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Doubt to be certain: epistemological ambiguity of data in the case of grassroots mapping of traffic accidents in Russia

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ABSTRACT

While the prevalent view positions data as an objective and unbiased resource of truth about the world, scholars have noted that this understanding cannot be all-encompassing and data activists may comprehend the relationship between knowledge, reality, and data differently. Data activists are civil society actors with a critical stance towards datafication; they either consider data as a political issue or employ it to advance desirable social change. This article investigates activists' data epistemologies in a twofold manner. First, it poses the question of how activists can simultaneously use a certain dataset while questioning its credibility. Second, the article explores how activists' data epistemology transforms other domains of socio-political grassroots interventions. To answer these questions, I turn to the case of the DTP Map – an interactive geoweb map of traffic accidents in Russia made by activists using the official governmental data. Turning to the concept of contentious data politics, I demonstrate how the project transforms by continuously dealing with the data's epistemologically ambiguous nature. In their data practices aimed at gaining and maintaining the users' trust, activists have tried to ensure their project will be employed by various collectives for the common goal of reducing traffic accidents in Russia. Their data practices can be considered both a repertoire of social change and a stake of activist intervention. Crucially, in the process of map-making, activists do not gain the epistemologically unambiguous view of data but rather they manage to retain this ambiguity and make it a constitutive part of their project.

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Introduction

A well-known saying in Russia goes like this: 'There are two troubles in Russia: fools and roads.' Humorous in nature, it nevertheless relates to the widespread and acknowledged infrastructural issues with roads in Russia and, by association, traffic accidents; alongside the state, urban activists are among those who try to address this issue. In this article, I examine one such activist project, the geoweb platform DTP Map, by studying how urban activists use government data on traffic accidents to advance social change in road

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infrastructure while simultaneously – and, seemingly, paradoxically – questioning the nature of this data.

The DTP Map (Karta DTP; Карта ДТП) is an interactive geoweb map of traffic accidents in Russia and an activist project whose aim is to draw attention to the issue of traffic accidents and provide journalists, urban activists, and researchers with an accessible platform to study it. Launched in 2018 by Sergey Ustinov, the lead developer, and Alexey Radchenko, the urban activist, the map relies on the official government statistics of the General Administration for Traffic Safety (GIBDD), a part of the Russian Ministry of Internal Affairs. The platform allows users to interactively examine data on traffic accidents for a certain time, filter it by participants, streets, types, weather, and many more thereby making possible more sophisticated forms of data analysis compared to the official representation of data on behalf of GIBDD (Figure 1). The GIBDD's data originally provoked activists' interest because it was abundant, detailed, and available. Moreover, that data has also not been previously used by other tech activists even though traffic accidents continue to remain a significant problem across Russia.

According to activists, the data has not been represented in a way that would engage people in seeing traffic accidents as an important urban and infrastructural problem. Yet it is not only about another way of representing the issue; what the DTP Map as a project has aimed to achieve is not only to rearrange how data are represented but also to do it in a manner that would generate the attention of urban activists, local journalists, and non-expert citizens.

The DTP Map as an instance of urban activism is enabled by datafication, which is the transformation of social phenomena or events (such as traffic accidents) into (online) quantified data (Van Dijck, 2014). Building on digital infrastructures and legacies of social statistics, datafication enacts new forms of both social structure and agency. Among the latter is data activism which is a concept that attempts to capture new forms of activism enabled by widespread datafication. Data activists both use and question social, political, and economic relations around data infrastructures to

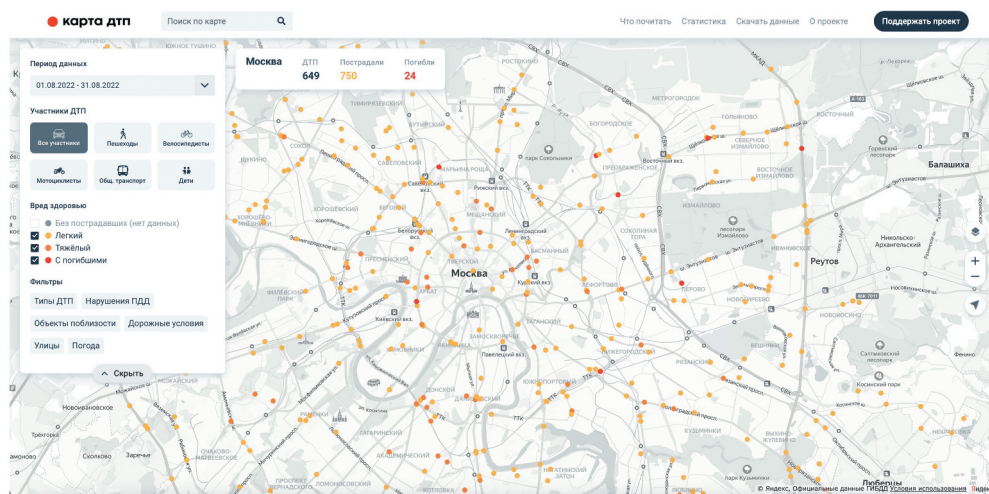


Figure 1. The DTP Map Interface.

appropriate and subvert them to bring about the social change they consider desirable (Milan & Gutiérrez, 2015).

By considering the DTP Map as a case of data activism, it becomes possible to grasp how (urban) activism changes when it is re-shaped by datafication. Accordingly, the topic of data activism deserves attention from scholars of both social movement studies and critical data studies because the data activist collective and individual actions are conditioned by movements' structure, dynamics, and goals as well as on data politics; data activists rarely act alone, and their work happens in a certain socio-political context.

Following this line of interdisciplinary inquiry, Beraldo and Milan (2019) have advanced the notion of 'contentious data politics' to grasp how multiple forms of data-mediated collective action are exercised in the age of datafication. From the perspective of contentious data politics, the action of activists is re-mediated by data as the latter can be an object of activists' intervention (data as stake), for instance in the form of producing tools to protect users' data privacy, or as a repertoire of social change, e.g. when data are used as evidence of socio-political issues like gender or racial inequality (data as a repertoire).

