2021) systematizes as a transition between three different technosocial imaginaries. According to Powell, the earliest smart city agendas in the 1990s and early 2000s were deeply invested in ideas of *connectivity* and their shared aim, across corporate and activist initiatives, was often to provide access to wireless networks and to urban infrastructures of communication above all else (Powell 2021, 11–14; Apprich 2017). The late 2000s and 2010s then witnessed a shift towards *datafication* as the main technosocial framing of smart cities (Powell 2021, 14–17). Data advanced to the position of default currency to measure the success of smart city initiatives, be it in proprietary or open data undertakings, alongside a parallel shift toward platform models of governance in many different areas of urban management. With this came a focus on the surveillance of everyday life and the necessity to employ data analytics to handle a deluge of data points (so-called ‘Big Data’). More recently still, the Big Data-oriented smart city frameworks underwent another transformation when the availability of sensor technologies made the idea of *real-time sensing* of a city’s various indicators like air quality, noise, traffic movements and energy consumption, among others, possible (Powell 2021, 17–20). Data here acts less as a reportable documentation of processes and events and more like a dynamic and constantly evolving index that can serve to inform municipal politics as it is being executed. Powell’s historicization of smart city imaginaries is noteworthy because she stresses that the major epistemological underpinnings tend to be shared across the board between politicians, corporations, activists, and informed citizens (i.e., they represent common discourses and action frameworks to which affirmative and critical positions alike refer). Thus, there is no clear dividing line between the approaches, methods, and the vocabulary of (economic and political) institutional actors on the one hand and the (often bottom-up) organized open data and citizen sensing initiatives on the other. This harbors the risk that a rhetoric of smartness prevails across all camps, such that the topos of the computable city and urbanity as a complex, albeit solvable, optimization problem, is dominant.

Seen through the lens of media and cultural theory, the logic of viewing the city as a computational object (or even akin to a computer itself) can be traced back even further to the architectural historian Lewis Mumford’s influential account of the development of urban civilizations (Mumford 1961), in which cities come to be seen

as organized around key mediatic functions like storage and transmission. Media scholar Friedrich Kittler has elaborated on Mumford's view and has stressed the various information flows that characterize the networked infrastructures of a contemporary city, comprising telecommunication media, but also energy infrastructures like roads, water supply, and electricity (Kittler 1996, 718). Kittler's understanding of media is shaped by the mathematical theory of information and, interestingly, urban environments serve as a prime example for him, acting as a bridge in his media-historical argument: "MEDIA record, transmit and process information – this is the most elementary definition of media. Media can include old-fashioned things like books, familiar things like the city and newer inventions like the computer" (Kittler 1996, 722). However, while Kittler's understanding of media itself is suffused with computational concepts, more recent interventions in urban studies question the computational metaphor altogether (Mattern 2021), thereby providing an occasion to think through alternative understandings of cities as "complex, multifaceted, contingent, relational systems, full of contestation and wicked problems that are not easily captured or steered" (Kitchin and McArdle 2018, 122).

An understanding of cities as comprised of a network of (real-time) data flows that need to be regulated, controlled and optimized, "as datasets to be manipulated" (Gabrys 2014, 30), is almost self-evident from the perspective of urban informatics (Shi et al. 2021) or "urban ubiquitous computing" (Beverungen and Sprenger 2017, 1). This view is usually concomitant with a rationalist, instrumental, and solutions-oriented epistemology (Kitchin, Lauriault, and McArdle 2015), one complemented by a focus on the collection and visualization of data. There is a danger that data becomes hard political currency, in the sense that alternative types and forms of urban knowledge are devalued in the face of an exclusive focus on data, as Crooks and Currie (2021) have pointed out, in view of the increasing importance of (often quantitative) data for urban planning and political decision-making processes. It is in this context that Shannon Mattern (2021) puts forth her rallying cry for critical urban scholars that "A city is not a computer" which is targeted against the prevalent views in urban informatics, specifically in foregrounding place-based and indigenous forms of urban knowledge that resist the fantasy of frictionless datafication. One of Mattern's (2021) starting points in her critique of computational models of urbanism is the very interface technology that comprises the main object of the present article: the urban dashboard.

