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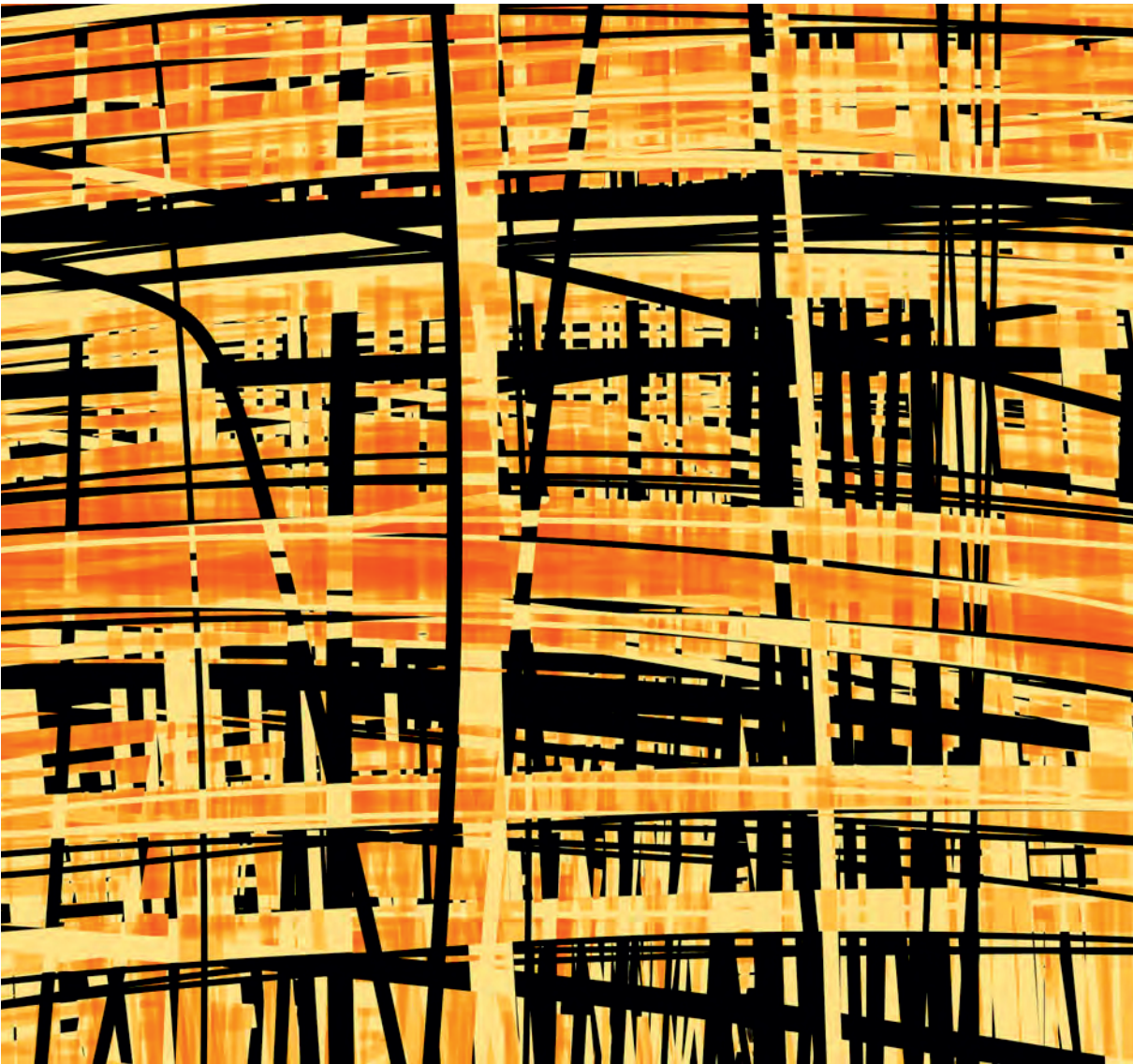

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A CRITICAL THEORY OF THE 'PUBLIC' FOR DIGITALLY MEDIATED URBANIZATION

Siarhei Liubimau

EDITOR'S NOTE: A CRITICAL THEORY OF THE 'PUBLIC' FOR DIGITALLY MEDIATED URBANIZATION

The growing digitalization of human agency and habitat, as well as proliferation of user-generated data, have significantly transformed the horizons and challenges of research in the social sciences and humanities. The most obvious and persistent factor in this change is a rapid growth in access by various knowledge-producing actors to technologies of information creation and transmission. In this way, digitalization has launched a process of the re-definition of the autonomy of academia and of academic research as practice in relation to other practices of knowledge production and transmission. One can notice that in academia the most intensively explored development horizon within this process is an orientation towards quantification and the computational analysis of collective human behavior. In this orientation, the very nature of big data and of the quantification process is often unequivocally presented as a public asset that simply has to be mastered and used. There are already arguments about digitalization and big data as, on the one hand, fragmenting the public sphere as well as privatizing the knowledge of society about itself and, on the other, creating new modes of collective action and thus challenging hegemonic agendas. However, there is a lack of a systematic theorizing of the influence of digitalization on the meanings and practices of the 'public'.

The goal of this journal issue is to explore notions and practices of 'public space', which emerge due to proliferation of digital data about spaces and spatial relations — from 'accessible' and 'transparent' to 'deliberated' and 'identity giving'. And, further, to discuss these notions and practices of 'public space' from the angle of the particular traits of reality that mark the turn to the digital humanities — new modes of data, new study methods, new types of researchers, as well as new types of recipients of research results. All materials collected for this special journal issue have at least three traits in common. Firstly, they respond to the historical situation, in which proliferation of digital data is not anymore considered as solely an instrument of democratization, but equally as a tool for manipulations, domestication of social activism, and tighter control. Secondly, each of the issue's materials presents its own kind of argument against technological determinism as a mode of thinking, in which invention and application of digital tools (to conduct research on spatial relations, to create new public arenas for deliberation, or to plan and program already existing spaces) are seen as a solution without examination of how exactly those tools are institutionalized and put into practice by already existing social forces. Thirdly, they all provoke de-familiarization with and rethinking of spatial forms and practices, with which public space has been associated before the Internet. Digitalization and various modes of landscapes' formation with the public purpose thus emerging (from voting or polling regarding urban planning cases to finding spatial evidence for a disputed military or political case) indeed provide a rich material for rethinking the public space in terms of how it is practiced and infrastructurally organized.

Hence materials of the journal issue from their different argumentation itineraries reach the point of intersection of three crucial questions (and of three study fields) in academic research in social sciences and humanities. First, how do digital information and communication technologies redefine key notions with which society is described and made sense of? With a more applied supplementary question of how ICT could be used to accelerate our attempts to understand and re-organize our current mode of collective living? And this is the perspective of communication studies. Second, how do digital tools to collect ever new information on space uses, as well as the tools to process this information for representation and planning of geographical space, alter our notions of [urban] geography? In a more direct way it translates into question of how established before the Internet notions of landscape, site, arena, city, urban planning, urban governance, etc. are being altered by the application of digital

tools in the practice of research, planning, design and management of cities and urban space? This is the perspective of urban studies. And third, how does the very availability of vast amount of digital data (from satellite photography to user generated content) challenge our expectations from research process and research outcomes in social sciences and humanities? In a more applied fashion, what is the added value of academic research in a situation of unprecedented availability of information on individuals, communities, institutions, infrastructures, historical sites, human interactions, and all other forms and results of human activities just for free online? And this is the perspective of reflexive digital humanities.

The paper by Aliaksandra Baravikova, which opens the issue, provides a profound overview of the existing utilizations of QGIS (Qualitative Geographic Information System) in the current context of the optimism of data-driven research on cities. By referring to a wide range of studies in various disciplines, she grounds the discussion on relations between qualitative and quantitative methods in urban research in the ways how GIS research software is embraced or contested by particular scholars. Her focus is mainly on the arguments and on the research outcomes of the proponents of qualitative methods. This way Baravikova shows which modes of spatiality beyond Euclidian geometry are made visible and intelligible by the studies conducted with QGIS software (from mental maps and recorded individual behavior in particular urban areas to urban problems caused by processes on different geographical scales simultaneously). On the one hand, this paper is a summary of how qualitative urban scholars inventively adjust their methodological approaches to the situation of datafication of urbanism. On the other hand, it shows how usages of QGIS enable a critical stance towards the boom of digital content.

Gintare Norkunaite and Arne Kunkel equally focus on one of cases of non-Euclidian representations of space — on participatory mapping as a tool of urban planning. They discuss the ways in which participatory mapping makes it possible to engage a community in data gathering in order to gain more reflexive and publicly relevant knowledge of a particular area. In their contribution, the authors continue the already established discussion of power relations inherent in cartography as a process and in the map as an outcome. As they show, the goal of engaging the studied community into the study process becomes increasingly prevalent in the course of digitalization and the spread of customized digital mapping tools in particular. Those tools create a base for democratization of the process of urban planning, of researching and representing space and relations in space: some types of mapping software essentially

rely on crowdsourcing of data represented on geographical maps (images, hyperlinks, notes, etc.). Further, Norkunaite and Kunkel discuss and reflect on two workshops co-designed by them together with other colleagues within the DAAD applied urbanist summer school "Mapping Visaginas", organized by the European Humanities University in the fall of 2015. The authors suggest the ways of how participatory mapping can be a tool to get more accurate and reflexive knowledge about the area, to activate the studied community, and to distribute power more equally among the cartographers and respondents.

A similar analysis of mapping as crowdsourced process is developed in the paper by Yuliya Ilyuk. She studies technologies and narrative tactics used by the digital investigations agency Bellingcat in order to reconstruct a particular event — the crash of Malaysian Boeing MH17 in Donetsk oblast in July 2014. This way her contribution is an interesting and reliable addition to the increasingly popular and relevant studies of forensic architecture. Ilyuk shows how multi-sited mapping of the landscape of the plane accident by digital activists becomes a key public arena for negotiating and contesting the meaning of the military conflict in Eastern Ukraine. By reconstructing the mapping methodology and the types of data used by Bellingcat, she shows how digitalization constitutes a technological base for redistribution of power in representations of space (with growing role of crowdsourcing and of digital activists) and for the spread of new modes of narration of events (with the central role of live public demonstration of how the mapping process is collectively carried out). In the latter respect she conceptualizes the regime of technological and political transparency established in the result of such investigations as a public value, which is characteristic of the current conditions of digitalization and boom of user generated content.

Iryna Lunevich in her chapter discusses changes in the Moscow urban planning and governance process due to digitalization, and, in particular, due to the introduction of the "Active Citizen" platform for referendums. By examining the work of this digital platform, the author criticizes technologically deterministic assumptions that digital tools for public participation will automatically activate city dwellers and will make them better represented in the urban planning process. She adheres to the SCOT (Social Construction of Technology) approach in order to reveal practical meaning, opportunities and consequences of this platform in Moscow for different user groups related to it. This allows her to focus not only on the intrinsic features of the studied artifact, but also on the process of how such an artifact redefines communication and power relations between the groups in the field, where it is introduced. Lunevich

thus discusses that democratic participation in urban planning is not defined technologically. On the contrary, certain effects of technology, such as, for instance, gamification of polling, might hollow out the participation process and make it even less democratic. And, respectively, it might make urban dwellers rather reactive than active in relation to disputed public cases. She concludes that thorough analysis of existing interpretations and of institutionalization of digital participation tools is needed in order to identify their precise impacts on the process of urban planning.

The outcomes of the publication hence are twofold 1) the identification of those dimensions of urban processes in digitally mediated societies that are practiced and contested as 'public space' and as 'public space' making; 2) the elaboration and discussion of concepts and methodological approaches to study and interpret these dimensions of urban processes from the critical theory perspective. The critical theory perspective in this case means socially grounded critique of technological determinism. In case of each paper such critique equally has enabled co-articulation between the techno-economic base and a technological bias, on the one hand, and meanings of collective actions and political identities on the other.

One of the most powerful tendencies in critical urban studies today is to question boundaries of the city. And, therefore, to study urban processes not as contained, but as determined by their relations to wider geographies of power, material resources, connective, productive or extractive infrastructures, everyday cultures, environmental vulnerabilities, etc. Initially this tendency embodied the attempt to study distinct geographical locations in perspective of global inequalities. However, the rapidly expanding digital layer of human relations to geographical space is another reason to re-think the boundaries of cities the way we have known them from the 19th century (city as a bounded unit, with concentric circles as historical stages of its growth). In contrast to earlier portrayals of the Internet as a space, alternative to physical reality; current technological and business tendencies show that pressures to depict, organize, measure, valorize, scrutinize geographical space and spatial relations (with human body in the center) are one of the most solid driving forces for the further expansion of the digital domain. And this tendency of anchoring digitalization to already existing physical material environment is likely to continue. This makes especially relevant the attempts to identify and critically discuss those forms of spatiality which emerge today as a result of collective attempts to use newly available digital tools for creating a public asset — be it a highly strategic

multi-sited forensic landscape (Ilyuk), a contextualized participatory mapping solution (Norkunaite and Kunkel), a voting technology becoming a field for re-evaluation of practices of urban planning and governance (Lunevich), or methods and strategies to make spatial research software more accurate and socially aware (Baravikova).

This journal issue was initiated at the workshop *Critical theory in cartography: Developing methodological approaches to public space making in digital urban studies*, which took place at the European Humanities University, Laboratory of Critical Urbanism, in October 2017. It was made possible by the generous support by the SIDA grant. This issue also stems from the results of DAAD Summer Schools on the tools of critical mapping, organized by the European Humanities University, Laboratory of Critical Urbanism in Visaginas, Lithuania, from 2015 to 2019.

Aliaksandra Baravikova

COMBINING GIS WITH QUALITATIVE METHODS IN URBAN RESEARCH

Abstract

The rise of Big Data, much of which contains spatial information, such as geotagged social media or GPS-tracked movements has provoked discussions about the salience of geospatial knowledge for how we understand and govern cities. This paper argues that attempts to make sense of "data avalanche" could benefit from taking a closer look at the critical arguments and practices of qualitative GIS research. Qualitative GIS (QGIS) emerged at the beginning of 2000s as a way to problematize the dominance of quantitative methods in geography and the power-laden nature of new technologies. Using the examples of QGIS application in urban studies literature, this paper discusses methodological and theoretical implications of different strategies to gather and analyze data (from simple geocoding to building customized applications). It explores how QGIS may give qualitative data a spatial dimension, open up opportunities for public participation and make the invisible visible, allowing to discover new patterns and therefore serving as a heuristic tool for research. This paper contributes to the ongoing discussion about the transformations of geographical knowledge by putting current debates into historical context. Learning from previous QGIS practices may also serve as a source of inspiration for future studies, allowing to shed new light upon relatively well-researched topics such as gender and the city, social exclusion, mobility or urban memories.

Keywords: qualitative GIS (QGIS), participatory GIS (PGIS), urban studies, mapping, geographical knowledge.

Introduction

The rise of Big Data, much of which contains spatial information (such as geotagged social media or GPS-tracked movements) has provoked discussions about the salience of geospatial knowledge for how we understand and govern cities (Shelton 2016; Leszczynski 2016; Barnes and Wilson 2014). The proponents of Big Data talk about the emergence of "data-driven geography" and the fourth paradigm of scientific discovery driven not by theory but data (Miller and Goodchild 2014). Meanwhile, the critics of Big Data argue that it promotes a universal and essentialized understanding of a city that oversights the differences, depoliticizes injustices and relies solely on quantitative methods which it considers a higher form of knowledge (Shelton 2016; Graham and Shelton 2013).

These disagreements are in many ways not new. They resonate with the earlier debates about the dominance of quantitative methods in social sciences and geography in particular (described by Massey in 1999 as "physics envy"[1]), and discussions caused by the rapid growth of GIS (geographic information systems) in the 1970s–1980s. One of the responses against quantification of geographic research and as a way to problematize power-laden nature of new technologies and its effect on society was the development of qualitative GIS (QGIS) at the beginning of 2000s. At first, it was regarded by many scholars both from GIS and human geography as an oxymoron: since the term GIS had been coined four decades earlier, it had been strongly associated solely with quantitative methods and positivist approach (Kwan and Knigge 2006; Sheppard 2005[2]). Since then, however, a more qualitative nature of GIS has been fruitfully explored across various disciplines, from health research to history.

The word "qualitative" may relate to the form of evidence (e.g., in-depth interviews that contain rich descriptive data and personal interpretations, researcher's observations and field notes, photographs, audio and video clips,

[1] In fact, the discussion on qualitative and quantitative methods and methodologies in geography goes even further back, at least starting from the Hartshorne-Schaefer debate of the 1950s which marked the beginning of "quantitative revolution" that was harshly criticized two decades later (Graham and Shelton 2013). While the quantitative-qualitative divide will be mentioned throughout this paper, the detailed examination is out of its scope.