Additionally, in the process of activist interventions, data are imagined by activists to provide a certain knowledge about the world. Milan and Van der Velden (2016) have suggested considering 'alternative epistemologies of data activism,' i.e. what kind of knowledge is produced through activists' data practices and how it differs from other 'data-driven' domains, such as business or government work.

If we agree that activists understand data differently, then from the theoretical perspective of contentious data politics, certain research questions emerge. How can activists doubt the data while advancing social change using it? How do these data-related epistemological ambiguities transform activists' data-based projects? Building on the detailed case study of the DTP Map, I employ the theoretical framework of contentious data politics to reflect on how concerns about data as a source of knowledge about the world become constitutive for the project's continuous development.

In this article, I shall focus on the epistemological ambiguity of the data in the DTP Map project as it is conditioned by the contentious dynamics of the data activist efforts situated between engaging data as either stakes or a repertoire (Beraldo & Milan, 2019) – I shall elaborate on that distinction in the next part of the article. I argue that data for the DTP Map project is not something pre-given and always exhaustively representative of the world; activists cannot take data for granted, and it continuously retains its epistemological ambiguity. The latter refers to a practical tension between complete trust in data (and, consequently, establishing a mimetic relationship between reality and data) and its total dismissal as a source of knowledge. Crucially, the key argument of the article is that epistemological ambiguity of data is a constitutive trait of the DTP Map project because it both ensures the possibility of using data as a repertoire of contention and allows to maintain the users' trust in the project.

My article aims to contribute to the interdisciplinary studies of data activism and social movements in three ways. First, it provides original research on the case of a data activist initiative in Russia; to this day, and to my knowledge, the study of data activism as a phenomenon has been scarcely documented in Russia. Second, as I show later in the article, the case of the DTP Map can be seen as a part of the broader ecology of urban social movement, which employs various strategies to change the urban infrastructure

and landscape in Russia. Third, following Chesters's (2012) suggestion to consider social movement activism not purely as an object of academic research, but as a knowledge producer, I consider the alternative epistemologies of the DTP Map as a data activist initiative to elucidate how activists reflect on the epistemological ambiguity of data in their work and what sets of practices are enlisted in as part of the process.

This article is organised into two parts. In the first part, I elaborate on the theoretical framework of the article as well as introduce some information relevant to understanding data activism in Russia. In the second part, I provide a case study of the DTP Map to grasp how the ambiguous epistemological status of data is shaped by the activists' contentious practices.

Theorising the DTP Map

In this part, I introduce the theoretical framework of the article. First, I will situate the scholarly concern about data activist epistemology within the discussions about social movements and knowledge, dataism, and alternative epistemologies. Second, I use the theoretical framework of 'contentious data politics' and briefly contextualise it within the Russian political and tech activist context. Third, I introduce the concept of epistemological ambiguity of data to elucidate how activists navigate in practice the challenge of employing data for social change while simultaneously distancing themselves from understanding it as a mimetic representation of an external reality.

Data, knowledge, and activism: between dataism and alternative epistemologies

Broadly speaking, as many scholars have argued before, the multi-faceted proliferation of data and statistics in social life is accompanied by certain discourses, mythologies, and imaginaries that imbue them with the specific cultural meaning of rationality, efficiency, and objectivity (Desrosières, 1998; Hacking, 1990; Porter, 1986). What follows from this line of research is the need to comprehend the epistemological shifts brought by datafication as well as the political ramifications that different ways of understanding and enacting reality with data bring about.

Presently, with the rise of big data and algorithmic techniques, we are witnessing similar shifts in understanding the role and purpose of data in society (Boyd & Crawford, 2012; Kitchin, 2014). As Van Dijck (2014) argues, dataism, situated between scientific paradigm and ideology, is the current dominant understanding of big data, which itself is '[...] a widespread belief in the objective quantification and potential tracking of all kinds of human behaviour and sociality through online media technologies' (p. 198). Seen as an ideology, dataism supports '[...] a self-evident relationship between data and people, subsequently interpreting aggregated data to predict individual behavior' (Ibid., p. 199). Accordingly, for Van Dijck, dataism is conditioned on the 'trust in the objectivity of quantified methods as well as in the independence and integrity of institutions deploying these methods' (Ibid., p. 204).

Crooks (2017) conceptualises this understanding of the relationship between data and the world as representationalism, i.e. 'the view that representations (here, digital data) stand in a mimetic relation to some external reality from which they are ontologically distinct' (p. 289). However, as his ethnography of data professionals in the field of urban

education demonstrates, ensuring the representational capacity of data requires work on behalf of such professionals who deal with the uncertainty and ambiguity of data.

Thus, while a varying degree of uncertainty and ambiguity is present in the data practices of professionals, it is further ideologically masked within dataism as the dominant perspective on data, which positions data as a mimetic representation of the external reality. Yet, while dataism is positioned to be the currently dominant view of data's social role, alternative understandings and practices of working with data coexist alongside it, occasionally challenging dataism's epistemological and political stance as the widespread mode of comprehending the relationship between reality and data. Among these alternative modes of engaging datafication is data activism, which as a concept aims to capture instances of how activists use data for social change and/or to resist aspects of datafication they deem undesirable (Milan & Gutiérrez, 2015).

Data activists' interventions occur on many levels, among which is the cultivation of new 'epistemic cultures', which '[...] point to innovative and potentially transformative ways of relating to big data and its consequences' (Milan & Van der Velden, 2016, p. 63). After elaborating on the meaning of 'alternative epistemologies' of data activism, Milan and Van der Velden (2016) suggest delving deeper into studies of what data means, represents, and questions for activists. Crooks and Currie (2021) also argue that data relations bring both visibility and risks for minoritized communities, suggesting that the meaning of 'data' in activist practices can be further explored for its agonistic potential to advance contestation, rather than resolution of conflicts. From this perspective, data are not a mere unproblematic representation of a pre-given world; rather, as Gray (2018) argues, we may inquire into how data are involved in 'world-making.' Among these ways of world-making with and through data, Gray (2018) suggests thinking of a 'horizon of intelligibility' as a type of data world. By looking at how data are implicated '[...] in making things up and making things intelligible with data,' we may better grasp how 'reality' becomes rendered knowledgeable and actionable for activists who scrutinize, challenge or employ data in their work (Ibid., p. 7).