The material politics of urban dashboards

The basic idea of dashboards, as they have come to be known not only in the field of urban informatics, but also as components of vehicles, financial information systems, business management software, and military hardware, among others, is to

offer an aggregate view of various data streams (ranging from statistical data to real-time sensor data) in order to provide a central control interface. “Dashboards utilize visualizations and visual analytics in order to make data about a city legible and interpretable” (Kitchin and McArdle 2018, 113–114). In today’s sensor data-driven environments, “the ‘dashboard’ has become a primary technology of government like cartography, anatomy and charts” (Isin and Ruppert 2020, 10) that promises its users the possibility to discover unseen information patterns and to test the effects of proposed changes in the form of simulations. The name derives from the wooden board installed in horse-drawn carriages to prevent mud, debris, water, and snow from “dashing up” by the horse’s hooves onto the exposed driver (Mattern 2015; for a more comprehensive historical archaeology of dashboards, see Tkacz 2022). In the history of automobility, dashboards were increasingly used as a convenient armature to integrate various information displays and control functions that all needed to be accessed from the driver’s position, akin to the various information tools available to a plane’s pilot in the cockpit. Dashboards have tended to become ever denser and data-rich with the increasing electrification and digitalization of car functions up to their use in autonomous vehicles in which the purpose of real-time data visualization is significantly more important than their use as a control instrument. One common denominator of dashboard software interfaces across their different implementations has always been to provide a composite control position from which the surrounding space – be it that of a road populated by traffic or a whole city – becomes legible and governable (Iveson and Maalsen 2019).

In her chapter on urban dashboards, Mattern (2021, 18–50) dissects the ideology of the “dashboard-as-talisman” (Mattern 2021, 19) that promises its users to see into the future and that turns uncertainty into profitable practices of risk management. Her main argument is that the “prevalence and accessibility of data have dramatically changed the way we see and govern our cities” (Mattern 2021, 22) where urban dashboards incorporate a new managerialist approach to urban governance that often implies a “top-down, technocratic vision” (Mattern 2021, 27) on the basis of key performance indicators. Mattern’s critique of the dashboard specifically targets the epistemological and methodological shortcomings of its representational logics, its focus on simplicity and/or legibility, its subjectification of the dashboard user as being distant, but omniscient, and even its implicit ontology as “it defines what the city is and *isn’t*, by choosing how to represent its parts” (Mattern 2021, 43). To elaborate briefly on this aspect: it does make a difference if a city is conceptualized according to infrastructural and economic criteria, like crime rates or density of public transport, or if it is seen as a lived environment that is shaped by public practices, like hanging out in a plaza without consuming anything, playing a musical instrument for passers-by or enjoying a sunset in the park. Incidentally, these cultural practices of urbanites in their inherent complexity are what urban anthropologists are usually interested in, as evidenced by a broad range of ethnographic studies dating back

to the days of the Chicago School. In contrast, dashboards are at the forefront of a “transition of environments from habitats and spaces of dwelling to objects of planning, management and control” (Beverungen and Sprenger 2017, 4). A dashboard tends to represent a distant, clean and reduced version of knowledge about the city that is also plagued by the shortcomings of any realist data-driven epistemology, such as a tendency towards normalization and unacknowledged biases (Kitchin and McArdle 2018, 113–115).

In related work, the use of dashboard interfaces in municipal administrations has been studied to gauge the relationship between (often idealized) visions of governance and the “material politics and practices of their implementation” (Sadowski 2021, 3). Sadowski reports findings from a 2-year ethnographic study with the Future City Unit in the Department of Strategic Development and Outcomes in the City of Parramatta, Australia that engaged in-depth with the on-the-ground realities of a dashboard development project and that brought to the surface a great deal of “normal, natural troubles” (Garfinkel 1984, 187) – from the necessary data practices providing a foundation for the dashboard, the problem of missing data, the effects of modelling on what is being modelled, and the lack of sustainability of proposed solutions that would fall into disuse once management shifted priorities to something else. Sadowski understands dashboards as “meaning-making machines” that inevitably “construct an ontology of the city’s operations” (Sadowski 2021, 13) that affects city governance on many levels (Kitchin and McArdle 2018, 115) while still being subject to (sometimes) insurmountable institutional, technical and interpersonal barriers that disrupt its full-scale adoption. One message to take away from this, and from similar investigations (Mertia 2017), is that dashboards as the central technical medium in many proposed smart city frameworks tend to promise a universal and domain-crossing solution to many urban problems, while often falling short of their goals when it comes to sustainable use case; they also introduce a host of new problems to the process.