[2] See examples of quantitative methods and applications in GIS: Wang, F. *Quantitative Methods and Socio-Economic Applications in GIS* (Second Edition). CRC Press, 2014.

sketched maps and other drawings) as well as to data analysis, for instance when such techniques as grounded theory or discourse analysis are used (Cope and Elwood 2009). But are qualitative data and methods at all compatible with GIS? Pavlovskaya (2006:12) puts forward an intriguing, even if somewhat contradictory argument that "the most widely used functions in GIS, such as visualization, database development, management, and querying, are not at all quantitative despite that the dominant narratives construct GIS as a quantitative analytical tool." Even though integrating qualitative and GIS elements faces a number of challenges, as will be discussed in the last section, there is a plethora of examples when it leads to compelling and robust research.

While the most significant theoretical advancements in QGIS were arguably made in the mid-2000s, the above-mentioned attempts to make sense of "data avalanche" and resist total quantification of geographic research could benefit from taking a closer look at the critical arguments made by QGIS proponents and their practices. As Pavlovskaya (2017:10) put it, "learning about contributions of qualitative GIS would prepare scholars in social sciences and humanities for the challenges of big data and the digital age."

In order to assist this learning, the subsequent sections examine theoretical roots of qualitative GIS and compare arguments of critical GIS community with ones from opponents of Big Data; then, using specific examples, they discuss affordances and limitations of qualitative GIS.

On Theoretical Roots

This chapter will not go into the detail about the history of qualitative GIS, as these accounts can be found elsewhere (Cope and Elwood 2009). However, to understand the main principles, methods and research interests of QGIS, it is necessary to at least briefly describe a theoretical background it emerged from.

To start with, qualitative GIS did not appear in isolation. It can be regarded as a vivid example of mixing qualitative and quantitative methods which, together with the so-called "spatial turn" in social sciences (as well as in physical sciences and humanities) and emergence of new means of understanding, creating and acquiring spatial data constitute "'geography's turn to synthesis and holism" in the first decade of the 21st century (DeLyser and Sui 2014). This turn aimed to overcome divisions between human and physical geography, nature, and society, both qualitative and quantitative (DeLyser and Sui 2014). These

"hybrid geographies" in a way embodied a conviction that "geographers are well positioned to combine technical practice, quantitative methods and critical scholarship" (Graham and Shelton 2013).

Nevertheless, it does not imply there were no tensions along these division lines. As already mentioned in the introduction, the rapid growth of geographic information systems (GIS) caused a stir between GIS scientists who saw GIS as a new way towards integrated scientific geography and human geographers who took this technological development with a big pinch of salt. They problematized the production of spatial knowledge and questioned the neutral nature of GIS technology, pointing out that GIS was initially developed for the military and not for ordinary people, and that it continues to serve the interests of corporate and governmental powers[3]. They emphasized how the classifications adopted in GIS analysis of census data may shape society and expressed early concerns about the digital divide, arguing that uneven access among social actors to GIS would potentially enhance existing social and geographical inequalities. Another point of their criticism was that GIS software, reflecting its origins in cartography, represents space in a Cartesian coordinate system, or, in other words, as a set of attributes attached to places rather than interdependencies between them. Therefore, it is not suitable to deal with non-European conceptions of space and other ways of knowing (Sheppard 2005; Elwood 2009; Pavlovskaya 2012).

The proponents of GIS condemned this critique as too simplistic, paranoid and "indicating a lack of understanding of and experience with GIS or a lack of patience or aptitude for the rigors of science" (Sheppard 2005). In fact, from 1983 and until the meeting at Friday Harbor (USA) in 1993 there was little communication between the critical and the GIS "cultures" within geography. That meeting, initiated by the National Center for Geospatial Intelligence Standards

[3] One of the earliest and most controversial publications about the political and power-laden nature of technology was the *Ground Truth* by Pickles published in 1995. The consideration of the inner politics of GIS, with a particular focus to its participatory dimension and criticism of proprietary software has been further developed in a plethora of publications (see Sarah Elwood 2006; Ghose and Welcenbach 2018). These concerns are paralleled by the growing recognition of the implications arising from the discrepancies between technical and local knowledge. For instance, when local groups are unable to translate their experiences into codified hydrological knowledge, they are not considered as relevant actors and are therefore excluded from the decision-making process surrounding water allocation and distribution (see more on this: Usón, Henríquez, and Dame 2017; Budds 2009).

(NGGIS), challenged this intellectual divide by gathering GIS specialists and social theorists to initiate a more constructive engagement. While this meeting did not resolve all the disagreements, it marked a shift in the debates towards a dialogue and played a key role in developing the "GIS and Society" research agenda (Sheppard 2005).

Over time the "GIS and Society" agenda expanded to what Nadine Schuurman labeled in 1999[4] as "critical GIS" research (see more on this development: Sheppard 2005; Harvey, Kwan, and Pavlovskaya 2005). Qualitative GIS, together with public participation GIS (PPGIS) and feminist GIS were among the commonly defined and mutually connected subfields of critical GIS. Feminist geographers, such as Kwan, Cope, Elwood, Leszczynski and Schuurman, made key contributions to the development of critical GIS in general and its qualitative strand in particular, producing critique of scientific "objectivity" and problematizing the production of knowledge (Harvey, Kwan and Pavlovskaya 2005; Bergmann et al 2016). Feminist geographers hold that qualitative methods would enable researchers to address a wide array of non-quantifiable aspects that are ignored (and thereby marginalized) by mainstream geography based solely on quantitative data. Such aspects may include informal social practices and alternative economies, unpaid domestic work and all sorts of oppression and exploitation, as well as emotions and local knowledge (Pavlovskaya 2017). According to proponents of QGIS, qualitative methods provide room for integrating multiple forms of data and creating "a bigger picture and greater insight into what is happening (and why)" (Bagheri 2014).

From GIS and Society to Big Data

Discussions within the critical GIS community in some important ways resemble concerns regarding Big Data raised several decades later. First of all, both GIS and Big Data have been framed by their proponents in geography as a way to increase the relevance of the discipline, to gain "unprecedented insights" and to produce "fundamentally new ways of knowing, enacting, and being in the world" (Shelton et al 2014). For their critics, both technological developments pose a risk to crowd out or delegitimize other — critical, qualitative and

[4] Schuurman, Nadine. Lessons in Constructing a Science: Promises and Pitfalls of GIS. Paper read at *Geographic Information and Society* in 1999, Minneapolis, MN.

postpositivist — ways of knowing and research (Elwood 2009; Graham and Shelton 2013).

Secondly, similar to critical GIS scholars, opponents of Big Data argue that it may reinforce existing inequalities: "because data are always constructed, collected, stored, and used under uneven and variegated social, economic, and technical contexts, some people, places, and processes will always be easier to enroll into such vast sociotechnical assemblages" (Graham and Shelton 2013). This sociospatial unevenness of representation in online datasets has material effects — in other words, it is more than a reflection of the world but has a substantial power to shape it (see Shelton 2016 for a detailed discussion of this).

The third similarity is linked to the previous one: technology is not neutral, despite an air of objectivity that surrounds quantitative methods. Data do not speak for themselves, and the way we collect and analyze them is inevitably loaded with certain assumptions about the world. What is more, and this is rather a new feature that pertains to Big Data, the enormous size of datasets, reliance on proprietary software and blackboxed algorithms (e.g., of filtering, aggregation, etc.) lead to the increased uncertainty of data and the risk of losing sight of the very things such data represent (Kwan 2016; Shelton 2016).

The Power of Visualization

As demonstrated throughout this chapter, qualitative research may deploy GIS in various ways. But, arguably, the most important function of GIS is visualization – a term which encompasses a wide range of methods that provide insight into data through visual representations (Knigge and Cope 2006). Visualization makes the invisible visible (Kwan 2015) and provides opportunities for heuristic understanding of data and processes. That maps always represent partial knowledge, reflecting and constructing power relations is perhaps familiar for everyone interested in critical approaches to cartography (see, for example, Wood 2003). This is how Pavlovskaya (2017:2) puts it, explaining the power of visualization: "once visible, the mapped places and phenomena become real; they exist and require explanation… omission from the map, either intentional or by ignorance, in contrast, leads to theoretical as well as socioeconomic and cultural marginalization." Therefore, critical visualization should involve asking whose interests are missing or ignored in the planning process (Kwan 2015).

Therefore, it is no wonder that qualitative GIS has been extensively applied by scholars seeking to advocate for social justice and give voice to the people that are usually neglected in the city planning process — not only ethnic minorities or the poor, but also children (e.g. Alarasi, Martinez, and Amer 2015) and the elderly (Meijering and Weitkamp 2016; Milton et al 2015). However, the invisible not always equals the oppressed: a good example is a study on artistic communities and creative industries in Darwin, Australia; with the help of ethnography and GIS it demonstrated that most creative activity takes places outside formal cultural hubs — this insight might be useful for local policy-makers (Brennan-Horley and Gibson 2009).

Participatory GIS (PGIS) and public participation GIS (PPGIS)[5] have greatly contributed to the development of QGIS. Numerous PGIS/PPGIS projects aim to translate local spatial knowledge into claims on resources and land, attempting to secure community access to them by mapping informal land-use rights or, for instance, collective use of fishing grounds (Ghose 2009; Pavlovskaya 2017). While some consider PGIS/PPGIS an important tool contributing to "renegotiations of colonial legacies in many parts of the world, advancing and also posing challenges to postcolonial struggle" (Pavlovskaya 2017), Radil and Anderson (2016) have recently argued that PPGIS lost its political potential. According to them, as PPGIS works within established frameworks of institutionalized governance to produce a politics of consensus[6], it is ill-equipped

[5] The underlying idea of both PPGIS and PGIS is to support "the inclusion and empowerment of individuals and communities that have not been traditionally involved in urban or rural planning" (Brown and Kyttä 2014). While some differences between them are distinguished (e.g. PPGIS is more used in relation to developed countries and PGIS in the developing world; PGIS often uses purposive sampling to include key stakeholders into the mapping process while PPGIS mostly involves probability sampling (Brown and Kyttä 2014), they are often used interchangeably by some researchers (Pascual et al, 2016; Elwood 2008). Here they will be referred together as PGIS/PPGIS.

[6] A similar criticism of consensus was expressed by Purcell (2009) in relation to the "communicative turn" in urban planning. His key argument is that by seeking to resolve any conflict and neutralize power relations, consensus provides an attractive way for neoliberals to maintain their hegemony. Approaching the issue of participation from another angle, it is useful to recall a paper by Baud (2016) which examines, based on case studies in India, South Africa, Brazil, and Peru, whether using GIS and participatory processes in local governance increase the potential for building adaptive capacity and inclusivity. One of the main results is that "codified and technical knowledge remain dominant in discussions on urban development" (similar

to challenge the conditions of socio-economic inequality it strives to ameliorate (and in fact often reproduces them).

Addressing informality often implies contrasting fieldwork data with official, "objective" knowledge, such as statistics or administrative boundaries. Examining these discrepancies is not confined to PPGIS but may be found in political and cultural geography. A good example is a study by Pain et al (2006) which discovered that crime hotspots often do not reflect residents' experiences of crime. Their study used a combination of GIS mapping of crime hotspots[7] and lighting coverage with a subsequent rapid qualitative appraisal of residents' perceptions. Important to note, the qualitative stage was separate from the GIS: it was decided not to use maps with local residents[8] in order to avoid creating a certain impression of the areas or influencing the answers. Qualitative part not only revealed discrepancies from official police data (e.g. some types of crime were underreported) but, most crucially, allowed to better understand complex relations between crime, fear and lighting: crime was perceived by residents as committed largely by insiders and underpinned by economic and social deprivation, which means that a technical fix — just improving the lightning — without larger socioeconomic changes might have little effect in the areas.

Qualitative GIS not only allows visualizing data but also gives it a spatial dimension. For example, Hannah and Hodder (2015) use GIS to research how the unequally contested meanings and narratives of slavery and emancipation are reproduced through commemorative landscapes of Fredericksburg, Virginia. In another example (Keddem et al 2015) GIS helped to analyze and spatially represent the influence and intensity of neighborhood characteristics (vacant properties, illegal dumping, parks, tree canopy, aggravated assaults and theft) on asthma in West Philadelphia. In a nutshell, a combination of GIS and qualitative methods can bring fruitful results not only for geography, but also, as these cases show, offer a new angle on historical and health research.

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argument but in a different context was expressed in footnote 3).These arguments are given not in order to undermine PPGIS/PGIS projects but to provoke a fruitful discussion on how to overcome the current challenges and limitations.

7 Hotspot mapping identifies concentrations in the spatial distribution of point features, for example, crime locations. It is a valuable tool which, however, is also subject to interpretative issues: the maps will look quite different depending on the threshold used to define a hotspot (Pain et al 2006).

8 Therefore, the researchers insist that this is not a public participation GIS.

QGIS as a Part of Mixed Methods

This section takes a closer look at the methodology and explores the main strategies of combining GIS and qualitative research. QGIS is typically considered as pertaining to mixed-methods approach. This approach, Elwood and Cope (2014) argue, plays an important role in geography, where many questions require investigating interrelated human and physical processes and examining relationships at different scales. This research often consists of multiple phases which enable a "layered appreciation of experiences" and has a potential to provide a more comprehensive, nuanced and contextualized understanding (Bell et al 2015). According to Preston and Wilson (2014), multi-channeled and iterative nature of QGIS allows for more inclusive data collection and production of different forms of knowledge. The focus is, therefore, less on a product — a map — but rather on the process of research into a spatial problem.

In mixed methods research GIS-based analysis may be deployed to complement, triangulate (verify results using more than one data sources) or, as mentioned above, to contrast the knowledge acquired from different sources (Kwan and Ding 2008; Pfeffer et al 2011). For instance, in one of the pioneering QGIS studies (2002) Pavlovskaya complemented the ethnographic data with GIS maps to illuminate the multiple economies in post-Soviet Moscow at the household level. Another example is the research on mobility among the elderly (Meijering and Weitkamp 2016) where the results obtained from tracking mobility devices were integrated and compared with self-reported travel diaries. It opened up new research questions and enriched a grasp of the complexity of everyday geographies.

Obtaining Qualitative and Spatial Data

In mixed methods data can be obtained in both sequential and convergent ways. Sometimes the process starts with a participatory mapping exercise (e.g. mental mapping in Palermo, see Alaimo and Picone 2015; or putting stickers on printed Google Earth images to identify and describe locations in a study of children's perception of the city center, see Alarasi et al 2015). Information

on mobility can be obtained, as was noted above, from GPS-receivers and/or self-reported travel diaries.

A further discussion of results is important: it gives an opportunity for a truly in-depth understanding and may yield crucial clarifications, helping to avoid misinterpretations (Bell et al, 2015). It can happen in a form of a group discussion when participants co-construct a story with the researcher by engaging in the analysis and interpretation of the maps they produced or provided data for. Another option for discussion and getting a deeper understanding is a guided tour the route of which is mainly predetermined on the previously mapped locations (Alarasi et al, 2015).

An interview is, perhaps, the most popular instrument for obtaining information that complements quantitative data from surveys and institutional databases. However, often it is not a traditional interview, which has been criticized for "being unable to understand "lived experiences" of place", but an emplaced go-along interview, when participants walk the researcher through the places of interest. Asking questions is complemented by observations, allowing the researcher to examine the informant's practices and interpretations (Bell et al 2015). It can also take a form of a map-based interview, when maps serve as a visual aid to discuss participant's practices, inviting them to explain why particular places where chosen (Alarasi et al, 2015; Bell et al, 2015). Some studies employ multiple (or even all) of these strategies to collect data.

Analyzing Data: From Grounded Theory to Software Programming

Cope and Elwood (2009) describe three main approaches to combine qualitative research and GIS: 1) modifying qualitative data, usually with help of coding, to represent them using cartographic techniques such as classification and symbolization; 2) hyperlinking, which associates qualitative data with spatial objects in GIS; 3) software modifications that extend capabilities of conventional GIS. Yet, an overview of the recent studies using QGIS reveals that hyperlinking is often closely associated with coding or another approach of linking spatial and qualitative databases within GIS, but is seldom described as a separate strategy. Therefore, this subsection will elaborate on a slightly different set of approaches.

Coding

Mapping data from in-depth interviews was the first attempt to ingrate GIS into qualitative research (Jung and Elwood 2010). Interview transcriptions were analyzed using coding techniques adopted from grounded theory (Strauss and Corbin 1998) and then put on a map in a GIS application. Some CAQDAS (Computer Assisted/Aided Qualitative Data Analysis) packages, such as Atlas.ti or NVivo, have a function of geocoding data (see a detailed description of using Atlast.ti for a research in urban sociology: Verd and Porcel 2012). The "grounded visualization" approach was suggested by Knigge and Cope (2006) to further integrate qualitative analysis with spatial visualization. According to them, visualization and grounded theory work well together and share a number of important features: they both involve multiple rounds of data collection and analysis accompanied by critical reflection, which allows for more exploratory and robust inductive research rather than "hypothesis testing"; simultaneous attention is paid to different scales, to the particular and the general, the concrete and the abstract; they can accommodate and represent multiple worldviews and interpretations (Knigge and Cope, 2006).

While coding various types of qualitative data is the most accessible way to bring together GIS and qualitative research, it is also the most limited (Jung and Elwood 2010; Lafreniere and Gilliland 2015): data remain ***outside*** the GIS and, therefore, their in-depth exploration and analysis cannot be performed within GIS (Hannah and Hodder 2015).