In social movement research, knowledge has recently also become a scholarly concern (Casas-Cortés et al., 2008; Chesters, 2012; Cox, 2014). Della Porta and Pavan (2017) suggest thinking about the 'repertoires of knowledge practices' of social movements, which are practices used by activists to make sense of their collective self, their networks of action, and political alternatives. Following this line of theoretical thinking, empirical research within social movements studies has examined the interrelation between social movements, digital media, and knowledge (Pavan & Felicetti, 2019; Pavan & Mainardi, 2020). But while it has been argued that activist knowledge predominantly originates in personal experience as 'testimony and storytelling' (Della Porta & Pavan, 2017, p. 11; Esteves, 2008, as cited in) less has been said about how data re-mediate activist knowledge and transforms its alternative epistemologies.

This line of scholarly inquiry within social movement studies may be productively bridged with data activism research. The question of what kind of knowledge about the world does data produce includes understanding that the seemingly unitary and solidified term 'data' in practice encapsulates multiple meanings for activists (Schrock & Shaffer, 2017). Within this line of scholarship researchers have shown how the employment of data in activist work alters the understanding of social change (Gutiérrez & Milan, 2019); how open data initiatives evoke and reconfigure long-

standing political ideas and institutions such as democracy (Baack, 2015) or citizenship (Gabrys et al., 2016); or how data are used in a ‘counter-data action’ manner to express political dissent and challenge the status quo (Currie et al., 2016; Meng & DiSalvo, 2018). This article aims to contribute to studying the intersection between data, knowledge, and activist practices by advancing not the questions of meanings, which activists ascribe to data, but about what kinds of epistemic cultures are cultivated in data activists’ practices as a result of the changing relationship between data and reality for activists.

Contentious data politics of traffic accidents: the DTP Map as a part of the urban social movement in the Russian context

Data activists are cultivating alternative epistemologies of data not in the laboratory, but the political field. To account for the contentious politics surrounding data, Beraldo and Milan (2019) build on the work of Tilly and Tarrow (2015) and critical data scholars to propose a theoretical synthesis of social movements studies and data activist research. According to them, the remediation of activism through data creates two closely intertwined in practice, yet analytically separate, modes of data activism. They suggest distinguishing between ‘data as stakes’, i.e. ‘data-oriented activism’, and ‘data as repertoires’ (‘data-enabled activism’); moreover, an additional axis of their analysis is the distinction between ‘individual’ and ‘collective’ action.

While data-oriented activism considers data infrastructures as a site of contention, data-enabled activism aims to mobilise data to achieve desirable goals of social change; both are better understood as existing on a continuum. As Beraldo and Milan (2019) write, ‘[...] data sometimes intervene as both issues on their own and as a component of a repertoire of action’ (p. 8). Going beyond the simple ‘means’ vs. ‘ends’ dichotomy, they suggest looking at how within activist initiatives a ‘political data subject’ comes into being as a result of the interplay between these analytical dimensions. While data-oriented activism can be exemplified by digital rights initiatives and privacy advocates, the instances of data-enabled activism include data journalism that is oriented to advocacy and open data initiatives.

As I shall demonstrate later, the emergent practices of the DTP Map oscillate between comprehending data as ‘stakes’, on the one hand, and as ‘repertoires’, on the other. In the process of its constitution, multiple collectives are involved in the mapping of traffic accidents in Russia. Yet while proponents of dataism often speak of changes brought by data in a universalist manner, Milan and Treré (2019) have pointed out the urgent need to move beyond ‘data universalism’ to consider how the social life of data unravels in contexts different from Western ones, which are often implicitly taken to be the default.

To answer this call, the focus is placed on the Russian context of data activist and civic technology initiatives. It is worth noting that the development of open data policies on the governmental level has been mostly dormant after the shutdown of the Open Government Initiative in 2018. However, during the 2012–2018 period several governmental projects were aimed at promoting governmental openness, freedom of information, and open data repositories.

Despite such efforts, there is evidence of several significant issues regarding how official statistics in Russia are produced. As argued by Molyarenko (2019), the production

of official statistics across Russia is accompanied by both unintentional and intentional distortions. While unintentional ones are explained by the overwhelming bureaucratic pressure on ordinary workers in governmental and municipal departments, the intentional misrepresentations of statistical data originate in the fact that the same statistics are used to evaluate the workers' performance. Moreover, following Scott (1998), Molyarenko also emphasises that some phenomena are simply not captured by the statistical bureaus of the Russian state.

These intentional distortions of official data seem to be also present in the case of the official statistics of road traffic accidents. While the more comprehensive analysis of traffic accidents data production remains out of the scope of this article, many chat participants and DTP Map developers themselves have expressed similar concerns. For instance, the official ending of governmental programs, aimed at reducing mortality and the number of traffic accidents, occasionally suspiciously 'coincides' with surprising reductions of bureaucratically unwanted metrics. Traffic accidents mortality is also one of the metrics, according to which the performance of Russian governors is assessed, which in turn creates incentives for distorting the data or making it invisible thereby making the authorities unaccountable.

Moreover, (data) activist initiatives in contemporary Russia exist in the context of widespread scepticism towards mainstream electoral politics. As some scholars and commentators have argued, many people in contemporary Russia are sceptical towards institutionalised politics (Erpyleva & Magun, 2014; also see Weiser & Yudin, 2020). Yet in her study of civic tech projects and hackathons in Russia, Ermoshina (2019) argues that many Russian civic tech activists are less apathetic. In the atmosphere of distrust towards traditional political institutions, grassroots initiatives are '[...] trying instead to invent, experiment, and tinker with new tools – assemblages of programming code and law – that have the potential to fight political apathy and improve the everyday lives of Russian citizens' (Ibid., p. 88). These various civic tech projects can be seen as promoting alternative modes of civic empowerment and political engagement that translate the experience of 'trouble' to the interface of civic applications (see also Ermoshina, 2014, 2019).