What remains, then, after this rather sobering review of the prospects of engaging with dashboards from a critical urbanist stance? The most radical answer would certainly be to abstain from using the technology altogether and to criticize the implementation of urban dashboards as an important parcel of often reductionist, data-driven epistemologies that fail to address the complexity of urban problems and the actual needs of city planners and city dwellers alike. However, in the remainder of this contribution I will take stock of available practical experiments and theoretical resources in an attempt to re-purpose the dashboard as a critical interface and explore its potential in grounding digitalization (i.e., to explicate its capacity to address the complexity of cities as material-digital hybrids or code/space, such as in Kitchin and Dodge 2011).

Designing critical urban dashboards

Case studies

In this section, I will discuss two quite different contexts in which urban dashboard design experiments are pursued. The City Science Lab in Hamburg engages with various urban stakeholders in developing urban data infrastructures, whereas the [urban interfaces] research group at Utrecht University can be situated as a critical design initiative in a creative humanities framework (Bleeker et al. 2020). The two case studies are meant to provide some empirical grounding for my conceptual proposition of critical dashboarding, understood as a collective design practice of urban infrastructures that occupies the intersection of critical cartography and digital methods.

A number of design projects pursued at the City Science Lab (CSL)² at HafenCity University in Hamburg are organized around the three pillars of multistakeholder collaboration, narratives & interfaces, and data & modelling. This structure underscores a focus on collective decision-making processes across different stakeholders as well as a concern for mapping and visualization projects that engage with user-led narratives and the creation of interfaces to handle both qualitative and quantitative data in a common environment. Among the projects pursued at the CSL, the Urban Data Hub (UD-Hub) and the Cockpit Social Infrastructure (CoSI) come closest to the vision of a critical urban dashboard interface investigated in this work. UD-Hub, a cooperation between CSL and the State Office of Geoinformation (LGV), aims to develop a common infrastructure for various municipal data services, provided in the form of an urban data platform that integrates a host of data for researchers, businesses, and civil society (among them map data, traffic data, environmental data, but also crowdsourced data about air quality and the use of bike lanes).³ It was also the basis for the CoSI project that began in 2017 as “a centralised digital platform for urban planners”⁴ meant to support data-based decision-making processes with a range of visualization options, a scenario planning mode, and prognostic data analytics capacities with a focus on social infrastructures like public transport, education, and sport offerings that contribute to the quality of living when taken together. In this project, it is mainly the type of data that contributes to a citizen-centered perspective. However, the focus is clearly on quantitative indicator data (distance to the nearest bus stop, number of nursery schools, etc.) and little effort has been made to incorporate ethnographic data that might contribute to a richer on-the-ground perspective on quality of life.

2 <https://www.citysciencelab.hamburg/about> (Accessed July 3, 2025).

3 <https://www.urbandataplatform.hamburg/> (Accessed July 3, 2025).

4 <https://www.citysciencelab.hamburg/projects/cosi> (Accessed July 3, 2025).

Accompanying publications outline the vision of curating data for urban collaborations (Ziemer and Weber 2022) pursued at the CSL in greater detail. This begins with the acknowledgment that urban data platforms (made accessible via dashboard interfaces) are not utilized by citizens to the extent desired by their developers; this leads to the insight that relevant data need not just be made available, but must also be curated in a data storytelling approach (much like how a museum curator would need to put a lot of conceptual effort into designing accessible narratives around their exhibits) (Ziemer and Weber 2022, 91–93, 124). The importance of data storytelling has been recognized by a growing number of contributions in critical data studies and related approaches (Kitchin 2022, 3–13; Mosconi et al. 2022; Feigenbaum and Alamalhodaie 2020). Thus, an initial insight to be drawn for the vision of critical urban dashboarding is that an interface accessible by the public does not work just because it is out there (akin to a database), but that it needs to be integrated into clearly articulated narrative strategies designed to reach an intended audience. In the case of the CSL projects, and its multistakeholder approach, the dashboards need to be usable by experts as well as laypeople whose motivations to engage with the interface will differ.