Creating Databases

As Jung and Elwood (2010) note, researchers have taken two strategies to overcome these limits. One of them is to link a spatial database of a GIS to a separate database containing the qualitative data. For example, Hannah and Hodder (2015) describe how they worked with geodatabases in ArcGIS and organized attribute tables in a way that allowed to code "each marker, measure its visitability, and perform content and discourse analysis on markers selected by their locations or by certain attributes." In her study on Iranian women's sociospatial behaviors in Tehran's modern and traditional public spaces Bagheri (2014) also thoroughly explains how she used databases in ArcGIS. Before that, however, during the ethnographic stage of her research Bagheri created spatial

behavior maps of the selected spaces to track women's numbers and activities, indicating their approximate age, the style of their hijab and makeup, whether they were alone or in a group. She also drew architectural sketches to "capture a sense of place" and conducted semi-structured interviews with women about their feelings, experience and preferences in using those public spaces. Then she digitized her maps, created a database storing interview locations, counts of women and men in those spaces and interviewee's characteristics (such as age, education, and home location), as well as her field notes. With the help of Overlay function in ArcGIS, she examined the relationship between different official demographic/socioeconomic data layers and databases she created. The use of database allowed her to link interesting spatial patterns to interviewee's characteristics.

Programming Software

The second option to bring qualitative data directly into a GIS application is programming qualitative analysis functions in ArcGIS software. In the famous geo-narrative analysis performed by Kwan and Ding (2008) an extension called the "'space-time coder" was developed to code emotions, spatial and temporal references from narrative materials (oral histories, life histories and biographies) and analyze them within ArcGIS.

This research has inspired other scholars to visualize human mobilities and enhance understanding of everyday practices. Even though such routine practices seem mundane and remarkable, Bell et al (2015) argue they could have important implications through repetition over time, "both for our own wellbeing and that of the environment."

It is worth noticing that time represents an important category for research on human mobility and constructing personalized geo-narratives. These narratives, as Kwan and Ding (2008) note, are not static. One of Kwan's studies examined "a geography of fear" experienced by a Muslim woman during her daily travels around the city before and after 9/11 (Kwan, 2008). Kwan identified certain temporal patterns in the chronology of the informant's experience and how they evolved differently among different participants. In her previous contribution to time-space geography Kwan (2002) used information from women's diaries to analyze gender differences in access to urban opportunities. Her three-dimensional visualizations revealed how gender, class and race continue to shape the use of urban space.

Additional Strategies: Contextualizing Data and Digitizing Mental Maps

One of the important tasks for qualitative GIS has been to map locations that do not have absolute Euclidian geometries and are expressed solely by situational relationships, such as the "new mill near where the river bends" (Lafreniere and Gilliland, 2015). Techniques to visualize these qualitative locations have been developed by Jung and Elwood (2010) and some other scholars. Recently, a valuable contribution to the qualitative understanding of space was made by Lafreniere and Gilliland (2015) in their historical GIS study (HGIS) of London. They suggest that a wide range of qualitative and quantitative data (e.g. maps, texts, social surveys or photographs) should be used to establish "spatial clues" and provide rich contextualization for the mapped locations to go "beyond merely putting one layer of space-time data atop another, or placing the paths against a backdrop such as Google Earth."

As one of the underlying assumptions of QGIS is that multiple ways of knowing are possible, it allows representing a city from the non-standard point of view — that of its citizens. Alaimo and Picone (2015) push the boundaries of traditional representation by merging mental maps produced by residents of one neighborhood in Palermo into a single map in GIS. This is how they describe their approach: "If most mental maps of a neighborhood would stretch the role of the central market square, we have tried to emphasize that role by enlarging the dimensions of the square, even in contrast with the scale ratio." In a similar vein, neighborhood boundaries were highlighted according to citizens' perception instead of the administrative limits imposed by the municipality.

The examples above provide an illustration of how various qualitative methods can be combined with the GIS in different ways, depending on the research goals and questions. They can be applied separately, as in the study by Pain et al, or simultaneously, as in the research by Bagheri: in the first round of analysis she noticed some unexpected segregation patterns, which informed new questions for the subsequent interviews. In other words, there is no one size fit all solution. What these two different studies demonstrate is that the qualitative part was helpful in explaining things that could hardly be addressed by quantitative methods alone, but also how quantitative methods provide a good point to embark on qualitative research. As noted by Bagheri, she understood in her study how both qualitative and quantitative characteristics of

public spaces influenced women's behavior, and therefore qualitative-quantitative dichotomy seemed inadequate in understanding the complex relationship. There are, however, a number of limitations, some of which will be discussed in the next section.

Limitations, Challenges and Further Research

While just a decade ago geospatial analysis was confined to professionals familiar with desktop GIS packages, today numerous applications are freely available both for individual and collective maps production (Lafreniere and Gilliland 2015; Pavlovskaya 2017). This production is also facilitated by the increase in municipal data that is/can be georeferenced and is largely motivated by an awareness of the importance of geography to understanding social issues (Shelton 2016). What can be problematic about these positive tendencies? According to Shelton (2016), a potential pitfall is to create another "simplistic map mashup visualization." These visualizations and questions that drive them tend to treat social and spatial processes in isolation and thereby decontextualize them. This is how he puts it: "… in simply focusing on mapping the locations and concentrations of x or y urban problem, these visualizations fail to attend to how these problems, and certainly any meaningful solution for them, goes beyond a set of latitude and longitude coordinates or a particular bounded spatial unit like a census tract or municipal boundary." An example he gives is the case of mapping platforms of vacant and abandoned properties in Louisville, Kentucky, which help to construct a geographical imaginary of this problem as being in many ways synonymous with the city's predominantly poor and African-American West End, but do not address the root causes of these problems.

This observation does not explicitly relate to critical qualitative GIS practices due to its characteristics outlined in the previous sections. But I think it is still useful to remind that just making a map about social problems or even gathering qualitative data is not enough. It is necessary to move from simple counting to actual analysis, to address the roots of the problem and pay attention to the context. This, however, is not an easy undertaking. One may face a number of practical and theoretical challenges; some of them are outlined further below.

Data exclusion and data scale incompatibility are two important limitations outlined by Bagheri (2014). Although quite common, they are rarely addressed

in the literature. Generally speaking, the process of mapping always implies the inclusion of one thing and exclusion of other. Bagheri questions the claim made by some scholars that qualitative methods allow mapping almost any type of data, arguing that the way in which it can be done will not necessarily be inclusive, efficient and meaningful. She points out that transferring rich and complex qualitative data into quantitative GIS codes and symbols remain challenging, and the potential data exclusion in this transformation process is an inevitable disadvantage of GIS (see also Jung and Elwood 2010). Reflecting on her need to summarize, choose and often exclude data from each interview according to what seemed more or less relevant for her as a researcher, Bagheri concludes that "GIS is not an independent tool; rather, it becomes part of the storytelling itself."

While linking pre-existing datasets (acquired, for instance, from censuses) to the dataset created with help of qualitative techniques is widely used in QGIS, the issue of scale incompatibility is seldom discussed. Using the example of her case study, Bagheri argues that analytical linking qualitative data (e.g., from participant observations and interviews, based on individuals' opinions) to quantitative data layers in GIS (based on social and/or demographic data gathered and normalized at either neighborhood, district or city level) may be difficult and sometimes impossible considering their different scales. The risk is to draw wrong conclusions, leading in this case "to a wrong correlation between women's hijab and the quantitative attributes of the district where the interviews were conducted." In short, overlapping of data should be approached with caution: depending on the questions asked, this capability of QGIS can bring insights or misguide the researcher. Somewhat similar concern was brought by Pain et al (2016): different layers of data are not always mutually reinforcing, and dealing with these discrepancies require great caution and triangulation efforts — in sum, qualitative and participatory elements usually cannot be simply and easily added to GIS analysis.

Another limitation, quite trivial but still important, especially in the case of public participation GIS projects, is that "technology is not foolproof" (Bell et al 2015). In their study of urban green space they had three accelerometers and one GPS unit broken, resulting in data loss and participant disappointment. Also, in case of PPGIS projects, the result heavily depends on cooperation and patience of the participants (multiple phase studies tend to be time-consuming not only for the researchers but also their informants). For instance, as one researcher involved in a qualitative GIS project told in private communication,

while participation was voluntary and the study was quite short-termed, a number of participants did not follow the basic instructions.

Finally, although qualitative GIS offers more breadth, depth and flexibility (Preston and Wilson 2014) comparing to the quantitative approach, including certain types of information remains unresolved. For instance, some ethnographic data, such as feelings, a rationale for including certain locations or the impact of their symbolic meaning on informant's behavior, still cannot be mapped in GIS (Bagheri 2014). Another difficulty, which is particularly relevant for urban research, is dealing with verticality, at least in two-dimensional cartographic representations. Cities are increasingly segregated by height, writes Stephen Graham (2016) in his recent book *Vertical: The City from Satellites to Bunkers*. He demonstrates how verticality becomes increasingly more important category that determines inequality, politics and identity. That wealthy have gone upwards to the "archipelagos" of residential towers, roof gardens and heliports, or that in some cities people spend in elevators as much time as in public transport are just two examples out of many. But how do we put these transformations on the map? Despite all the limitations and challenges, we anticipate that further research in qualitative GIS will help to address this and many other challenges, advocating for social justice and multiple forms of knowing, overcoming quantitative/qualitative divide, embracing research as an open-ended process and informing better urban planning.

As a Way of Conclusion: So How Can QGIS Be Useful for Urban Researchers?

Qualitative and other critical GIS researchers have made a significant contribution to problematize the production of geographical knowledge, demonstrating how it is both shaped by society and shapes it (Leszczynski 2016; Sheppard 2005), and how technology both assists the research and poses new questions. But how this could be of use in urban studies?

The numerous examples in this article provide some clues. Perhaps first and foremost QGIS gives qualitative data spatial dimension (which is obviously relevant for the research on cities) — either through basic geocoding, creating databases in software such as ArcGIS or programming customized applications. Another important advantage is that it allows incorporating different sources of data (e.g. narratives and fieldwork notes) which quantitative GIS cannot

handle and to contrast them with the official data. This opens more possibilities for public participation and gives more context, depth and richness to the study. Finally, visualization makes the invisible visible, allowing discovering new patterns and, therefore, serves as a heuristic tool for research. All these benefits permitted the studies described above to shed new light upon relatively well-researched topics such as gender and the city, social exclusion, mobility or urban memories.

While the focus of this paper was solely on qualitative methods and quantitative methods were presented in a rather negative light, it does not mean, of course, that quantitative methods cannot be critical. A growing number of critical quantitative research in geography proves the opposite (Kwan and Schwanen 2009). This focus was stipulated by an aspiration to explore the role of qualitative methods in contemporary urban research. The examples provided in this paper aimed to illustrate how combining quantitative and qualitative methods, while not always unproblematic, may lead to rewarding results.

This paper attempted to bring a modest contribution to the ongoing discussion about transformations of geographical knowledge by putting current debates into historical context. It was also written in hopes that by learning from previous QGIS practices urban researchers will draw inspirations for new investigations.

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Gintare Norkunaite and Arne Kunkel

A KEY TO THE COMMUNITY'S KNOWLEDGE: PARTICIPATORY MAPPING METHODOLOGY IN THE EASTERN EUROPEAN CONTEXT

Abstract

During the past three decades, new forms of mapping have emerged. The cartography went beyond traditionally accepted mapping parties — institutions and academia. Maps can be created by everyone, facilitated by mass products, such as Google Earth, which Al Gore described as a "Digital Earth Initiative" (Crampton 2009: 91-92; Pickles 2004: 145–177). They are provided by technology giants, which became new, yet important players in cartography unimaginable 200 years ago. As a tool to encode and portray spatial knowledge, a map is widely used in the urban planning process. The changing economic situation and planning practices in Eastern Europe created conditions for integration of society's voice into spatial planning. New tools are being created to facilitate representation of the new stakeholder — community — in the battle for power between the state, market, and society.

This article provides theoretical investigation and practical examples (2 case studies) to explain specificities of participatory mapping in the broader cartography field, and to discover potentials and obstacles of participatory mapping applications in the Eastern European context. Both cases aimed to inspire residents by helping them understand potentials embedded in the spatial structure and architecture of a town, empower them by creating a critical mass with a commonly agreed public opinion on spatial changes.

In the context where distrust in local government is common and residents feel incapable of steering a positive change in the development of a town, the two case studies provide methods to overcome these challenges. Even though both workshops use gamification, they employ different tools: geolocation of building blocks, and "a decision tree".

Keywords: participatory mapping, participatory urban planning, Eastern Europe

Maps and Power Relations

Maps are usually understood as an objective graphical representation of morphological landscapes or physical features of a space. However, maps also encode a deeper layer of power relations (Harley 1988: 277). Throughout history, maps represented the world in favor of society's dominant group. Official maps were usually made upon a request from an individual patron, state bureaucracy or the market. A map conveyed power territories of the requesting party. During the Cold War, the map was used as international psychological warfare (Harley 1988: 287). State boundaries and spatial structures delineated the state property — its geopolitical power. In addition to this, map making is usually guided by a set of specifications from a party that requests a map. Specifications might control which spatial elements to include and what symbolic representation they communicate. For example, nowadays it is commonly agreed to exclude military installations in official state maps diminishing misuse of maps by the parties that threaten the peace. In the 1960s in Russia, maps deliberately relocated towns to deceive an enemy (Harley 1988: 289). These deliberate distortions in maps construct a biased image of a place serving the needs of the requesting party. It shapes our understanding of the environment and influences our actions related to it.

A multinational business, Google, is a powerful player that deliberately forms our understanding of the environment through images and services of Google Maps. The satellite view became a familiar view of the Earth, services, such as route planning, place finding; real-time traffic services influence decisions where we go to and how we get there. The spatial knowledge production, or, in other words, mapping, can also serve the purpose of gaining power. As Foucault says, "the quest for truth was not an objective and neutral activity but

was intimately related to the "will to power" of the truth-seeker. Knowledge was thus a form of power, a way of presenting one's own values in the guise of scientific disinterestedness." (Poster 1982). The spatial knowledge can bring superiority for one party over another in the decision-making process. Unclear motives behind socio-spatial data collection, in other words — a gain of knowledge, can be a reason for distrust by the community and can lead to the unwillingness of participation in participatory mapping practices. All in all, maps, from a first glance neutral information source, reveal the hidden layer of the power relations — the expression of power, the intent to manipulate or the seek for power.

In the 1980s the situation of power relations in mapping started to be shifted by a rise of critical cartography. Critical cartography aimed to reveal the hidden agendas and challenge formal maps of the state. Arguing that mapping is always a political process with social context, purpose, and effects (Foucault 1995), critical cartography chooses "new worlds, new societies" (Rolnik 2005). This critique made it possible for diverse forms of mapping to emerge, for example, counter-mapping, and map hackings. They started to reveal the knowledge of marginalized groups and local knowledge (Crampton and Krygier 2006). Participatory mapping as a tool revealing the socio-spatial structures of a certain group of people — a community–, can also be seen as a part of critical cartography.

Differently from usual critical cartography, participatory mapping is not only a tool to capture local knowledge but also a tool to form social relations. Through mapping practices, community members are activated to generate spatial information and at the same time inspired to take decisions about the spaces they live in (Mitlin and Thompson 1995: 235). Mapping forms a critical mass of people with a consensus of opinions on spatial changes.

A production of participatory maps benefits from an accessible and broadly understandable representation of the spatial environment used as a base map to collect spatial knowledge. The mapping world and the general cartographic sphere have been changed by the rise of private companies in mapping, led by Google with its product Google Earth. Mapping the country's territory no longer is the nation's state monopoly but has been globally privatized. Google Earth, and, in a similar way, Google Maps, serve as a platform and basis for manifold applications of mapping. Customized maps for participatory mapping can be created by "MyMaps" and even governmental partnerships with Google use it, e.g. for catastrophe mapping (Crampton

2009: 94). Google's products Earth and Maps have also been a discussion for drawing border between the national states. In a short time, a single enterprise has become a very powerful player with no transparent mechanism of control.

The Emergence of Participatory Practices in Urban Planning In Eastern Europe

The shift in planning in Eastern Europe, especially in former Soviet Union countries, was influenced by the political and social changes in the 1990s. The planning apparatus, inherited from the Soviet Union, respecting the planner's interests as well as those of the state had to change in order to integrate locally derived solutions and people's needs, represented by the rising amount of civil organizations and NGOs (Tsenkova and Nedovic-Budic 2006). However, it was not an easy and fast process. First, planning systems changed to respond to the interests of private businesses. Mostly, the process was initiated by economic circumstances. The financial power of the governments decreased and investments originated from a private sector. It created urgency for governments to shift to regulatory planning, which recognizes the rights and interests of autonomous parties and defines the rules and obligations each party has to follow.

The rise of civil society followed by independence movements challenged planning systems to respond to society (not only to government and businesses) (Lewis 1992: 169). Still today, the participation of people in the urban planning process is developing and is mostly guided by private companies undertaking the outsourced assignments from the governments. They could be urban planning companies, NGOs or urban activists. The latter play a significant role as mediators in the urban planning process where participating parties have conflicting interests or distrust. The time span of almost two decades was needed for the urban planning mechanism to change and the private planning companies to emerge, preparing a basis for participatory practices.