Epistemological ambiguity of data as a constitutive feature of the DTP Map project

Data activism has the potential to be a space of inventive alternative epistemologies of data, which are distinct from the dataism and representationalism that accompanies it. However, whether data activists think about knowing the world differently with data, is a question to be empirically examined. In this article, I suggest the term 'the epistemological ambiguity of data' to analyse tensions between data and the knowledge about the world it offers, arguing that it is an always present, collective, and constitutive trait of the DTP Map project. Epistemological ambiguity of data is a concept that originated from studying how the relationship between data, knowledge, and reality is formed in the case of the DTP Map. Yet, despite the concept's grounded nature, in introducing it I hope that it can serve as a heuristic tool for analysing other instances of data activism.

Epistemological ambiguity of data refers to a practical tension between complete trust in data (and, consequently, establishing a mimetic relationship between reality and data) and its total dismissal as a source of knowledge. Such ambiguity originates in the practical

challenge of using data for social change while remaining sceptical of how it informs an understanding of reality. While data about social life has often been understood as 'formulas for agreement' (Desrosières, 1998, p. 66), the concept of epistemological ambiguity of data allows us to account for how this agreement is forged and sustained in practice.

Data activists, who partake in making the DTP Map, navigate the complex challenge of striving to gain knowledge about traffic accidents by mapping and examining data about it, while simultaneously staying critical of it. On the one hand, as data are 'never raw' and often even 'dirty', the relation of direct and unproblematic mimetic representation between data and reality cannot be established. On the other hand, to fully dismiss traffic accidents data would mean rendering data activists' efforts in using data to advance social change meaningless. Therefore, epistemological ambiguity of data is a 'middle ground' between data representationalism and the outright dismissal of data as a valuable source of knowledge about reality and the political action it makes possible.

Two characteristics of epistemological ambiguity of data should be distinguished. First, as a practical tension, such ambiguity is only partly and temporarily relieved in data activists' practices, thereby making it a constitutive feature of data activists' projects, rather than simply a temporary limitation to what activists know about data. Since DTP Map continuously updates data on the geoweb platform, it is impossible to claim once and for all that all concerns about new data are gone. Instead, the continual constitution of the project requires that data are always treated in an epistemologically ambiguous way to uphold the project's enduring commitment: activists ensure that data can inform us about reality and in doing so, assist in making social change possible. In these data practices, as I shall demonstrate in the subsequent section of the article, data's epistemological ambiguity is managed through practices which treat it as a stake of contention, thereby allowing it to be employed as a repertoire of contention.

Second, these data activists' practices of dealing with ambiguity are not individual, but rather collective and distributed, enrolling users in the unending constitution of the project. Therefore, to make use of data as a source of knowledge about the world involves securing the trust of users to further advance the cause of diminishing the instances of traffic accidents in Russia. As I shall show in the next section, contentious politics of data, in which data are usually treated either as a stake or a repertoire of social change, are tightly coupled with the epistemological ambiguity of data. When data are treated as a stake, data's mimetic relationship to the external reality needs to be secured by ensuring that it accurately represents things it assumes to stand for. As a result, data can be treated as a repertoire – a mode of advocacy for desired social change. Both project developers and users are enrolled in these data practices and the possibility to do so contributes to sustaining trust in DTP Map.

Overall, epistemological ambiguity epitomises an always present tension between conflicting understandings of data: the conflict between treating data as a mimetic representation of the world and completely dismissing its representational capabilities. Epistemological ambiguity, as it is present in the case of the DTP Map, disturbs the representationalist relation that data are assumed to have with reality under the guise of dataism. Yet, rather than adopting a socio-critical imaginary that is sceptical of possible social change achieved through technology, data activists, who in their practices treat data in an epistemologically ambiguous way, commit to using data for social change

without simultaneously adopting a totally techno-optimistic stance towards data (see Lehtiniemi & Ruckenstein, 2018).

The concept of epistemological ambiguity of data makes it possible to address the role of data activism beyond the mere representation of social issues. In the context of data activism research, the non-representational approach to data has been adopted by Rajão and Jarke (2018). By emphasising the productive, rather than the representational capabilities of data, they have studied environmental data activism around deforestation of the Amazon rainforest to argue that it is not sufficient to see data only as a representation of reality since this would unproblematically assume the existence of a pre-given ‘outside world’, which is to be represented with and through data. Instead, relying on the actor-network theory approach, they suggest considering how particular arrangements of human and non-human actors are involved in multiple enactments of ‘Amazon deforestation’. Similarly, instead of thinking about data activism as a mode of mere representation of social issues, the concept of epistemological ambiguity of data provides space for exploring more nuanced relationships between data and the knowledge it offers about the world, which is born out of data activists’ epistemic cultures.

In this part of the article, I have conceptualised the case of the DTP Map as a case of alternative data activist epistemic culture, situating its contentious politics in the Russian context. I have introduced the concept of epistemological ambiguity of data to analytically capture the relationship between data as a stake and data as a repertoire as it pertains to the knowledge about traffic accidents that data activists strive to obtain. In the next sections, I introduce the methodological foundations of the article and turn to the closer empirical examination of developers’ and users’ practices.

Methodology

In this article, I provide a case study of the DTP Map project by building on the interviews with two key developers ($n = 2$), as well as a 2-year long digital ethnography of the project’s public online chat, its media coverage ($n = 10$), and other project-related documents ($n = 3$). These various empirical materials helped to form a holistic understanding of the project as it was discussed in the theoretical part.