The second practical application that I would like to reference is a critical making design initiative that took place at Utrecht University in March 2018.⁵ The workshop “Critical Making of Frictional Urban Interfaces,” convened by Michiel de Lange and Nanna Verhoeff, explored the theme of datafication of urban space by focusing on *frictions*, such as “urban data giving rise to new processes of social sorting (think of crime maps), the further encroachment of commercial interests onto urban public space (e.g. customer loyalty cards, personalized marketing, tracking), and the militarization of urban space (e.g. surveillance, facial recognition, risk analysis)” (De Lange 2018). Such frictions are everyday occurrences in any implementation of a new technology, but the Utrecht group decided to make use of them as a productive design principle. In practice, this meant starting from a given urban dataset from “Utrecht in Figures”⁶ and imagining a story (i.e., to dramatize possible issues conjectured to influence this particular dataset). A particular friction was then selected by each group as a “plotting device” (De Lange 2018) to work with in the conception of a critical urban interface. The interface design mock-up was intended to specifically investigate the identified friction and sought to come up with ways for people to engage with it, to evoke particular meanings and affects, and finally to devise an urban intervention to address the friction identified.

In their approach, the Utrecht group explored the theme of *seamful interfaces* by countering dominant design strategies of invisibility, seamlessness, and the transparency of interfaces with their focus on narrative and friction. “‘Seamful’ design

5 <https://urbaninterfaces.sites.uu.nl/> (Accessed July 9, 2025).

6 <https://utrecht.incijfers.nl/> (Accessed July 3, 2025).

strategies are to ‘invisible design’ what experimental film is to continuity editing, that is, a form of aesthetic resistance to the disappearance of the work and workings of montage.” (Zehle 2017, 177) The design experiment can further be situated within the broader framework of creative urban methods (Merx et al. 2023) that aim to bring situated (urban) knowledges to the surface (Haraway 1988) and to devise tools and methods to generate ways of knowing about a city “from a situated, embodied, and/or relational perspective” (Merx et al. 2023). Dramaturgical or interface analysis is, thus, listed alongside the family of approaches that include datawalking (Van Es and De Lange 2020), performative mapping and experimental ethnography, among others.

De Lange additionally explores what he terms the “right to the datafied city” (De Lange 2019) with a focus on collective issues, participatory decision-making, and the figure of the “smart citizen.” This endeavor’s goal, much like as in the critical design workshop referenced above, would be to find ways to include citizens (e.g., via frictional urban dashboards) in the process of collective urban decision-making, thereby resisting the tendency of smart city agendas to implement top-down frameworks with the concomitant detached view on data. The initiatives pursued by the Utrecht group approximated the practice of critical urban dashboarding under scrutiny here by “remodelling user smartness and the technologies that enable new forms of collectivity” (Beverungen and Sprenger 2017, 6). It is important to note, however, that the Utrecht initiative’s focus was not geared towards the provision of usable products, instead placing greater emphasis on reflexivity and interface critique (Dieter 2024) via a creative design methodology.

Theoretical orientations

Beginning with the discourse of critical urbanism, theoretical inspirations for a critical urban dashboard can be drawn from comparable undertakings in critical cartography and counter-mapping that have taken place since the 1980s; these undertakings are likewise efforts to appropriate maps, instruments of power and control over space, for scholarly and activist intentions (Weissenrieder 2023; Kurgan and Brawley 2019; Kollektiv Orangotango 2018). Critical cartography has taught urban scholars that no map is either objective or neutral, that each cartographic representation is inadequate at many different levels, and that maps regularly fail to capture the complexity of an actual cityscape and its inhabitants. Counter-mapping initiatives, situated at the interface between art, activism, and academia, repurpose (with varying levels of success) the very same instruments that are so firmly entrenched in histories of colonial conquest so as to appropriate them as research tools, often with the participation of research partners who actively contribute to the map-making process and to the discussion of the results (on participatory mapping, see Weissenrieder 2023, 70–71). Maps, as two-dimensional representations of space, neces-

sarily privilege certain perspectives and marginalize others; they are never independent from frames of perception, ideology, and power. Since they represent a specific model of urban space at a predefined scale, they tend to emphasize certain features of the environment, while others become invisible altogether. Critical cartography starts from these basic features of maps to argue that maps not only represent, but in fact produce, social reality (Harley 1989). Urban ethnographers have recently been experimenting more intensively with critical or counter-mapping as an ethnographic research practice, beyond the traditional focus on mental maps (Genz and Lucas-Drogan 2017). Mapping, thus, becomes a veritable research method, capable by itself of constituting an interface for the integration and analysis of different kinds of data (Marguin, Pelger, and Stollmann 2021).