Participation tools are already a common practice in Western Europe countries with a long urban planning history, such as the Netherlands. However, the distinct political and social situation in Eastern Europe complicates a direct application of western participatory tools and methods in the Eastern

European context. They must be responsive to the local peculiarities. One of those is lack of trust between the government and the residents, which derives from urban developments guided by interests of a specific group, be it a private business, wealthy residents, or politicians themselves. Local governments in Eastern Europe have a weaker position towards the market forces and often are subjugated to a large company, such as a real estate developer or a retail chain. The notion of the inability to fight against hidden forces in urban planning reduces common people's engagement and intention to cooperate. And on the other side as well, the society's negative approach towards the government results in unwilling participation of the latter.

Principles of Participatory Mapping

The participatory mapping, which is also called a community-based mapping, is a general term defining approaches and techniques that combine the tools of contemporary cartography with the participatory methods to represent the spatial knowledge of local communities (Mapping for Rights 2016). It first started in the 1970s as a collection of accurate and detailed information, gathered and used by researchers and development agents for analysis of local problems and priorities. Later, the participatory mapping became a tool for direct involvement of the community into a planning and design process (Mitlin and Thompson 1995).

Participatory maps usually contain information that is not included in the official maps. The elements of official maps, such as administrative borders, landmarks, meeting places, are rephrased and renamed by the community mixing with its distinct social and cultural patterns, as well as interpretation of the environment. The distinct symbols, names, priority features, and scales emerge. It includes information that residents themselves identify as relevant and important for their needs (Mitlin and Thompson 1995). This forms the whole new layer complementing the official or mainstream maps spicing them with the culture of the place. An example of such an informal map could be the Rainforest Foundation UK's Participatory Mapping Program in Congo Basin. The local forest communities were equipped with the GPS tracking tools to mark their tenures and the resources they depend on. The collected information was added to the GIS. The produced maps were used to inform the development of national forest policies in Cameroon and resolve conflicts, such as

resource management, wood, and mineral extraction fields planned in forest community's tenures.

Participatory mapping products, as well as the mapping process, should not be confined by conventional mapping techniques. Maps can range from hand-drawn to digital ones made with GIS software, enabling various formats of the content. The emergence of recent technologies, such as satellite, drone 2D or 3D photographs of the Earth surface, GPS trackers, make new ways of participation in mapping possible. Since the launch of Google maps in 2005 (Gibbs 2015), the Earth imagery has been extensively used by everybody with a computer and smartphone access. It shapes our understanding of the Earth and becomes a canvas for mapping. Everybody can read and understand the Earth image maps, reducing the border between professionals and non-professionals. Online available maps become a base for map mashups — a combination of geographic data from one source with a map from another. Technology allows to georeference the non-spatial information, photos, stories, in other words — georeference local knowledge. For example, MyMaps enables to create your own maps by marking places and adding comments, images, and hyperlinks. The 3D view of Google maps, drone mapping expands mapping opportunities from 2D to 3D views, enabling more precise recordings of the information also from a human eye level.

Some online mapping platforms enable an unrestricted amount of users, forming global communities. One of the examples that could be mentioned is the Citizen, former Vigilante, an app that allows its users to map crime scenes. It serves as a tool of surveillance, a modern panopticon, and real-time information about unsafe environments. Such spatial crowdsourcing or geo-collaboration (Hopfer and MacEachren 2007) platforms enable collaboration between widely distributed participants working on one project, where each person's contribution is only a fraction of the total result (Crampton 2009). Map mashups and GPS trackers also bridge the gap between information formats and make it possible to georeference local knowledge in the way that it can be analyzed by professionals. The widely accessible open-source tools facilitate traditionally disempowered to produce counter-knowledge and counter-mapping (Crampton 2009). However, technology also enables unsolicited participation in spatial data collection. Google tracks the movements of its users. It is a price to pay for the "free" service without providing alternatives. It raises a bigger question of who owns the data and who has the right to use it.

Participatory Mapping in Urban Planning

Participatory mapping is the first step in participatory planning. It brings the visualized realm of the community's spatial structures onto a discussion table, which is later taken into consideration during decision making (Warner 2015). Participatory planning, as part of urban planning practices, is a process that involves multiple stakeholders, whose interests should be respected. It requires multiple sessions to define interests, formulate goals, and spatial interventions. It this yearlong process, therefore it is important to take into consideration the time. A participatory map represents a certain state of a community at the time the map is made (Kitchin and Dodge 2007, 332–343). Mutual benefits are obvious. A participatory map helps planners to understand the stake of the community, and the community understands the complexity of different interests for the same territory. This insight into the situation helps to create a valuable discussion between the parties in order to achieve the consensus. There are already successful examples of participatory practices, such as the "Play Noord" project in Amsterdam, which developed a strategy altering the existing plan (Play the City 2016).

The following chapters describe the examples of participatory mapping practices organized in the Summer School "Mapping Visaginas" in 2015. They provide practical insights into potentials and challenges of participatory mapping and its applications in planning in the Eastern European context. Both cases have similarities and differences and were chosen to show a variety of mapping methods in the field. The first example deals with what citizens desire in a city and focuses on gaining information about the space and how to change it. The second example encourages the public to reflect on a procedure by which decisions are made.

Visaginas is an interesting case for participatory mapping workshop as it represents typical top-down urbanism.

Visaginas as a case study for participatory mapping and planning, therefore, is a paradox in itself: whereas in the past the town was planned by a central power far away (the institutes of the Ministry of Medium Machine Building in Soviet Moscow and Leningrad), it was built by its current dwellers.

The city is facing spatial changes due to the decommissioning of the Ignalina Nuclear Power Plant, the main economy of the town. A number of public space projects have been recently implemented in Visaginas from the European Union funds dedicated to diminishing the socio-economic impact caused

by the decommissioning: a new beach with a playground, a new recreational waterfront, renovation of the central part of Sedulina Avenue. Even though these projects improve the quality of existing public space and create places for new activities, there are complaints from residents about their programmatic or design elements. Understanding the needs of inhabitants helps to achieve efficient use of investments. Also, the invisible layer of a place-specific identity, its meaning to inhabitants, enables designers and urban planners to create designs that are meaningful and appreciated by its inhabitants. Therefore participatory mapping was demanded as a tool to reveal the needs, stories and to collect ideas for the future developments in the main public spaces of Visaginas.

Example of "Activating Sedulina" as Participatory Mapping in Urban Design Practice

The participatory mapping project that is described in this chapter, "Activating Sedulina", aimed to collect ideas and needs of residents to potentially integrate them in the future developments of Sedulina Avenue.

Sedulina Avenue was selected as a case, because of its significance to the urban fabric of the town and the urgency of upcoming developments. It is a High Street of the town, though, unlike in the Western context, its commercial function has never been important. Sedulina Avenue was built like a Soviet pedestrian walkway with the elements representing the town's identity as a successful urban-technological unit (Wendland 2011). The architectural elements, such as heavy and ubiquitous flower beds, fountains, sculptures, murals, Geiger counters (removed in 2018), are symbols of the past. In the dawn of the decommissioning of the nuclear power plant and the search for the new direction for the city's socio-economic development, there is a need for a new representation of the town's identity. New participation methods could be helpful to achieve the agreement between those, who shape the city — inhabitants, the government and businesses.

The position of Sedulina Avenue has potential to positively contribute to the town's development. It is a space that houses important pedestrian routes and connects places of commerce, facilities, and cultural spots. However, the space is fragmented and has never achieved its complete state during the years of the town's existence. There are still ruins of unfinished buildings and empty places which are now being occupied by large shopping centers. Despite these

processes, Sedulina Avenue has potential to become a strategic place for regeneration projects aiming at more than just beautification of the public space. They can significantly improve the livability of Visaginas and contribute to its economy. There is a need to adjust the town to younger generations and newcomers. In this way, regeneration of the public space could be seen as a project of broader city's revitalization strategies customized according to the local knowledge of the inhabitants.

Emerging from these findings, participatory mapping was chosen as a tool to map the qualities and to collect ideas coming from the residents of Visaginas on the future development of Sedulina Avenue to integrate them in the planning visions of the municipality. The project was seen as a structured process with the following parts:

- preparation of the map
- mapping
- processing of the information
- the second workshop
- the final map

The first two steps have been fully completed. They are described in detail while the rest gives a general overview of actions that were envisioned to be made in the future.

Even though participatory mapping has no predefined shape, a large-scale physical map (1 by 2 meters) (Illustration 1) was chosen as a tool for the workshop inspired by the Dutch collective design practices "Play the City" (2016). They use a board game set-up of a table-sized map with building elements. For example, in the "Play Noord" project a map of the North Amsterdam neighborhood Overhoeks was made. During the workshop, participants could use the blocks representing different morphologies and functions to design their proposals for the site. The board game as a physical object marks the place for people to gather and structures the workshop.

Preparation of the map started with an analysis of the spatial and programmatic structure of the avenue to identify the contents of the base map. The composition, landmarks, characteristic elements, and architectural typologies were analyzed. It appears that the street connects the urban core with the greenery surrounding the city, the avenue has a range of building typologies already suitable or easy to transform to small business-spaces; the street proportions vary, creating a range of places with different characters; main landmarks are at intersections of the pedestrian avenue with traffic streets.

Illustration 1: A base map

To define the programmatic character of the street, the functions were mapped with focus on vacant places. The workshop results were surprising. There had been a hypothesis that a lot of vacant places would be found, however, out of eighty-four only six were counted. The feeling of emptiness in the avenue was caused by spatial factors. A huge amount of buildings had inactive edges or blank walls facing the avenue, there were dysfunctional elements or ruins of unfinished buildings; the enclosed typology of buildings did not reveal the enterprises inside.

The second step of the preparation for the participatory mapping included identification of potential actors of the participatory mapping. The venue plays a significant role in the town, therefore the residents of Visaginas and the businesses located in Sedulina Avenue were supposed to be involved. The former was addressed during the participatory mapping process, while the latter were interviewed beforehand to collect their ideas and needs related to the renovation of Sedulina Avenue. Additional interest groups, such as the municipality, business incubators, and entrepreneurs looking for a place to set up their businesses were addressed as well. There were ten interviews made in total in the form of a questionnaire prepared in advance. The interviews were recorded in a written form. Having the consent of some of the interviewees, some thoughts were used as inspiration and as a starting point for the discussion in the participatory mapping workshop later.

Usually, community meetings are planned in the municipality or the community center after working hours, choosing the time which would suit the

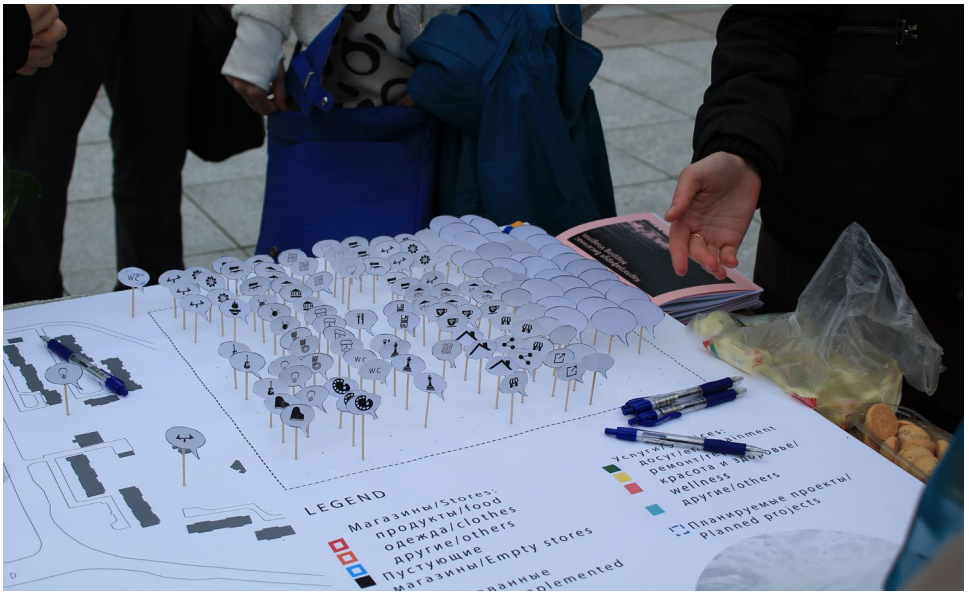

Illustration 2: Mapping elements: pins with speech clouds

majority. However, this formal setting excludes people who are not able to be present during the whole time of a meeting or find the topic partially relevant. Instead of following this scenario, we chose to arrange a participatory mapping session on the avenue itself at the peak time, at 4 pm, on Friday evening, when residents of Visaginas are commuting home. This helped us naturally meet the users of the space and allowed them to spontaneously engage in the mapping without any obligation. They were free to choose how much time they could dedicate to the discussion and how much involved they wanted to have.

The mapping is as valuable as the process itself. By analyzing the people who participated in the mapping process, we identified such social groups as power plant workers, artists, sportsmen, entrepreneurs and people working in the municipality. The discussion during the mapping process helped participants to find like-minded people and to understand that they are the ones who own the space. Participants also shared their visions for Sedulina Avenue which constructed an image of it as a cultural spine of Visaginas having diverse and vast connections with the town's cultural institutions and a place to house events of Visaginas residents. The discussions were recorded in a written form; however, audio recordings would have been helpful to better capture the multilingual discussions. The base map helped participants to have a deeper look into

Illustration 3: The participatory mapping process

functions located in the avenue. Participants were surprised that they did not know some of the enterprises, even though they were crossing this space quite often. This just proved our findings of the closed-in architectural typologies.

During the mapping process, some challenges emerged. The workshop set-up changed during the process of mapping. It was supposed to have a game setup — sessions where inhabitants would participate in designing the scenarios of how the street functioned in the day and night times. However, this set-up appeared to be excluding due to the huge amount of people (around 15 at a time) willing to participate and joining the mapping at different times. Flexibility was needed to overcome the situation, therefore the session rules were eliminated, leaving people an opportunity to express their ideas and intentions in words or drawings by pinning them to specific locations on the avenue. To enable this process, building blocks — sets of pins with speech bubbles containing a symbol or a blank space — were prepared in advance (Illustration 2). The symbols were abstract enough to initiate interpretation or assign a more specific meaning. After a longer discussion, out-of-box ideas started to emerge.

For such a setup, the moderators needed to explain the new rules, encourage communication and moderate discussion (Illustration 3). Due to the multi-ethnic population in Visaginas, moderators with Russian, Lithuanian or

Illustration 4: Drawings of children

English language skills were selected. By helping with the mapping process, they participated in the discussions which provided the context for the information written on pins. That way, the moderators became collectors of the information in the mapping process. Due to the participation of a lot of people, engaged participants became moderators themselves, encouraging and helping less active people to pin their ideas on the table. Strangers who had never met before were discussing and sharing their ideas openly.

Another challenge was caused by the informal setup of the mapping workshop. Some people came with their children; therefore tools such as markers, drawing boards, balloons were provided creating a pop-up playground (Illustration 4). When the children were busy playing, parents spent more time engaging in the mapping process.

People's suggestions were listed on the pins on the map. More than ninety pins were collected. Five discussions were described. The most common needs were internet cafés, public toilets, and new urban furniture, better quality pavements for skaters and cyclists, and Wi-Fi in public spaces. Even more specific, space-related proposals were made, such as a multilingual library and a culture center representing the multi-ethnic character of the city; or a stage for the performances of the House of Culture.

In addition to this, the mapping process provided a good overview of the stakeholders of the future projects in Sedulina Avenue, such as representatives of cultural institutions located near the avenue (a public library, the House of Culture), small entrepreneurs (e.g. children's daycare center "Vaivorykste") and residents of Sedulina Avenue. The stakeholders together with the municipality

members and developers could be invited to the second workshop to verify the information gathered.

Thus second workshop is needed to discuss the vision of Sedulina Avenue. In preparation for the workshop, ideas collected during the first workshop would be visualized making it more readable and understandable. Furthermore, the existing plans for projects in Sedulina Avenue should be included as well. They can be translated into a plan drawing and several collages of the avenue.

Already during the first workshop participants should be identified and contacts collected. They can be community representatives, NGOs, developers, entrepreneurs, and local governments. Participants should be informed in advance about the follow-up of the first workshop to raise interest in the continuation of the project. The workshop should have a manageable group of people. Five to six people is a good size for a round table discussion moderated by a professional who sketches ideas on a map and collages. If the group of attendants is larger, proportionally more moderators are needed.

To ensure that the outcome of the workshop is valuable, participants should be well informed. The material of the workshop, e.g. maps and collages, should be sent to the participants several days in advance to give them time to get familiar with them. Theoderators should prepare a set of questions to be discussed within groups of participants. The second workshop is only needed if there is an interest from the public or private sector to make changes in a public space.

The discussion outcome of the second workshop should be documented in an action map listing the projects. This can be done in the form of an online map, freely available to everyone. People would have a chance to track the changing status of the projects and comment on them enabling a fast and easy to use participatory platform. The report would also follow and contain all the results of the participatory mapping in depth. It should provide solid material with qualities, visions, and intentions of the inhabitants for further use by designers and city planners.