The interview guide included questions about the activists’ vision of social change that the project brings, engagement with other collectives (e.g. journalists, urban activists, researchers) as well as the activists’ data and mapping practices. During the digital ethnographic part of the research, I have attempted to examine user practices as they engage in discussions with each other, discover errors in the data, and suggest improvements for the DTP Map as a project. Media coverage of the projects helped to establish how the DTP Map is perceived by the public while project-related documents, such as GitHub documentation and internal research conducted by the developers, helped to better grasp how the project transformed with time.

As discussed before, some scholars within social movement studies have started to consider activists’ alternative epistemologies and see them as knowledge producers, rather than objects of scholarly inquiry (Chesters, 2012; Kazansky et al., 2019). Against the background of understanding social movements as knowledge-producers, in my research I have attempted to simultaneously pay attention to how data are both leveraged to

produce knowledge about political alternatives and restrain from considering this case as a ‘data-driven’ instance of activism, i.e. primarily focusing on what is the role of ‘data’ in geoweb mapping practices (Della Porta & Pavan, 2017). Instead, I have methodologically attempted to decenter datafied technologies and consider how within the DTP Map project the relationship between knowledge, reality, and data are established and sustained. In the case of exploring alternative epistemologies of the DTP Map project, considering map-making as part of activist practice also entails seeing them as a form of knowledge creation (Kennedy et al., 2016).

The case of the DTP Map: the users’ trust and the interplay between data as stakes and as a repertoire

The DTP map project was started by Sergey Ustinov and Alexey Radchenko in 2018; Ustinov was the lead developer in the project’s development while Alexey was an urban activist. Initially, the interest in the project came from Radchenko’s engagement with the issues of safety of the urban environment in Moscow. As he narrates, the Moscow Department of Transport’s official position on urban safety was that overpasses and underpasses make the city safer in terms of traffic accidents, while Alexey’s understanding, expertise, and experience led him to believe that the opposite was happening.¹ To provide a more definitive argument on this issue, he needed to acquire ‘decisive data-based evidence’ of his claims that he could demonstrate publicly.

The DTP Map project eventually extended beyond Moscow to cover other Russian cities and regions with a geoweb map of traffic accidents, based on the official GIBDD statistics. The project is executed in line with the concept of Vision Zero – a multinational project which aims at reducing and eliminating traffic accidents. Originally started in Sweden, Vision Zero’s ideas reached many countries around the globe. Moreover, from the very beginning, Vision Zero has relied heavily on data-based evidence of traffic accidents, without which the argument for proper intervention cannot be made.

At the same time, what has complicated the understanding of traffic accident data as a purely unquestionable representational resource and repertoire for social change was its partial unreliability. The unreliability of official data on traffic accidents manifests itself in a twofold manner. First, it is conditioned on the unintentional and intentional distortions of statistics production, as outlined by Molyarenko (2019) and presented above.

Second, the data are occasionally incomplete or obviously ‘wrong’, as was revealed in data and mapping practices of developers and users. For instance, the geolocation of traffic accidents sometimes is misplaced (most obviously when a traffic accident happened in the river, according to data) or when notable cases of traffic accidents, which are covered by media, are not included in the official datasets, to mention a few such instances. Consequently, data activists cannot take government data for granted; it must be interrogated and questioned to be further used as a repertoire of social change.

Taking these features of official data into account also has epistemological consequences for the DTP Map as a project. How do you provide a map of traffic accidents for urban activists, journalists, and analysts to further act on, if you also have to consider that the data itself may be partially unreliable?

In the previous section, I have conceptualised this practical dilemma as ‘epistemological ambiguity of data’, which simultaneously refers to the activists’ desire to enhance and re-affirm the data’s representational capabilities, while also attempting to account for the ‘ruptures’ between reality and data. Far from both dataism – which in its pure form seems to exclusively promote data’s representational capacities without accounting for the conditions of its production, distribution, and usage – and the outright dismissal of data on grounds of its dubious character, this epistemological ambiguity of data is accounted for in the DTP Map project in the mapping and data practices, in which multiple collectives engage.

I argue that the epistemological ambiguity of data both reflects a practical tension for the project, and, at the same time, constitutes the project as a whole. It can be only temporarily mitigated and remains always present as the project proceeds.

To analytically separate two sets of data practices, I now continue to describe the practices in which activists and collectives engage to consider data as a stake in their work. Then I consider how such practices contribute to advancing the role of data as a repertoire of social change.

Data as a stake of grassroots traffic accidents mapping: accountability from below and practices of curating data

Data becomes a stake in activist practices in three ways. First, developers and various people, involved in the project on an occasional basis, such as urban activists and other concerned citizens, write official appeals to GIBDD in which they describe the data inaccuracies. For instance, they write to GIBDD about missing traffic accidents that they know of or misplaced geolocations. According to the DTP Map developers, the departmental staff within GIBDD, which is responsible for publishing traffic accident data, was initially surprised that someone was using this data. Yet as time passed, the interaction between this department and the concerned public changed, as the former started to amend data errors more eagerly.

The developers assisted in the process of writing such complaints by providing users with a more standardised template that was shared in their online chat. According to data activists, the ‘quality of data’ (as they consider it in their work) eventually improved for reasons unknown to them, though no structural changes to the production of official statistics seem to have happened. These collectively distributed data practices can be seen as accountability from below, in which the concerned public is engaging data as a stake by closely inspecting its relation to the represented reality.

Second, the DTP Map developers themselves, with the help of other volunteer programmers, fix data errors themselves by adjusting coordinates or fixing outright wrong data values (such as one man having 95 years of driving experience). According to developers, fixing such errors is crucial for maintaining the users’ trust in their project; I shall come back to the idea of trust between the project and users later. Third, developers write public posts in Telegram channels and blog posts, with suggestions on how to analyse data by paying close attention to the limitations of data; they generally highlight that the data cannot be taken for granted or elaborate on what cannot be inferred from data. As Radchenko comments on this issue in an interview:

When DTP Map appeared, activists, journalists, and the authorities – all of them began to rely on these data points as something, I don't know, 'one hundred percent truthful'. As I have said before, it is difficult to argue with numbers, and for an official, it is difficult to counter numbers; they are often an ironclad argument in your favour. But numbers can be manipulated, and when I saw how much trust these numbers have gained, it became clear that more complex rules should be introduced to make clear that data can be interpreted differently, and that data can be wrong.