At the same time, the digital humanities in general, and the Amsterdam digital methods initiative⁷ in particular, engage in the endeavors to use digital media (e.g., hyperlinks, social media platforms, Gephi visualizations, AI foundation models, and more) for social science and media studies research purposes. The main idea here is “following the medium” (Rogers 2013) and involves using the very same tools and methods that are employed by digital corporations to pursue research affordances that usually differ decidedly from the intents and purposes of data collection found elsewhere in the digital economy. There is an explicit rhetoric of repurposing at play in the digital methods discourse: Digital methods are meant to “repurpose or build on top of the dominant devices of the medium, and in doing so make derivative works from the results, figuratively and literally” (Rogers 2013, 3). Approaches in data feminism that can be understood as a sort of counter data science have recently posited that: “Data is a double-edged sword. In a very real sense, data have been used as a weapon by those in power to consolidate their control—over places and things, as well as people. [...] But this flawed history does not mean ceding control of the future to the powers of the past. Data are part of the problem, to be sure. But they are also part of the solution” (D’Ignazio and Klein 2020, 17–18). Taken together, critical approaches within the digital humanities, chief among them being the Amsterdam digital methods initiative and the data feminism approach, argue for a creative engagement with digital media and data that uses the very same tools and methods currently employed by corporations and governments to pursue independent, sometimes oppositional, research objectives.

Perspectives of critical dashboarding

With these commonalities between critical mapping and repurposed digital methods in mind, the exercise now would be to engage in a collective practice of *critical*

7 <https://wiki.digitalmethods.net/Dmi/DmiAbout> (Accessed July 3, 2025).

dashboarding by envisioning alternative shapes, politics, and purposes for urban dashboard interfaces. An interface, while obviously also having representational qualities, is not a map, however. The interface is not even an object, as Johanna Drucker has outlined, but rather “a space of affordances and possibilities structured into organization for use. An interface is a set of conditions, structured relations, that allow certain behaviors, actions, readings, events to occur.” (Drucker 2013) This means that not only will one have to think about how to visually represent urban space and processes while devising a critical dashboard, but also that one will have to think about how to engage with them as users of that interface. Reflecting on the interfacial character of dashboards necessarily implies a processual perspective that considers how various different users interact with them practically. Interfaces are explicitly mutable, dynamic, adaptable and performative, whereas maps tend to be considered as immutable mobiles (Latour 2017), as scaled-down fixed representations of space. Moreover, interfaces have operational qualities that determine how the data space that they allow access to can be manipulated. Recent theorizing about interfaces in media studies (Dieter 2024; Distelmeyer 2022; Hookway 2014) has underlined their relational character; it is at the interface as threshold (Schulz and Matzner 2020) that both user and medium are intra-actively constituted. Transferred to the instance of urban dashboards, this means that the dashboard interface itself actively reworks the understanding of user/citizen, city, and computational medium while being used. If the city comes to be seen increasingly as a datascape, then it also matters which data about which processes and relations come to be operationalized in the dashboard. Both the CSL as well as the [urban interfaces] research group at Utrecht University acknowledge the constitutive character of the dashboard as a central site in producing (and not just representing) understandings of the city and city dwellers.

Quite some effort has been directed towards the goal of designing interfaces in the digital humanities, not from an engineering perspective but with the ambitious research goals of the humanities in mind: Questions that have been discussed include how to deal with uncertainties and ambiguities in the data, how to incorporate plural points of view and conflicting interpretations, and how to avoid overwriting complex realities with reductive models that do not leave any space for negotiation (Drucker 2013; 2021). In practice, this means finding and developing a visual language that is able to express degrees of uncertainty or controversy around specific data that is meant to counteract (to some extent) the purifying logics of diagrams, charts, and tables. These are all concerns that are shared by more recent undertakings in critical data science, like data feminism (D'Ignazio and Klein 2020), but they are also crucial for urban anthropologists who engage with qualitative data gained from fieldwork. A critical urban dashboard, thus, needs to be sensitized towards the polyvalence of data and must acknowledge their qualitative characteristics: What data *means* depends on their practical application and on the contexts of use. The

idea would then be to experiment with designing dashboards as collective research tools that speak to “a broader urban ecology that evades and exceeds ‘indicators’ like efficiency and optimization” (Mattern 2021, 50). Which forms of future-making could be envisioned if we start from alternative ways to interface the datafied city? What kinds of data are critical urbanists actually interested in – practices? atmospheres? relations? – and how might they be made a part of a different kind of urban dashboard? Experimental design initiatives in critical urban dashboarding, of which just a few have been discussed in this chapter, are meant to stimulate our “diagrammatic imagination” (Drucker 2013), thereby paving the way for an exploration of alternative urban relationalities.

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