Participatory Mapping Project "Knit the Street"

"Knit the Street" is a game that was developed by the project group that aimed to investigate the future of the abandoned buildings in Visaginas. The main

purpose of this group was to encourage inhabitants of Visaginas to show interest, communicate about and participate in making plans for the buildings without current use in the city. Visaginas is a shrinking town. Whereas it still had about 35,000 inhabitants in 1990, in 2016 less than 20,000 people were living in Visaginas (Baločkaitė 2010). This loss in population has caused an imbalance of the existing infrastructure and possible dwellers. Many buildings have been abandoned but are still present in the daily life of the inhabitants. Often, it can be seen that the established infrastructure, although abandoned, was maintained properly to conserve it for reuse in the future. The buildings, mainly multi-storey apartment houses, are in different stages of decay. As it came out during the stay in Visaginas, many inhabitants have a special relationship to the existing infrastructure. This can be explained by the specific history of the city, as it was not only planned top down but also built by those who still live in Visaginas. By interviews in the early stage of research and development of the "Knit the Street", a strong emotional attachment of dwellers to "their" (built) infrastructure could be identified.

Some of the buildings are well-kept, whereas others can be described as ruins attracting vandalism and drug users. During the first survey in Visaginas, while speaking to locals, we were told that these places were perceived as dangerous and unwanted. At the same time, we could identify a strong interest of the local population in talking about the present and future of the abandoned buildings. This motivated us to develop a tool: we saw a lack of canalizing this valuable insider information to participatory approaches. Doing so, the inhabitants of Visaginas could get empowered to cope with their heritage and to find ideas to transform it.

The tool should be an interactive game that can be played in a public space with randomly selected people. Though, it was aimed to be designed as "gamification of planning processes" by encouraging people to talk frankly while playing. As it can be seen from other examples, gaming and gamification of planning is a new approach to involve urban dwellers better in planning decisions (Stauskis 2014). A „game" can be defined "as a system in which players engage in an artificial conflict, defined by rules, which results in a quantifiable outcome" (Salen and Zimmerman 2004). The mentioned artificial conflict was the confrontation with assumingly problematic structures in the everyday life of the inhabitants.

Apart from this, the tool also has the function of an interview for the participatory planning. People who have not thought about the abandoned buildings

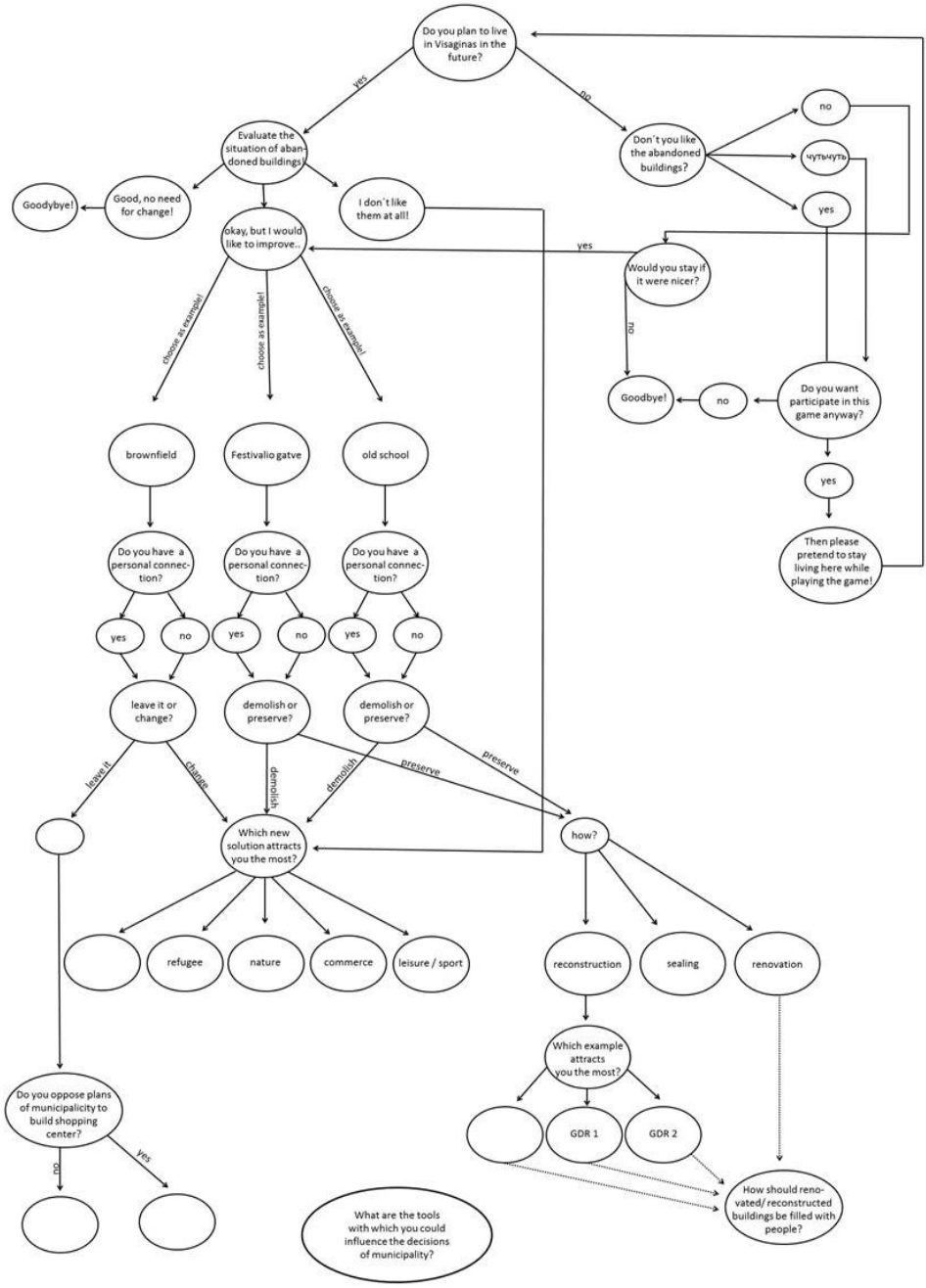

Illustration 5: Sketch of the more mechanical decision tree

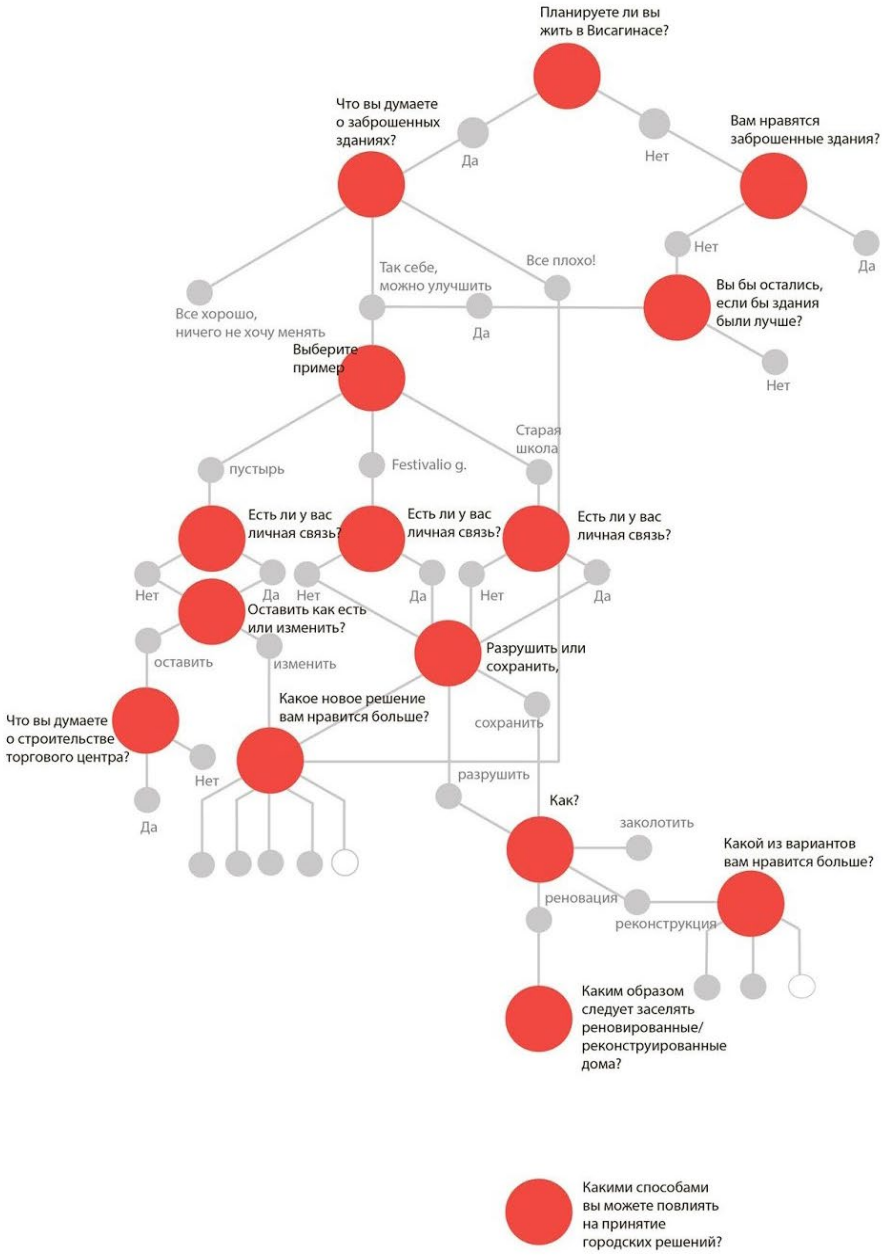

Illustration 6: The simplified, more appealing sketch

actively before or those who have raised their voice to the official planning authority should be encouraged to share their ideas.

After getting an idea about the potential of communicating about the abandoned buildings, we thought that by embracing the people playfully, we could best identify their thinking and needs. The idea was to develop a game that was familiar to them from the beginning. Inspired by psychological tests from popular magazines, where the reader has to decide to choose a certain path to reach a result, we developed a "decision tree" with questions about the abandoned buildings (Illustration 5). This decision tree was the guideline of the interview for us/ other researchers and the game for the interviewed person.

A technical sketch was developed and pretested successfully. We went through the streets of Visaginas with a print-out of the "decision tree test" asking a random sample consisting of different gender and age groups in different locations. The first methodological problems could be solved, diminishing stopping hooks in the conversation flow. Then, the first decision tree test was simplified and designed more appealingly (Illustration 6). People were first asked whether they live in Visaginas or not. This aimed to distinguish between residents with and visitors without assumed everyday contact to the abandoned buildings. The next question was the perception of the abandoned buildings. Not every answer had a continuation.

The transfer process from the technical and logical sketch (Illustration 5) to the designed, simplified and more appealing sketch (Illustration 6) was difficult. The technical, electrical circuit-like appearance of the decision tree with multiple decisions did not appear intuitive and unscrambled enough. Our doubts were that it could demotivate people to participate in the game and to continue playing. Therefore, it was simplified to a less complicated sketch that followed more tightly the rules of design. At that point, it is important to note that simplification may not lead to breaking up the logical structure. This process can produce hooks and logical incoherency. An example to demonstrate the complexity of this transformation is the "yes/no" bubbles in Illustrations 5 and 6. Initially, to simplify the designed game, first, lines were used instead of bubbles. For better understanding of the interview process, it was then decided to keep them in the form of bubbles. Briefly anticipated to the net section that explains the transformation of the test to the game, it can be useful to define them as bubbles to better comprehend the flow of the game and create an artificial lag. Furthermore, without these "yes/no" bubbles, later the decision of the player could not be seen anymore. A further pre-testing was carried out,

which is highly recommendable. Moreover, apart from the questions, the test incorporated images that were part of the questions. For example, pictures of successful conversion projects of the built infrastructure were shown to the interviewee. People were asked what kind of renovation they preferred. Incorporating interactive elements like pictures, videos, designed models or quotes encourage the interviewees to continue the test and prevent them from becoming bored by just answering questions.

After having tested the sketch of a decision tree with several incorporated images and improving transfer-caused hooks, we transformed the structure of the test to a real game. The pretests played a crucial role in diminishing the mentioned challenges. The sketch was drawn to a wooden board of the dimension of approximately 1 by2 meters. Questions were marked with colored dots, whereas the paths of the decision were drawn lines. Iron nails in the center of each dot formed the basis for a flag on which the questions were written. Designing the game, we followed a low-cost approach to material that is available in every do-it-yourself store.

In the pedestrian zone of Sedulina Avenue in Visaginas, the game was installed on a platform to make it possible for the player to reach the nails. People invited to play "Knit the Street" were given a ball of wool they had to knot at the nail of the starting point. Then they were asked the questions of the decision tree and had to decide which path to take. At the dot that they had chosen depending on their answer, they were asked another question. From dot to dot, and thereby from nail to nail, they had to tie the wool around the nails, "knitting" their answer scheme (Illustration 7). This is what makes "Knit the Street" more than just an interview tool. After several interviews, one could see, depending on the thickness of the woolen path, the popularity of decision paths. This pattern can document public opinion in a playful way. At the same time, the interviewer can better focus on the details of the conversation. These can be used to improve the game by implementing answer possibilities that were taken into consideration before. People were gathering around the game when they saw a person playing. Neighbors and strangers, who had never talked about the abandoned buildings before, were sharing their opinions and people waiting to play the game were exchanging ideas. Regarding the process of playing, a certain challenge of "Knit the Street" is its structure developed during the test. Once it is set and built into the game board, the flexibility of the interviewing process is tackled. In the case of playing "Knit the Street" in Visaginas, it was very helpful that native Russian speakers were present. With

Illustration 7: The process of playing "Knit the Street" in action

their help, it was easier to approach people and to include wider groups of inhabitants.

The target group of people involved in "Knit the Street" was all inhabitants of Visaginas. As it was stated before, these people did not just move to Visaginas but some had participated in the construction of the city themselves. Their knowledge and especially their attitudes towards the abandoned buildings are a valuable source of information, giving an insider perspective. This is why the game can be seen as a valuable tool not just for gathering information and raising awareness but also allowing people to participate in the process of finding a future perspective in Visaginas urban planning.

It depends on the participant and interviewer if a game remains a game for a player or becomes a catalyst for exchange and discussion. It can be complicated to motivate a person playing not to be influenced by the crowd around them. Furthermore, the player can be influenced by the existing woolen path,

especially when playing after many other players, but these risks can be neglected compared to the positive output this method offers. "Knit the Street" is a tool that can empower people to share their opinions and ideas in a playful way. Boring collection of information is turned into gamification. Especially in urban planning, there is a visible tendency to gamification as an approach to participation (also with web-based services as for example "Community PlanIt"). Through it, people are empowered and their potential as experts in their everyday environment is activated. To the outside, it looks like a game that follows a structure people are familiar with. To the inside and to the researcher, it offers a means to document collected public opinion and detailed information. An advantage of "Knit the Street" is that through its structure that first must be developed precisely, the outcome is more standardized and therefore comparable. It is possible to produce manifold "data sets" playing "Knit the Street" in different locations and time periods. Its standardized interview guideline allows of high comparability.

"Knit the Street" can be used as a complement to the first example of participatory mapping of "Activating Sedulina". While the latter identifies lacks and desires of the community in regard to a certain space, "Knit the Street" helps to map opinions and emotions. It also helps the interviewers and researchers to better approach the people and their attitudes and emotions. While playing the game, secondary information, e.g. language use and ways of community interacting can be gathered. By applying "Knit the Street" as a tool for participatory mapping as an early stage element of participatory planning, people can be involved in those processes in a ludic way.

Conclusion

Participatory mapping is part of a broader movement of critical cartography; however it not only shows the spatial realm of the community but also forms social relations. The mapping process encourages people to contribute with the information related to spaces relevant to them, and at the same time inspires them to be part of the decision making. In this way, both the content is generated and representatives are elected leading to the first step of participatory planning.

The usefulness of participatory mapping is evident. By mapping the city collectively, residents reveal the hidden layer of their spatial realm which is

unknown for planners, however, very useful in order to make successful and appreciated projects. Mapping as a process is a valuable part, as it can help to identify actors, help a community to understand their values and mobilize people for action. Furthermore, it can serve as a key for researchers and planners to identify the character of a place.

The discussed cases of participatory mapping projects have revealed additional features which should be considered. The framework of the mapping process should be able to adapt to the changing situation, as it happened with the first mapping example of "Activating Sedulina" when an increasing number of participants resulted in the change of rules and the call for moderators. Internal complications, for instance, issues in the graphical translation of technical to more user-friendly schemes which appeared in the "Knit the Street" project, need to be resolved before the participatory mapping starts. Anticipating problems or limitations of the developed techniques are, therefore, major keys to successful mapping.

Even though participatory mapping is a valuable tool, the drawbacks of such techniques should be considered. Preparation for the mapping requires a lot of work and understanding of the local conditions. Furthermore, it can be difficult to translate the outcome of mapping to a more conventional cartographic representation, which is currently made easier due to the new technologies. In addition, both cases sparked interest in participatory planning; however, it is still a question how it can be adapted by a local government as a longer-term planning initiative.