In turn, Ustinov capaciously remarked that data should be understood 'with reservations'. For developers, such reservations entail paying closer attention to what data stands for, the possibility of data errors or inaccuracies, and accounting for broader political accountability relations of which different municipal and governmental authorities are a part. Thus, data practices require curation, guidance, and contextualisation, which in turn can be comprehended as accounting for aspects of a social world that shape data production.

Data as a repertoire: re-defining responsibility and engaging regional communities

I now turn to consider how data are seen as a repertoire of social change in the case of the DTP Map project. I discuss this aspect of the project in a twofold manner. First, I illuminate how the changes to the crowdfunding model of the project have emphasised the regional dimension of traffic accidents as opposed to GIBDD's administrative district scale. Additionally, I examine how the DTP Map was envisioned by the developers and further used by urban activists, journalists, and researchers as an advocacy tool aimed at reshaping the urban environment. Second, I address how the DTP Map shifts the understanding of responsibility for traffic accidents from the traffic participants themselves to the urban environment and road infrastructure.

Initially, the DTP Map emerged with only data on traffic accidents in Moscow, eventually covering more and more Russian regions and cities. The developers of the DTP Map intended that local urban activists, journalists, and local communities will use their map to address issues of traffic accidents most relevant to them as users. Rather than thinking of producing a map to just be put out there, the developers were reflexive about how it could be put into action by others. Thus, the mapping practices reflected the project's vision of social change. The DTP Map turned to the crowdfunding model by asking people to donate a small sum of money for a particular region, which became successful as compared to the previous model of donating to the project as a whole. After the money had been gathered, the developers added regional and city data to the map. Once this had happened, they contacted local journalists to ask for press coverage of a region's presence on the DTP Map with occasional success.

This crowdfunding mechanism helps to produce traffic accidents as an issue on a regional scale by linking together data as a repertoire of social change and issues of particular urban communities. For instance, activists in the urban social movement *Krasivy Kirov* (Красивый Киров; Beautiful Kirov), who have long been preoccupied with issues of the urban environment in Kirov, have used the map and data on traffic accidents as an argument in their discussions with the city administration on the quality of the roads in the city. As the coordinator of *Krasivy Kirov*, Igor Bagin commented in the local media '7x7': 'I do not know if this has anything to do with

our publications on this subject, but now officials have begun to install speed bumps near crosswalks and install pedestrian fences during road repairs'. The developers have also written an article on the well-known Russian website for the IT community – *habr.com* – in which they described how to conduct research on traffic accidents in a certain region using their map and further advising to send this research to local news outlets to potentially influence responsible administrators (Ustinov, 2019). Similar cases of the DTP Map used as an argument in activists' negotiations with the city administration were documented by developers in at least Chelyabinsk and Yuzhno-Sakhalinsk. Some individuals in various Russian cities have also used the Map to write complaints to the authorities.

Moreover, the translocal, distributed, and participatory character of the DTP Map predisposed people to write in the project's Telegram chat about the notable missing data of media-covered traffic accidents, to report misplaced geolocation, or to point out other data or map inaccuracies. This could not be achieved single-handedly by the project developers since it required local knowledge of different Russian cities' streets, daily embeddedness in the local media environment, and additional time.

Additionally, coming from an urban activism standpoint, the DTP Map developers emphasised the role of infrastructure and the urban environment in their public statements on the causes behind traffic accidents. Following the concept of 'Vision Zero', they posit that traffic participants 'should be allowed to make mistakes', and that road infrastructure should be configured in a way that allows for such mistakes. Thus, the project's end goal is not to limit the number of fatal road traffic accidents but even potentially eliminate them through changes to the urban environment and road infrastructure.

The DTP Map developers also work closely with City Projects (Городские проекты; *Gorodskie proekty*), which is a non-profit organisation with branches in various Russian cities, founded by well-known Moscow urban activists Maksim Katz and Ilya Varlamov. City Projects aims to make the urban environment safer and more convenient for its inhabitants. This connection between the DTP Map and City Projects allows us to see the former as part of a broader urban social movement in contemporary Russia, envisioned to transform city landscapes (Zhel'nina & Tykanova, 2019).

The opposite of such a vision is the officially declared position of the Ministry of Internal Affairs, of which GIBDD is a part. In the official strategic document 'Road Safety Strategy in the Russian Federation for 2018 – 2024' one can read the following statement: 'Thus, the state of road traffic safety is largely determined by the discipline and level of professional skill of drivers' (Rossiyskaya Gazeta, 2018). One of the federal-level projects, launched within the framework of the Strategy, is called 'Culture on the Roads', which aims to address audiences of different socio-demographic groups to promote '[...] awareness of each person's role and responsibility for what happens on the road' (Ministry of Internal Affairs, 2018). Thus, on some level the official position on traffic accidents seems to place responsibility at a personal level, emphasising the accountability of an individual. Contrary to such understanding, many urban activists in Russia, including the DTP Map developers, redefine responsibility behind traffic accidents, turn the focus onto the infrastructure and urban environment, and suggest thinking about them as the legitimate points for

political and governmental intervention, instead of attempting to cultivate a specific type of individual road awareness.

As I have demonstrated, the DTP Map project combines an understanding of data as both a stake and a repertoire of social change. Moreover, these are not in practice separated treatments of data by activists, but rather they are deeply interrelated for developers through a key category of users' trust in the project. According to developers, users must trust the data, on which the project relies, to trust the project as a whole. In other words, if data errors, which are obvious to the users, are discovered, trust in the project can no longer be maintained. Radchenko comments on the importance of users' trust in the following way:

It is not advantageous for us if these data are no good, because then the level of trust in us, in Vision Zero, in the whole urban movement also decreases. On the one hand, we are not responsible for the data because GIBDD is the one producing and accountable for it, but on the other hand, the responsibility is on us . . . We are a 'showcase' of this data, we speak on the basis of it.

On the one hand, trust in the project is grounded in the fact that the data on traffic accidents are predominantly collected by the government – also an important feature of data, when considering negotiations with the city administration. On the other hand, the curating work of the developers also contributes to sustaining users' trust because activists also review for possible errors in data such as misplaced geolocations or missed traffic accidents. As I have described earlier, users also treat data as a stake making this process of accounting for data collective, continual, and distributed.

Conclusion

In this article, I have explored the case of the DTP Map – the interactive geoweb map that uses government data on traffic accidents to make it more accessible to the public and address issues of road infrastructure and the urban environment as central causes of traffic accidents in Russia. Employing the theoretical framework of contentious data politics, I have tried to understand how activists comprehend the epistemological status of data. The latter shifts as data become a repertoire or a stake in the activists' project. At times, data are employed to demonstrate traffic accidents as an urban infrastructural issue and make arguments for changes (as it is in urban activists' negotiations with the city administrations), at other times, it is doubted, questioned, corrected (as it is in addresses to GIBDD about data inaccuracies.)

This article contributes to the interdisciplinary studies of social movements and data activism by conceptually and empirically articulating the relationship between knowledge, activism, and data practices, enhancing scholarly understanding of activist alternative epistemologies. Additionally, this case also enriches our understanding of data and digital activism in the Russian context (Lonkila et al., 2021). The previous research on Russia has explored how activists employ digital technologies for social change (Ermoshina, 2014, 2019) and how they manage their visibility within the online environments considering possible opportunities and risks (Lokot, 2018). Navigating political and institutional obstacles, civil society actors not only contest state narratives on personal data (Lokot, 2020) but also, as I argue in this article, actively cultivate alternative data epistemologies.

Thus, what makes data activist epistemology ‘alternative’ to dataism, in this case, seems to be that the official data on traffic accidents do not possess epistemological coherency outside of users’ or developers’ practices. From the developers’ perspective, the users’ trust must be sustained, and so data must always be questioned and interrogated; at the same time, as the project emerged within the broader agenda of Russian urban activism, the employment of data as a repertoire of social change has been crucial to the DTP Map’s goals from the beginning. Rather than resolving the epistemological ambiguity of data altogether to make sense of it as ‘objective’ or ‘fully representative’ of traffic accidents in Russia, this ambiguity is constantly reproduced in data and mapping practices, as the DTP Map project oscillates between enacting data as a repertoire in one set of practices and as a stake in others.

Such a conclusion begs further questions about the relationship between data, knowledge, and activism. First, in considering social movements and activists as knowledge producers, rather than purely objects of research, can we further inquire into what kind of epistemic cultures they cultivate and what sets of practices are enrolled in these processes, both across time and space? Second, what kind of activists’ relationship to knowledge emerges when ‘data’ consists of several resources (e.g. quantified data, testimonies), rather than from a single one? Third, if retaining epistemological ambiguity of data in data practices is fundamental to trust between users and developers in the case of the DTP Map, as I argue, what kinds of repertoires of knowledge practices are instrumental for supporting and sustaining social movements and activists’ projects or, vice versa, detrimental for activists and their movements?

Note

1. Ustinov and Radchenko have been interviewed for this research and wished for their names to be public in the article. After discussing it with them, I have tried to carefully consider the potential benefits and risks of such publicity and in the end, reasoned it to be the best possible decision for the informants.

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References

- Baack, S. (2015). Datafication and empowerment: How the open data movement re-articulates notions of democracy, participation, and journalism. *Big Data & Society*, 2(2), 1–11. <https://doi.org/10.1177/2053951715594634>
- Beraldo, D., & Milan, S. (2019). From data politics to the contentious politics of data. *Big Data & Society*, 6(2), 1–11. <https://doi.org/10.1177/2053951719885967>
- Boyd, D., & Crawford, K. (2012). Critical questions for big data: Provocations for a cultural, technological, and scholarly phenomenon. *Information, Communication & Society*, 15(5), 662–679.
- Casas-Cortés, M. I., Osterweil, M., & Powell, D. E. (2008). Blurring boundaries: Recognizing knowledge-practices in the study of social movements. *Anthropological Quarterly*, 81(1), 17–58.
- Chesters, G. (2012). Social movements and the ethics of knowledge production. *Social Movement Studies*, 11(2), 145–160.
- Cox, L. (2014). Movements making knowledge: A new wave of inspiration for sociology? *Sociology*, 48(5), 954–971.
- Crooks, R. (2017). Representationalism at work: Dashboards and data analytics in urban education. *Educational Media International*, 54(4), 289–303.
- Crooks, R., & Currie, M. (2021). Numbers will not save us: Agonistic data practices. *The Information Society*, 37(4), 1–19.
- Currie, M., Paris, B. S., Pasquetto, I., & Pierre, J. (2016). The conundrum of police officer-involved homicides: Counter-data in Los Angeles County. *Big Data & Society*, 3(2), 1–14. <https://doi.org/10.1177/2053951716663566>
- Della Porta, D., & Pavan, E. (2017). Repertoires of knowledge practices: Social movements in times of crisis. *Qualitative Research in Organizations and Management: An International Journal*, 12(4), 297–314.
- Desrosières, A. (1998). *The politics of large numbers: A history of statistical reasoning*. Harvard University Press.
- Ermoshina, K. (2014). Democracy as pothole repair: Civic applications and cyber-empowerment in Russia. *Cyberpsychology: Journal of Psychosocial Research on Cyberspace*, 8(3), 24–37.
- Ermoshina, K. (2019). For code and country: Civic hackers in contemporary Russia. In M. Biagioli & V. A. Lépinay (Eds.), *From Russia with code: Programming migrations in post-Soviet times* (pp. 87–109). Duke University Press.
- Erpyleva, S., & Magun, A. (Eds.). (2014). *Politika Apolitichnyh: Grazhdanskiye Dvizeniya v Rossii 2011–2013 godov [Politics of the apolitical: Civic movements in Russia in 2011 2013]*. Novoye Literaturnoye Obozreniye.
- Esteves, A. M. (2008). Processes of knowledge production in social movements as multi-level power dynamics. *Sociology Compass*, 2(6), 1934–1953.
- Gabrys, J., Pritchard, H., & Barratt, B. (2016). Just good enough data: Figuring data citizenships through air pollution sensing and data stories. *Big Data & Society*, 3(2), 1–14. <https://doi.org/10.1177/2053951716679677>
- Gray, J. (2018). Three aspects of data worlds. *Krisis: Journal for Contemporary Philosophy*, (1), 3–17.
- Gutiérrez, M., & Milan, S. (2019). Playing with data and its consequences. *First Monday*, 24(1). <https://doi.org/10.5210/fm.v24i1.9554>
- Hacking, I. (1990). *The taming of chance*. Cambridge University Press.
- Kazansky, B., Torres, G., van der Velden, L., Wissenbach, K., & Milan, S. (2019). Data for the social good: Towards a data-activist research agenda. In D. A. K. Devitt & M. Mann (Eds.), *Good data* (pp. 244–259). Institute of Network Cultures.