The applications of participatory mapping are diverse and expanding. Participatory mapping can be used in planning, resource management, policy-making or simply defining design briefs. Due to the technologization of everyday life, new techniques are welcome in the process. Participatory GIS implemented into webGIS applications is on the march of progress to include more and more citizens, which allows to mobilize larger groups of people. In this context, it has to be considered that often free-to-use sources for mapping are supplied by international firms that possess influence and are mappers themselves.

The range of applications of participatory mapping expands in relation to the variety of tools and techniques used in the participatory mapping process. Therefore, it can become a method to solve problems with high complexity, even linking local issues to global processes. The potential is there and it leaves a wide field of exploration for the researcher.

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Yuliya Ilyuk

JOURNALISTIC INVESTIGATIONS IN THE DIGITAL AGE OF POST-TRUTH POLITICS: THE ANALYSIS OF BELLINGCAT'S RESEARCH APPROACHES USED FOR THE (RE) CONSTRUCTION OF THE MH17 CASE

Abstract

This article focuses on the analysis of approaches and technologies used by Bellingcat journalists while investigating the MH17 crash. The Boeing 777 flying from Amsterdam to Kuala Lumpur crashed on July 17, 2014 near the village of Hrabove (Donetsk Oblast) in Eastern Ukraine. The responsibility for the crash was placed on the participants of the military conflict, which was at its height in the region at the moment of the catastrophe. Not only the event became an international tragedy covered by media all around the world, but it also provided a new context for the information war between Russia, Ukraine and the West. Bellingcat positions itself as an independent website for investigations based on open source data. Their MH17 investigation provides a rich case for analysis of effective digital investigation tools in a situation of polyphonic reality. Using primarily digital cartographic tools and data found on social media, Bellingcat were able to create their own narrative of the MH17 crash, which has changed the way the event was discussed in the media. The conclusions that Bellingcat made during this investigation were cited by various mass media outlets all around the world and were taken into consideration by the Joint Investigation Team that was responsible for the official investigation of

the catastrophe (Zijistra and Smit 2016). Thus, the aim of this paper is to analyze and systematize the methods (technologies and narrative tactics) used by Bellingcat for (re)constructing the MH17 crash.

Keywords: digital investigation, social media, post-truth politics, communicative power shift, open-source data, multi-platform approach, free digital labor and crowdsourcing

Theoretical Framework

A defining feature of information conflicts today is that due to the development of communication technologies information flows go far beyond the media system of one particular country. The desire to defend national interests can still guide citizens, but the access to information by people is not limited by the territorial borders within which they happen to live (Tumber and Webster 2006:2). Previously, discourses around military conflicts were mainly shaped by the TV news networks that belonged to states and served their geopolitical interests. With the development of global media outlets and, later, the Internet, the mix of the old and new media allowed a more critical coverage and more diverse perspectives to appear. In conceptual terms, the key shift that happened in the information space was the change of the communicative model from the analogue "'top-down" to digital networks (McNair 2016), which facilitated the dilution of the communicative power and allowed many new actors to gain visibility. Looking at these processes from the perspective of the cultural chaos paradigm, McNair argues that "the balance of communicative power has shifted from elite to non-elite, from governments to protesters, from mainstream media to peripheral but clearly powerful outlets such as WikiLeaks" (McNair 2016:161).

The media power is more often seen as not belonging to anyone but shifting. Moises Naim writes that "power is shifting from brawn to brains, from north to south and west to east, from old corporate behemoths to agile start-ups, from entrenched dictators to people in town squares and cyberspace" (Naim 2013:45). Nico Mele mentions the "radical redistribution of power" in the age of connectivity (Mele 2013:5). However, the abundance of voices also means a polyphonic reality, which journalists have a challenge to work through to deliver reliable and accurate information to the audience. It also means that new

technologies can be used by the governments as much as by ordinary people and independent journalists, and the former may well have more resources for pursuing their communication strategies (McNair 2016). This is what one can clearly observe by looking at the Russian army of trolls, which have played an important role in the escalation of the conflict surrounding the MH17 case.

The situation becomes even more complex when one realizes that we live today in a world that is characterized by a post-truth politics mode of communication. In attempts to define what it actually is most researchers tend to stress the diminished role of facts and rising importance of feelings for the perception of what is right or wrong:

> *…"Post-truth" politics — a reliance on assertions that "feel true" but have no basis in fact. (Higgins 2016)*
>
> *Post-truth refers to blatant lies being routine across society, and it means that politicians can lie without condemnation. (The Economist 2016)*

The key idea here is that if previously politicians lied as opposing to telling the facts, today there is simply no concept of honesty as the default position. According to William Davis, this stems from the combination of rising populist movements and social media: the latter give individual users a unique possibility to shape the information space around their opinions and prejudice, while populists are here to support this process (Davis 2016).

With that in mind, journalists and media are forced to adapt to the changes that are going on in the information space. New instruments available allow journalistic materials to be produced through the interaction of professionals with ordinary users, and ordinary users with each other. Transparency of sources and reproducibility of conclusions became a crucial element of digital journalism, allowing establishing credibility with today's increasingly mistrustful audiences (Karlson 2010).

The notion of transparency itself, however, has to be reconsidered in an age of digital media. While traditionally transparency is seen as a complete opposite to secrecy (increasing secrecy means decreasing transparency and vice versa), Weber proposes to look at these terms from the perspective of a supplementary structure (Phillips 2011, 161). With the growing trend to transparency, the best way to hide something secret becomes to display it deliberately. Digital media provide an unprecedented display of the world, but they also neutralize distances, context, relationship — and this is something that is often skillfully

used within post-truth politics communication. The aim of digital investigations thus becomes to navigate in the world of ostentatiously displayed data and find lost structures and processes within it.

Bellingcat as a media source chosen for analysis shows an attempt to bring transparency to the level that meets the needs of digital age. Most of the researchers of Bellingcat focus on their use of free digital labor in a form of crowdsourcing (Sienkiewicz 2015), which further develops in the discussion of the credibility of citizen journalism vs. traditional media (Truscott 2015). While crowdsourcing stands at the basis of Bellingcat's investigations, there are other elements of Bellingcat work that need to be paid attention to and a more holistic approach to their phenomenon can be fruitful for understanding the new model of digital investigations. In this paper, I would like to approach a phenomenon of Bellingcat from a more holistic perspective and define the key techniques and technologies they apply in their investigations. This endeavor is important, because Bellingcat stood at the roots of a new format of digital open-source investigations and became a reference point for many media and bloggers around the world.

The Description of the Empirical Material and Research Methodology

The crash of MH17 in the Donetsk region in July 2014 has become the principal point of information war, due to its strong emotional background and international relevance. The conflict that started as a domestic military confrontation between armed forces of Ukraine and supporters of self-proclaimed NDP (the Donetsk People's Republic) and LNR (Lugansk People's Republic) has soon turned to be the tool of proving geopolitical superiority as international actors stepped in. Though Russia was constantly denying the presence of its armed forces on the territory of Ukraine, it has never concealed their support of rebels and desire to unite the Russian world. Having noticed Russian attempts to gain power in the region, Western parties (the USA, EU, NATO, OSCE, the Council of Europe) got involved in the conflict accusing Russia of the military intervention.

On 17 July 2014 the Boeing 777 of Malaysia Airlines crashed on the territory of Ukraine. The passenger aircraft was on a scheduled flight from Amsterdam to Kuala Lumpur when it suddenly crashed in the eastern part of the Donetsk

region near the Hrabove village. There were 283 passengers on board including 15 members of the crew, most of whom were citizens of the Netherlands. It is known that the liner left Schiphol airport in the Netherlands at 10.31(UTC). The plan for the flight was created by Malaysia Airlines and approved by all air traffic control centers. The recording from all the recording devices stopped at 13.20:03(UTC). There were no alert signals from the crew. Last seconds of the recording show that the crash happened unexpectedly and very fast ("Preliminary Report: Crash Involving Malaysia Airlines Boeing 777-200 Flight MH17" 2014).

Besides the fact that the MH17 crash became the biggest 21 century airplane catastrophe in the post-soviet region in terms of the number of victims, the choice of this incident for the research was guided by its importance for the escalation of information war between Russia, Ukraine and western media. One of the key weapons of this information war was disinformation and falsified evidence that were not only distributed in the Internet space, but also were used for the expression of official government positions. On the other hand, the conflict revealed a huge potential of accessible digital technologies, crowdsourcing and open data sources for finding and fact-checking information in the circumstances of post-truth politics.

Due to the fact that the airplane crash took place on the territory of Eastern Ukraine, the responsibility for the catastrophe had been assigned to the participants of the ongoing there military conflict. The question remained, however, who was guilty of the accident: Ukrainian military forces, separatists or, maybe, the Russian army that was accused of intervention in Ukraine, but denied it. The official investigation into the MH17 crash was entrusted to the Dutch Safety Board. However, the first versions and interpretations of what had happened in the Donetsk region appeared in the media on the very day of the disaster.

As the crash happened in the middle of the flight, the key scenarios of the accident were based on an assumption that the plane was shot down either from the air or the land. The Ukrainian media source LB.ua published the official position of the Ukrainian government that their military forces did not hit any air targets on that day ("Украинская армия не имеет отношения к катастрофе Boeing-777, — СНБО" 2014). They also provided visual evidence (photo and video) showing a Buk missile system, which supposedly was guilty of the catastrophe, on the territory of DPR ("В районе падения "Боинга" видели установку "Бук", — Тымчук" 2014). The material also included a link

to the post from the separatists'' group on the social networking site vkontakte (VK.com), which claimed that they had shot down the plane near the area of the Malaysian Boeing crash.

On the next day after the catastrophe, the Ukrainian news channel 24 TV reported that the USA have irrefutable evidence that Russia had financed the terrorists guilty of the MH17 crash. It was also said that the USA sent this evidence to the UN Safety Board for their consideration ("Трагедія "Боїнга-777": США має беззаперечні докази, пошук загиблих триває" 2014). The 24 TV showed two videos from the Internet as evidence of a supposedly Russian Buk moving through the territory of Ukraine and also mentioned intercepting a recording of negotiations between the separatists (the content of the recording was not revealed).

The version of a Russian Buk to be involved in the air crash was supported by many Western media outlets. A video was published on the BBC website reporting that the Malaysian Boeing was most likely shot down by a Buk ("Malaysian plane crash: Impact on aviation industry" 2014). It was also said that the plane was shot down not by the Russian military forces, but by the DPR rebels that had received the missile launcher from Russia. The fact that experienced militants would have recognized a passenger liner was used as a proof of this statement.

A few days after the crash, on July 23, 2014, The New York Times published an article in the format of explanatory journalism, in which they systemized the key facts about the MH17 crash. Again, the Buk missile system was presented as the most likely reason for the tragedy. However, there were no direct accusations of the Russian side ("Two More Key Sightings of the MH17 Buk Missile Launcher" 2014). The article included pictures of debris, the post from the rebels' group on the social networking site vkontakte and lots of infographics (the flight scheme, the model of the Buk, various kinds of maps).

In his interview for the Russian information agency RIA Novosti, the prime-minister of DPR Alexander Borodai denied the claim that the plane had been shot down by the rebels, for they didn't have any weapon that could have reached such a high target ("Бородай: у ДНР нет оружия, чтобы сбить самолет на высоте 10 км" 2014). In another material from July 17, 2014 RIA Novosti published the evidence from eyewitnesses who supported the version that MH17 had been shot down not from the land, but by another airplane from the air ("Очевидцы: перед авиакатастрофой в небе был виден боевой самолет" 2014).

This version that argued for the guilt of the Ukrainian air forces was widely promoted by the Russian media. The "Russia-1" TV channel later conducted an experiment, in which a plane was fired by a fighter jet, to show the similarity between the damage it got and the photos of the MH17 debris. As an additional version of the catastrophe, "Interfax" reported about the failed attempt to shoot down the plane, in which Vladimir Putin was flying ("«Интерфакс» сообщил о попытке сбить самолет Путина" 2014).

From a quick overview of the first media reports on the MH17 crash, it becomes clear that user-generated content from open sources was strongly incorporated into Ukrainian and Western media strategy from the first days of the disaster. Already at this point, such an approach allowed them to provide versions and build, though not very consistent, but a narrative. Russian media reports relied more on claims of the witnesses and experts and empirical experiments. However, later on they also turned to open data approach and rather effectively incorporated the Internet to pursue their communication strategy.

Their investigation comprised a series of articles, in which a particular question related to the catastrophe was addressed or new evidence was presented. Each of the articles served as a piece of a puzzle, a step towards building the chain of events, which was afterwards presented in the Bellingcat summary reports. All of the articles were written by Elliot Higgins, founder of Bellingcat, or volunteers.

In this context, Bellingcat made an attempt to (re)construct the chain of events related to the Boeing crash. Bellingcat is an independent website for investigations, founded by a British journalist Eliot Higgins and known for its investigations into the use of weapons in the Syrian civil war. The choice of Bellingcat as a source of materials for the current research was guided by its specificity as a relatively new phenomenon that established the principles of digital open source investigations. Bellingcat's approach fits naturally into the new realities of journalistic practice, which is being influenced by the development of digital technologies and the democratization of data on the Internet. In new circumstances of media production, Bellingcat became a key channel between social and mainstream news sources, combining the flexibility and the novelty of approaches of the former and the professionalism of the latter. Bellingcat journalists relied on data from the social media rather than news agencies, which increased the speed and allowed them to get exclusive materials first-hand. On the other hand, it also increased the chances to come across fake or unreliable information. To comply with the professional journalistic

standards, throughout the investigation Bellingcat were developing fact-checking techniques, which will be an important subject of investigation in this article.

Overall, 75 Bellingcat's articles devoted to the MH17 investigation have been analyzed within the empirical part of the research. These were articles written during the period from July 17, 2014 to May 3, 2016. Among them, there were pure investigations as well as news, overviews of the materials published in other media sources, and posts asking the audience to help with finding new evidence. The analysis included the description of the articles' content, tools and sources of the investigation, the structure of the conclusions and the ways of presenting materials to readers. For this purpose, a short summary of each article devoted to the MH17 was written as part of analysis. Then from these summaries the most common approaches and tools were identified. At this stage these elements could be very specific, for instance, they could include the name of the tool/website. The collected data was then grouped into four general thematic blocks, which are included in this article (the "'Key approaches and technologies of Bellingcat digital investigations" part).

The Bellingcat investigation started with a video that appeared on social media right after the catastrophe. It was posted by an anonymous user and later deleted. However, as Eliot Higgins mentions in the article from July 17, 2014, he managed to download the video before it disappeared ("Geolocating the Missile Launcher Linked to the Downing of MH17" 2014). The video featured a Buk missile moving in the area of the city Snizhne (Donetsk Oblast). There was nothing specific that could prove that exactly this Buk downed the Boeing, but it became the starting point of the investigation and an important element in the further revealed chain of events. Later on, new data related to the case was found on the Internet, mostly on social media. Photos, videos and text posts were showing the presence of Buks (or the same Buk) in different places both in Russia and Ukraine, before and after the catastrophe. Based on this constantly appearing evidence, it was possible to re-create the route that the Buk that supposedly downed the Boeing had undertaken from Russia to the place of the catastrophe and back to Russia. However, firstly, it was necessary to find out whether it was a Buk (and not any other weapon) that downed the MH17. Secondly, in case it was a Buk, it was necessary to find out to which side of the conflict it belonged.

Taking into account the height at which the Boeing was flying and the damage it received, it was possible to build the two main versions of what

had happened. The first version involved a Buk missile launcher as a powerful weapon that theoretically could have reached such a high target. The second version was based on an assumption that it could have been a jet that shot the Boeing from the air. In order to prove the second version of events, the Russian television network "Russia-1" carried out an experiment where the jet fired the plane. According to the report, the pattern of damage resembled the damage observed on the debris of the MH17. However, in the article from October 11, 2014 Bellingcat looked in more detail at the images provided by Russia, and came to the conclusion that while the pattern of the damage may resemble the MH17, the direction of the holes and their size differed ("Russian TV Inadvertently Demonstrates MH17 Wasn't Shot Down by Aircraft Cannon Fire" 2014). This conclusion was made during the collaborative work with the Internet users on the Checkdesk platform and allowed them to discard the version of the MH17 being downed from the air.

An additional proof of the MH17 being downed from the land was the photo of a smoke trail in the sky that was posted online right after the catastrophe. The form and direction of the smoke allowed to assume that it was most likely left by the Buk after the missile had been launched (the process of the analysis of this evidence will be presented in detail in the next section of this article). After discarding the alternative versions of the catastrophe and presenting the evidence of the MH17 most likely being downed from the land, it was possible to continue the investigation based on the assumption that the Boeing was shot by a Buk. Thus, the further work of journalists was focused on identifying the Buk that downed the MH17, understanding which military forces it belonged to, and tracking its route to the place of the catastrophe and afterwards.

Among some of the visual evidence found online, it was possible to notice the numbering on Buks, which helped to identify the Buk that supposedly downed the MH17 from other military vehicles and track its route. Where it was impossible to see the numbering due to the poor quality of the media files, journalists and Internet users came up with special methods to distinguish different Buks from each other. Finally, they were able to make the conclusion that it was most likely Buk 332 of the Russian 53rd brigade that downed the MH17, as well as describe its route before and after the catastrophe. All conclusions made throughout the investigation were presented by Bellingcat in the form of reports and translated into different languages.