- Kennedy, H., Hill, L., Aiello, G., & Allen, W. (2016). The work that visualisation conventions do. *Information, Communication & Society*, 19(6), 715–735.
- Kitchin, R. (2014). Big Data, new epistemologies and paradigm shifts. *Big Data & Society*, 1(1), 1–12. <https://doi.org/10.1177/2053951714528481>
- Lehtiniemi, T., & Ruckenstein, M. (2018). The social imaginaries of data activism. *Big Data & Society*, 6(1), 1–12. <https://doi.org/10.1177/2053951718821146>
- Lokot, T. (2018). Be safe or be seen? How Russian activists negotiate visibility and security in online resistance practices. *Surveillance & Society*, 16(3), 332–346.
- Lokot, T. (2020). Data subjects vs. people's data: Competing discourses of privacy and power in modern Russia. *Media and Communication*, 8(2), 314–322.
- Lonkila, M., Shpakovskaya, L., & Torchinsky, P. (2021). Digital activism in Russia: The evolution and forms of online participation in an authoritarian state. In Gritsenko, D., Wijermars, M., Kopotev, M. (Eds.), *The Palgrave handbook of digital Russia studies* (pp. 135–153). Palgrave Macmillan.
- Meng, A., & DiSalvo, C. (2018). Grassroots resource mobilization through counter-data action. *Big Data & Society*, 5(2), 1–12. <https://doi.org/10.1177/2053951718796862>
- Milan, S., & Gutiérrez, M. (2015). Citizens' media meets big data: The emergence of data activism. *Mediaciones*, 11(14), 120–133.
- Milan, S., & Treré, E. (2019). Big data from the South (s): Beyond data universalism. *Television & New Media*, 20(4), 319–335.
- Milan, S., & Van der Velden, L. (2016). The alternative epistemologies of data activism. *Digital Culture & Society*, 2(2), 57–74.
- Ministry of Internal Affairs (2018, November 12). Мурманская область присоединяется к федеральной кампании «культура на дорогах» [The Murmansk region joins the federal program “Culture on the Road”]. <https://мвд.рф/news/item/14947221>
- Molyarenko, O. (2019). Formirovanie gosydarstvennoy statistiki: Vzglyad snizy [Generating state statistics: a view from «below». *ЭКО [EKO]*, 10(544), 8–34.
- Pavan, E., & Felicetti, A. (2019). Digital media and knowledge production within social movements: Insights from the transition movement in Italy. *Social Media+ Society*, 5(4), 1–12.
- Pavan, E., & Mainardi, A. (2020). At the roots of media cultures. Social movements producing knowledge about media as discriminatory workspaces. *Information, Communication & Society*, 23(12), 1738–1754.
- Porter, T. M. (1986). *The rise of statistical thinking, 1820-1900*. Princeton University Press.
- Rajão, R., & Jarke, J. (2018). The materiality of data transparency and the (re) configuration of environmental activism in the Brazilian Amazon. *Social Movement Studies*, 17(3), 318–332.
- Rossiyskaya Gazeta (2018) Стратегия безопасности дорожного движения в российской федерации на 2018 - 2024 годы [Road safety strategy in the Russian federation for 2018-2024]. <https://rg.ru/2018/01/24/strategiya-site-dok.html>
- Schrock, A., & Shaffer, G. (2017). Data ideologies of an interested public: A study of grassroots open government data intermediaries. *Big Data & Society*, 4(1), 1–10. <https://doi.org/10.1177/2053951717690750>
- Scott, J. C. (1998). *Seeing like a state: How certain schemes to improve the human condition have failed*. Yale University Press.
- Tilly, C., & Tarrow, S. (2015). *Contentious politics* (2nd ed.). Oxford University Press.
- Ustinov, S. (2019), February 3 Карта ДТП [DTP Map]. Habr. <https://habr.com/ru/post/438700/>
- Van Dijck, J. (2014). Datafication, dataism and dataveillance: Big data between scientific paradigm and ideology. *Surveillance & Society*, 12(2), 197–208.
- Weiser, T., & Yudin, G., Eds. (2020). The public sphere in Russia between authoritarianism and liberation [special issue]. *Javnost - the Public*, 27(1), 1–96.
- Zhel'nina, A., & Tykanova, E. (2019). Formal'nyye i neformal'nyye grazhdanskiye infrastruktury: Sovremennyye issledovaniya gorodskogo lokal'nogo aktivizma v Rossii [Formal and informal civic infrastructure: Contemporary studies of urban local activism in Russia]. *Zhurnal Sotsiologii I Sotsialnoy*, 22(1), 162–192.