Key Approaches and Technologies of Bellingcat's Digital Investigation

The aim of this section is to define the formula of Bellingat's investigations, which gained relevance in the context of the Internet democratization and post-truth politics discourse. The mode of Bellingcat's digital narration will be described through the analysis of its key approaches and technologies used within the MH17 investigation.

* *Open Source Data and Its Fact-Checking*

One of the main arguments of Bellingcat is that they find relevant data for the investigation in open sources available to any Internet user. This means that it is not necessary for a journalist to be at the scene of events anymore, because their sphere of activities has been relocated into the digital space. Today journalists can gather the most relevant and up-to-date information from blogs and microblogs, video hosting services and social networking sites. It all became possible due to the development of web 2.0, which enhanced the development of the participation culture and allowed users to be involved in the process of content production. Subsequently, the term "prosumer" has been coined to describe the situation when the user is a producer and consumer of digital content simultaneously (Ritzer and Jurgenson 2010:17). Such type of users made important contributions to the investigation of the MH17crash.

The fact that Bellingcat make their conclusions through the analysis of accessible evidence from open sources has been stressed by them many times as a factor strengthening the credibility of their conclusions. The key point behind this idea is that any user has access to data and tools used by journalists and can reproduce their findings. To facilitate this feature of their investigations, Bellingcat were sharing step-by-step investigation process with readers, mentioning tools used and providing relevant links.

One of the numerous examples of relevant user generated content used in the investigation of the previously mentioned photo showing the column of smoke, which could have appeared after the launch of a Buk missile ("Examining the MH17 Launch Smoke Photographs" 2015). Initially, this photo was posted on Twitter by some user, whose name is not revealed by Bellingcat for security concerns. But what is important is that the author of the image was

able to provide it in a RAW format, which allowed concluding that it had not been modified and was taken on the date and time of the catastrophe. This metadata made it possible to use the picture as important evidence in the Bellingcat's investigation.

Lots of relevant evidence was found by journalists and other interested in the investigation users on Russian soldiers' personal pages in the social networking site VK.com. For example, it was noticed that the numbering of the vehicle in the photo posted by a Russian sergeant from the 53rd brigade of Russian troops in 2013 matched the numbering of the vehicle from the convoy noticed in Alexeyevka (a Russian city along the route of the Buk that was considered to down the MH17flight) ("Images Show the Buk that Downed Flight MH17, Inside Russia, Controlled by Russian Troops" 2014). This comparison allowed assuming that the 53rd brigade of Russian troops was involved in the transportation of the Buk missile launcher to the conflict territory in Eastern Ukraine.

Comparing different photos with Buks made up a considerable part of the investigation. Knowing the numbering of the Buk that supposedly downed the MH17, it was possible to find the same Buk in photos and videos posted online. Bellingcat journalists examined a lot of visual evidence with different Buks, both Russian and Ukrainian, that had been taken before and after the catastrophe. They looked at some peculiar details of their appearance, including the numbering, and thus were able to specify the locations and time where the MH17 Buk was noticed and recreate its route.

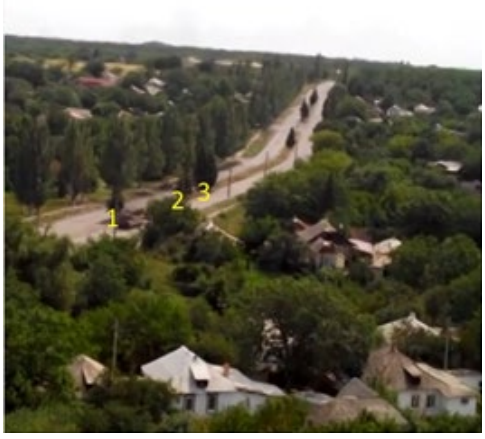
It is important to note that from open sources Bellingcat received not only evidence regarding the crash of the MH17, but also complete investigations that were conducted by Internet users or other journalists. Some of the evidence proving that MH17 was downed by a Buk was borrowed from the German nonprofit investigative newsroom CORRECTIV. The organization was founded in 2014 with the aim to respond to the media crisis and provide citizens with access to information that is often hidden by the major media outlets.

Some relevant conclusions were taken by Bellingcat from the Ukrainian blog Putin@war. The blog by an anonymous author was created with an aim to produce investigations revealing Russia's crimes in the time of war in Eastern Ukraine. He used similar to Bellingcat's methods of data gathering and analysis, which made it easy to borrow and incorporate these conclusions into the Bellingcat's investigation. For example, in the Bellingcat's article as of July 28, 2014 Higgins refers to the investigation conducted by Putin@war, in which its

author recreated the route of the Buk's movements across Donetsk, based on phone recordings and posts from Twitter that appeared just a couple of hours before the catastrophe. ("The Buk That Could — An Open Source Odyssey" 2014).

The specificity of work with open sources implies high probability of finding falsified evidence. There are no filters and fact-checking tools on social media platforms (that exist in professional media), which means everyone can create and distribute any kind of information they want. This sometimes caused an important discussion about whether Bellingcat's conclusions can be considered accurate and reliable. Therefore, Bellingcat were always fact-checking the evidence with the help of accessible digital tools and developed special techniques for doing this.

The previously mentioned article containing a video with a Buk in the area of Snizhne ("Geolocating the Missile Launcher Linked to the Downing of MH17" 2014) can serve as an example. The video did not give any obvious signs confirming the location where it had been made. Therefore, the journalist had to check the reliability of the data stated in the description of the video. Focusing on some peculiar features of the location shown in the video (the road, the houses, the trees) and using Google Maps as a reference source, the journalist was able to define the location where the video was made.



Pic.1 and Pic. 2 The comparison of the shot from the video with the Buk and satellite images of Snizhne, made to prove the fact that the Buk travelled through this location. ("Geolocating the Missile Launcher Linked to the Downing of MH17" 2014)

* Accessible Digital Toolkit for Analyzing and Presenting Evidence

The Bellingcat's investigation was conducted using various digital tools that are available to any Internet user: search engines (Google, Yandex), free cartographic services (Google Maps, Yandex Maps, the online map based on the principle of free editing WikiMapia, websites with satellite imagery (Google Earth, Digital Globe), the online-service that allows to track flights in real-time Flightradar24, websites for route planning, the application SunCalc that allows to find out at what time the photo was made based on the phases of the sun and shadow direction in a given location, online services for downloading video from the Internet (Keepvid, TubeOffline), the free raster graphic editor for Windows Paint.NET, the platform for creating customized maps MapBox and the service for creating interactive maps StoryMap. All these tools were used by Bellingcat during the process of investigation starting with searching for data and finishing with presenting the prepared material.

Due to the accessibility of the aforementioned tools, their reliability and potential usefulness for investigations can be sometimes underestimated. The Bellingcat practice shows that even Google search can be a source of valuable details for the investigation. A good example of this is the Bellingcat's article as of July 18, 2014, in which the journalist identified the location of the Buk in the photo posted online by some user ("Buk Transporter Filmed "Heading to Russia" Sighted in an Earlier Photograph" 2014). First the journalist managed to recognize the writing on the shop's signboard depicted in this image. He then found the exact address of the shop by searching it in Google. While searching for the shop's name, the journalist found several videos on YouTube made in the same city and on the same street, and compared them to the location depicted in the photo. This helped to check the accuracy of the details of the identified location.

Cartographic services and satellite imagery played an important role in the investigation. The article of July 28, 2014 demonstrates a peculiar way of using Google Maps in combination with other tools in order to find the location and time when the Buk and its transporter were captured in the photo ("Two More Key Sightings of the MH17 Buk Missile Launcher" 2014). The article describes the method of Chris Postal who created the route of the transporter from Snizhne to Donetsk using a website for planning routes. He thoroughly checked the images of the whole route with the help of Google Maps street

view and, finally, found the location in which the photo with Buk was taken. After checking the accuracy of these conclusions by comparing the original photo of the Buk with the image from Google Maps, the Bellingcat journalist used the SunCalc service to find out approximate time when the photo was taken.

Pic 3. Comparison of the part of the Paris Match photo with the Buk and Google street view image of Donetsk, which proves that the photo published by Paris Match was made in Donetsk. ("Two More Key Sightings of the MH17 Buk Missile Launcher" 2014).

Accessible digital tools were used not only during the process of investigation, but also to present the conclusions to the audience in a convenient format. One of the Bellingcat's reports described the route of the 53rd brigade on the Russian territory from Kursk to Millerovo in June 2014. To present the reconstructed route in an interactive format, Bellingcat used the service called StoryMap ("Exploring Russia's 53rd Brigade's MH17 Convoy with StoryMap" 2015). This service allows attaching media files to locations in the map and writing text descriptions. Each point marked in the route contained visual evidence (photos and videos) of the Buk with other military vehicles moving in the identified locations.

* *Free Digital Labor and Crowdsourcing*

The use of various forms of digital labor was the key element of Bellingcat's investigation. This included borrowing visual evidences uploaded to the Internet by users, crowdsourcing for finding answers to questions that appeared throughout the investigation, involving journalists into the investigation on a voluntary basis. Bellingcat position themselves as an independent website headed by one journalist (Elliot Higgins), which means it has to turn to free labor and crowdsourcing. This approach defined the success of the project, because the network was able to produce quality materials without requiring huge budget for this purpose as the mainstream media usually do.

By contributing to the Bellingcat's investigation people did not expect to get any profit from that, they were guided by completely different motives: ideological ("citizen surveillance"), interest in such kind of labor as entertainment ("playbor"), hope to get the job in the future. Supporters of free digital labor stress that involvement in prestigious projects on a voluntary basis outweighs any material profits one can get from a paid job (Ross 2013:14). Thus, the devotion of a young journalist Aric Toler to Bellingcat investigation of MH17 was caused by his desire to enter the field of investigative journalism and gain experience for the future career.

The first article by Bellingcat devoted to the MH17 was published on the very day of the catastrophe, and in this article Higgins already turned to crowdsourcing in order to identify the location where the video with the Buk was taken ("Geolocating the Missile Launcher Linked to the Downing of MH17" 2014). The journalist asked his followers on Twitter to help with finding the location and received answers from several people. They mentioned the area to the south from the center of Snizhne. Higgins checked this assumption with the help of Google Earth (Pic. 1 and Pic. 2) and was convinced that the location was correct. Thus, crowdsourcing allowed the journalist who had never been to the place where the video was made to find out the exact coordinates of the Buk at a particular time in the past. The help of Twitter followers was free labor and was based only on their personal interest in the process of investigation.

In order to make the work with crowdsourcing more organized, Bellingcat started using a new tool, Checkdesk, the website, which allows working in a team for exploring and checking visual evidences related to the case. The advantage of Checkdesk is that it enables storing information from various

sources in one place and has an interface created for such kind of teamwork.. Rather than being distributed over different social media (Twitter, Facebook, etc.), now all the evidence was gathered in one place and structured by topics. This innovative format of digital labor makes it possible to define one more feature of Bellingcat's investigations — creating an argument in real time on the basis of consensus between several participants of the investigation.

The tool was used the following way: for instance, in the article published on September 20, 2014 Bellingcat turned to their readers with the call to join the search for all the accessible visual evidence of the Buk and upload them to Checkdesk ("Crowdsourced Investigation — Was the MH17 Linked Buk Sighted in Ukraine and Russia Unique?" 2014). This was an important step in organizing the whole available but distributed among different platforms evidence in one place. In the next article of September 22, 2014 Bellingcat presented the results of the work done on Checkdesk, reporting that no Buk had been found with the same marking as the one suspected in the downing of the MH17 ("More Evidence of Russia Supplying the Buk Linked to the Downing of MH17" 2014). However, one of the readers noticed a peculiar damage on the MH17 Buk — the evidence that played an important role in further investigation. The work with Checkdesk is a great example of how ordinary Internet users become involved for free in the search for necessary data and its verification.

An interesting fact is that while turning to crowdsourcing, Bellingcat provoked an international investigation, for people all around the world who had never been to Eastern Ukraine before started being involved in the process of investigation. Partially, this was caused by the open character of Bellingcat's argumentation: journalists did not hide any methods or tools they used during the investigation. For instance, in the article of July 11, 2015 they presented a whole list of tools and guides on their usage, which explained how to make investigation based on open data ("Geolocating MH17 Crash Videos with Checkdesk" 2015). In the article published on June 5, 2015 the journalist offered a step-by-step instruction with screenshots on how to use the Digital Globe tool while conducting the investigation ("Who to Trust, Google or the Russian MoD? A Guide to Verifying Google Earth Satellite Image Dates" 2015). Digital Globe provides satellite images of the highest quality, which allowed having a close look at the location where the catastrophe happened.

Not only the process of data collection implied collaboration and voluntary support from ordinary users, but also the financial basis for the investigation

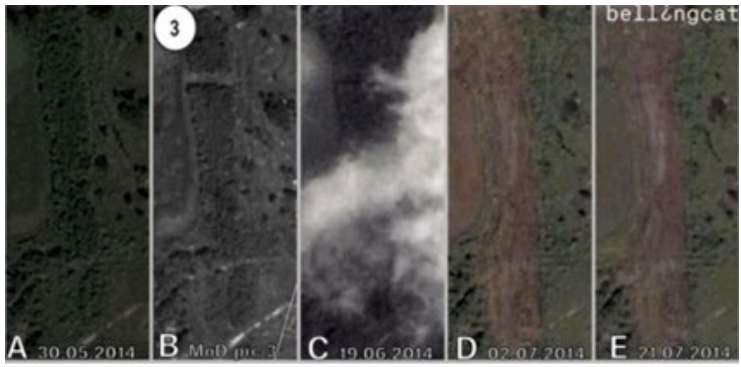
was created by crowdfunding. Bellingcat position themselves as an independent network funded not by organizations or governments, but by ordinary people. It all started with Kickstarter where Eliot Higgins managed to collect $50,000 for his idea and launched the website. There were new rounds of crowdfunding organized on the same platform when it was necessary. One such round was covered in the article of June 12, 2015, in which Bellingcat thanked their readers for the collected money that had been spent on buying Digital Globe's satellite imagery. Later on these images were used to prove that some satellite images presented by the Russian officials in the media had been falsified.

* *The Method of Comparing Data from Different Platforms*

While working with visual evidence Bellingcat used different methods for their verification:

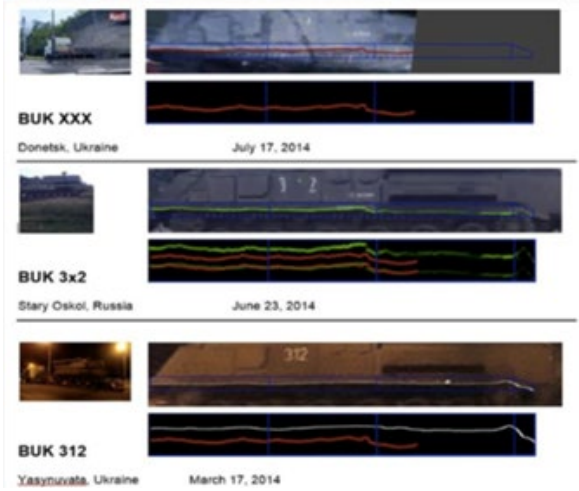
- the analysis of the source (where the material has been taken from, and whether it is a trustworthy source);
- the metadata analysis (allows to find out the date when the shot was taken and whether it has been modified);
- the error level analysis (allows to identify areas in an image that have different levels of compression, which means they have been modified);
- the analysis of references (implies comparing the analyzed images with images from other sources).

All these methods were used by Bellingcat, for example, when working with satellite imagery published by the Russian Ministry of Defense ("MH17 – Forensic Analysis of Satellite Images Released by the Russian Ministry of Defense" 2015). The analysis of the references provided evidence that this imagery had been falsified. By comparing satellite images published by the Russian Ministry of Defense with images form Google Earth, the journalist came to the conclusion that dates on images presented by the Russian side were incorrect. The vegetation depicted in the Russian images corresponded to Google Earth images from May rather than July as it was stated by the Russian officials (Pic. 4).



Pic. 4. Comparison of the Google Earth images with images presented by the Russian Ministry of Defense, which demonstrates that the Russian image (the second in the row) was made not in July as it was stated by the Russian officials. ("MH17 — Forensic Analysis of Satellite Images Released by the Russian Ministry of Defense" 2015)

The method of comparison implies a multi-platform approach and works not only in case of analysis of visual evidence, but also with audio and text materials. When transcripts of the supposedly CIA agent David Stern's phone calls were uploaded to Pressbox.co.uk, it followed from them that David Stern had been involved in the planning of the Buk missile launch. This evidence was used by the Russian side to prove that they are not involved in the downing of MH17. Based on the analysis of references, Bellingcat in their article of July 29,



Pic. 5. Demonstrating the method of comparison of damage to the rubber side skirts for identifying Buks. ("Did This Ukrainian Soldier Prove Ukraine Shot Down MH17?" 2015)

2015 proved that this version was most likely wrong. The journalist compared the voice of David Stern in the Pressbox.co.uk recording with the BBC video that featured the agent and noticed the difference in the accent of the voices in the audio and video ("The Strange Story of the Ten Million Dollar MH17 Investigation" 2015). In this case the BBC video can be considered a reliable reference material, because it was taken from a trustworthy source (BBC) and made before the catastrophe in Donetsk Oblast.

When it was impossible to find reference sources to check the data accuracy, Bellingcat worked with all the materials available, even if the level of their reliability was not high. The value of such a comparison of all available data lies in a fact that it makes possible to identify important patterns or contradictions, which open new possibilities for deeper investigation. A good example can be the interesting method invented by Bellingcat in order to identify different Buks. It was not always possible to identify the marking on Buks in photos and videos, because some of them were of poor quality. However, each of the Buks had a unique damage to the rubber side skirts, which was developing throughout their use. In the article of January 2, 2015 Bellingcat introduced the method of comparison of damage to the rubber side skirts for Buks identification ("Did This Ukrainian Soldier Prove Ukraine Shot Down MH17?" 2015). The results of the comparison (Pic. 5) demonstrated that the Ukrainian Buk 312 (which could also be suspected of the MH17 downing) was actually not the Buk that was captured in the visual evidence that appeared online right after the catastrophe.

Conclusion

The information war between Russia and Ukraine that unfolded around the MH17 case can serve as a bright example of how each side of the conflict promotes their own narrative of events creating the situation of post-truth reality. In essence, we have one fact — the crash of the plane in Donetsk Oblast — and a variety of interpretations that surround it. The website of independent investigations Bellingcat has been analyzed in this article as an example of a consistent and systematic attempt to shed light on the highly confused context, which has set out new principles of digital investigations.

By analyzing all of the Bellingcat materials devoted to MH17 we have defined the tools, narrative tactics and templates that can be used during the

process of digital investigation. While often criticized for non-conventional and, therefore, unreliable sources and tools, Bellingcat's approach is characterized by transparency and possibility of step-by-step verification, which became key points that ensured credibility of the increasingly mistrustful audiences.

It turned out that the whole Bellingcat investigation was based solely on open data sources and accessible digital toolkits, which were used to collect and analyze relevant data, as well as to present conclusions. This peculiar approach to the investigation process along with the use of crowdsourcing and free digital labor strengthened the journalists' argumentation and became indicators of reliability of the investigation in the new realities of data production.

Among various interpretations Bellingcat found facts while applying the aforementioned approaches to the materials from different sources and of different formats (photos, video, and satellite imagery), which allowed them to identify important matches and contradictions. Thus, the multi-platform approach to journalistic work can be seen as the key direction of development of investigations that allows to (re)construct facts in the situation of post-truth politics.

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Iryna Lunevich

(DIS)EMPOWERING TECHNOLOGIES? SOCIAL CONSTRUCTION OF ELECTRONIC PARTICIPATION TOOLS

Abstract

The paper aims to analyze the "Active Citizen" project, an electronic platform for e-referenda launched by the Moscow City Governments. The platform allows residents of Moscow to propose and vo.te on issues related to provision and management of urban services and infrastructure. Thus, the launch of the project represents the attempt of the Moscow Municipality to engage citizens in urban governance. Despite the municipal authorities' claims of that the new e-governance platform stimulates the participation of citizens in urban governance, it is questionable whether the problem of the democratic deficit in public administration and urban planning could be solved by technical means only.

The paper aims at dealing with the problem of public participation in urban governance both conceptually and empirically. The article puts the question of public participation in urban governance in the limelight of the STS debate about citizen engagement in technical decision-making. Furthermore, it applies the Social Construction of Technology (SCOT) approach to the analysis of the "Active Citizen" platform in order to answer the following research question: how does the "Active Citizen" transform the relationship among different actors involved in the process of urban development.

Keywords: technoscientific controversies, urban governance, public engagement, electronic participation tools, Active Citizen, SCOT

Introduction

This paper attempts to analyze a particular initiative to engage the public in urban decision-making that was undertaken by the Moscow City Government. In 2010, the then President Medvedev appointed Sergei Sobyanin a new Mayor of Moscow. Sobyanin's administration tried to promote Moscow as "a seemingly more open and democratic city" (Büdenbender and Zupan 2016:11). First of all, the Mayor filled key administrative positions with Western-educated professionals. Secondly, Sobyanin's administration started organizing open architecture contests to increase transparency of the urban development process. Finally, Sobyanin introduced a number of "depoliticized" participation tools for urban planning (Büdenbender and Zupan 2016:11).

These participation tools include various electronic platforms that help to maintain a constant dialogue between the authorities and the public. The most popular service among them is the "Active Citizen" platform[1] that was launched by the municipal authorities of Moscow in 2014. It allows residents of Moscow to vote on issues related to the provision and management of local services, design, and planning of neighborhoods and public spaces. The authorities claim that the "Active Citizen" application helps engage citizens in a policy-making process and support their participation in urban governance. Thus, the launch of the "Active Citizen" application represents an attempt of the Moscow municipal authorities to make the process of urban governance more democratic.

Despite the city administration's claims that the new platform stimulates participation of citizens in urban governance, it is questionable whether the problem of the democratic deficit in public administration could be solved by technical means only. Thus, in order to understand how (if at all) the "Active Citizen" application enables a participatory urban planning process, it is necessary to open the "black box" of the e-governance platform and examine its effects on how the city authorities of Moscow, urban planners, architects and citizens collaborate with one another. This paper, therefore, aims to address the following question: how does the "Active Citizen" transform the relationship among different actors involved in the process of urban development.

The paper aims at dealing with the problem of public participation in urban governance both conceptually and empirically. It conceptualizes urban management as the technology governance arena. Therefore, the paper puts

[1] I will also refer to this as application, electronic referenda service or technological artifact

the question of public participation in urban governance in the limelight of the STS debate about citizen engagement in technical decision-making. In addition, it presents STS perspective on forms and methods of public engagement in technical decision-making and discusses the role of ICTs in supporting citizens' participation in the governance process.

Next, the article applies the Social Construction of Technology (SCOT) approach to the analysis of the "Active Citizen" platform. The SCOT approach allows to identify the meanings that various stakeholders attribute to the referenda platform and, therefore, to understand how they measure its success. Furthermore, the SCOT approach draws attention to the social, political, and economic context, in which technological artifacts are designed and used. Thus, the paper aims at reflecting on how the specific context of the post-socialist city, in which the platform operates, shapes its development.

The analysis of the "Active Citizen" application is based on document analysis and interviews with key actors. The document analysis covers a wide range of sources: the official web page of the "Active Citizen" project, legal documents, interviews with the "Active Citizen" administration in the largest government-owned and independent newspapers published between May 2014 and July 2016. The document analysis was complemented with interviews with key actors involved in the debate over the design of the "Active Citizen" platform: a representative of the "Active Citizen" project as well as critics and users of the platform. All the twelve interviews were made during a research trip to Moscow in April, 2016.

Public Participation in Technical Decision-Making and Urban Governance

Since the mid-1990s, STS scholars have been increasingly calling for public engagement in science and technology decision making (Callon, Lascoumes and Barthe 2009; Jasanoff 2004; Nowotny 2003). According to them, techno-scientific controversies raise not only technical questions but social, political, economic and ethical concerns. Consequently, STS researchers have argued that citizens should participate in discussions about nuclear power, environmental risks, genetically modified organisms, etc., as their opinions are as valid as claims of scientists and technical experts (Callon et al 2009; Jasanoff 2004; Irwin and Michael 2003; Nowotny 2003).

Urban planning theorists and practitioners were also a part of this tendency (Healey 1992; Innes and Booher 2004). According to Patsy Healey, a specialist in planning theory and practice, urban planning is an interactive process that draws on expertise of actors "each with its own meaning systems and hence knowledge forms and ways of reasoning and valuing" (Healey 1992:242). Therefore, she argues, formal techniques of urban planning should be supported by unconventional methods that allow different groups to achieve understanding. Urban planning theorists Judith Innes and David Booher add that procedures that seek to address interests of all affected stakeholders allow to resolve potential conflicts, improve the quality of decisions, build trust and increase the satisfaction of the public (2004: 427–428).

Partly in response to the STS scholars' criticism, governments have attempted to increase citizen participation in management of science and technology (Irwin 2006:300; Leach, Scoones, and Wynne 2005:215). The shift towards democratization of decision making took place not only within scientific institutions, but also within the sphere of urban planning and governance. Urban planning theorists Helena Leino and Markus Laine remark that city governments have recently opened up the planning processes and used diverse methods such as thematic groups and workshops to support deliberative planning practices (2011: 90).

Despite the participatory turn that has recently happened in numerous disciplines including urban planning and governance, STS scholars question whether new participatory procedures allow for greater public engagement. Social anthropologist Melissa Leach and her colleagues (2005) suggest that there is still a significant gap between political rhetoric and institutional practice. Leach et al (2005) assert that despite the stated intentions of allowing the public to participate in a debate about science and technology, some groups are still excluded from technical decision-making.

The degree of citizen involvement in technical decision-making also depends on the structural features of a particular participatory mechanism (Rowe and Frewer 2005). The authors show that public hearings and focus groups allows little space for dialogue between different parties. Furthermore, these methods are time-consuming as they require participants to be physically present at a meeting place. In turn, such methods as referenda and public opinion surveys are less time-consuming and, therefore, they allow to engage larger groups of populations. However, Rowe and Frewer (2000) assert that the

quality of decisions, which arise from the implementation of these methods, might be relatively low.

Driven by the shortcomings of conventional methods of public participation, scholars, policy-makers, and urban planners have recently turned their attention to examining the potential of electronic participation tools. These tools include such technologies as electronic voting systems, group decision support systems, and discussion forums (Sæbø, Rose and Flak 2008). Proponents of e-governance tools argue that ICTs help overcome a number of limitations of conventional participatory procedures. Scholars in the field of e-governance research agree that one of the main advantages of electronic participation tools is that they eliminate time-space constraints (Brabham 2009; Höffken and Streich 2011; Kleinhans, Ham and Evans-Cowley 2015) and allow citizens "to participate in decision-making 'on the go'" (Ertiö 2015:306).

In addition, urban researchers Reinout Kleinhans, Maarten Van Ham and Jennifer Evans-Cowley (2015) claim that mobile and social media tools help engage such groups as youths and young adults that are normally indifferent to urban affairs and, therefore, excluded from decision-making. According to Stefan Höffken and Bernd Streich (2013), scholars studying the phenomenon of mobile participation, these instruments use creative mechanisms, e.g., gaming techniques, to encourage citizens to participate in urban governance.

Not only do electronic participation tools increase the degree of public engagement in decision-making, but they also improve the quality of citizen participation. Scholars studying the e-governance phenomenon stress that digital participation tools allow people to create their own content (Bonsón, Torres, Royo and Flores 2012). Public administration scholar Dennis Linders (2012) asserts that electronic participation tools make it easier for citizens to share their knowledge and expertise with government. Thus, he argues, digital tools break down traditional hierarchy and redistribute power and responsibility between policy-makers and citizens (Linders 2012:451).

Although there has been much enthusiasm about the potential of electronic participation tools to engage the public in decision-making, many scholars doubt that electronic technologies enhance citizen participation. One of the main concerns of the sceptics is that ICTs might exacerbate digital divide (Bélanger and Carter 2010). The results of Lemuria *Carter* and France *Belanger's (2010) research about* the relationship between the digital divide and the Internet voting indicate that lower-income groups, older citizens and people who rarely use the Internet are less likely to participate in electronic

voting. The scholars assert that the lack of skills of using electronic tools are the main reason for exclusion of the abovementioned groups from electronic participation.

STS scholars also point out that ICTs might limit possibilities for public participation in the offline world. Thesociologist of technology Sally Wyatt (2005) takes the example of the car industry to demonstrate how a growing technical network might limit possibilities for some groups of populations. She shows that the increase in a number of car drivers leads to the expansion of the car infrastructure. When the infrastructure grows, the car-free space shrinks, which, in turn, limits possibilities for pedestrians (Wyatt 2005:78). Wyatt suggests that it might be the same case with the Internet networks.

Finally, the critics question to which extent the e-governance model has been implemented in practice (Norris and Reddick 2013). The research by the public administration scholars Donald Norris and Christopher Reddick (2013) shows little evidence that electronic services support a direct interaction between citizens and policy-makers. The authors argue that one of the reasons why empirical results are inconsistent with the claims of the "cyber-optimist" is that the latter were based on technologically deterministic assumptions.

The discussion in this section also demonstrates that scholars studying the electronic participation phenomenon often assume that it is possible to transform the relationship between citizens and policy-makers merely by introducing electronic technology. Furthermore, the reviewed articles suggest that researchers often perceive electronic participation services as neutral tools. However, as the philosopher of technology Langdon Winner (1980) claims, technological artifacts are shaped by the social and political context in which they are embedded. According to the author, social intensions are deliberately translated into the design of artifacts, and these intensions have concrete social consequences.

Furthermore, most of the reviewed studies tend to focus on the technological aspects of electronic participation tools but do not consider the context in which they are implemented. However, Albert Meijer and Manuel Bolivar (2015) emphasize that technology itself cannot change the policy-making process. The authors note that technological change should be accompanied by institutional transformation. The scholars note that to understand the nature and effects of e-governance platforms on urban governance institutions one should study interactions between technology and social structure (Meijer and Bolivar 2015:13).

Social Construction of the "Active Citizen" platform

Introduction

The "Active Citizen" application was launched on the initiative of Sergei Sobyanin, Mayor of Moscow, in May 2014. According to the official web page of the "Active Citizen" project (https://ag.mos.ru/), the main goal of the platform is to provide Muscovites with an opportunity to participate in city governance and to express their opinions on a wide range of urban issues including the quality of urban environment, design of public spaces, and provision of urban services. The city administration believes that the project has been successful in terms of engaging citizens in urban governance since more than 1.3 million people have joined the project and voted on more than 1,500 questions since May 2014.

However, from the perspective of the SCOT approach, quantitative indicators cannot serve as a criterion for the success or failure of a certain technology. In order to understand if technology is successful, it is necessary to identify the criteria that different groups use to evaluate the effectiveness of a particular technology. The paper uses the model for analyzing the developmental process of an artifact described by the SCOT's founding fathers Trevor Pinch and Wiebe Bijker (2012) to examine how various relevant social groups view the service, which meanings they attribute to it, and how they measure its success.

Pinch and Bijker (2012) identify three stages in the social analysis of a technological artifact. In the first stage, a researcher should analyze the "interpretative flexibility" of an artifact. The authors define "interpretative flexibility" as a stage of the artifact's development at which it is open to numerous interpretations. In the second stage, a researcher should analyze the stabilization of an artifact. At this stage of the artifact's development the interpretative flexibility decreases and one meaning becomes dominant. Pinch and Biker identify two ways of achieving the stabilization or "closure" of the artifact: rhetorical closure and closure by redefinition of the problem (2012:37-38). Rhetorical closure means that one does need to convince relevant social groups that the problems they have with regard to a certain technological artifact are solved without necessarily solving them. The redefinition of the problem means that instead of changing the design of the artifact, its designers or users invent a new problem that can be solved by the initial design. After the artifact's stabilization is analyzed, a researcher should relate a technological artifact to the wider context in which it operates.

The "Active Citizen" Platform

The "Active Citizen" platform is a system for electronic multiple-choice referenda on urban issues. Polls might be initiated by various departments of the Moscow City Government. Referendum questions and answers to them are formulated by the administrative body that launches a poll together with the "Active Citizen" administration. After the referendum is announced, people have two weeks to cast their votes. Usually, the administration of the platform launches two or three referenda a week.

Users can vote on referenda only after they register in the system. The registration procedure works as follows: firstly, a user has to register his/her phone number in the system, then, s/he receives a text message with a registration code that activates the account. Once the registration is completed, the user can fill out his/her profile name, date of birth, gender, marital status, occupation, home address and the address of the place where s/he works. Although none of these fields are mandatory, the information in the profile is used to determine whether the user is eligible to participate in a certain poll. While everyone can participate in the city level referenda, only people who live or work in a particular district can participate in polls related to the neighborhood.

People can earn points for participation in referenda. Users are also granted points for filling out their profile, inviting their friends to join the project, and sharing information about the polls in social media. "Active Citizen" users can exchange earned points for real-world goods such as tickets to museums or services (e.g., free parking in the city center).

When the voting period is over, votes are counted, and results are sent to the governmental body that initiated the poll. The city officials claim that all the questions put on referenda on the "Active Citizen" platform are solved in accordance with the users' will. In order to let the user control how decisions are implemented, the project administration publishes detailed reports about each referendum and its results on the official web page of the project.

The Relevant Social Group of Producers

The description of the platform allows to identify two relevant social groups: producers and users. The group of producers is represented by the representatives of the Mayor of Moscow, Sergei Sobyanin, and the Moscow Government. According to the Moscow Government Decree on the "Active Citizen" project,

the main governmental bodies involved in the project are the Moscow State Services Committee and the Department of Information Technologies. While the former coordinates the overall execution of the project, the latter is responsible for the development of the platform software. Although the information about people involved in the project and their responsibilities within it is quite limited, it is enough to conclude that the project team belongs to the upper echelons of the municipal administration.

According to the official webpage of the project, the main goal of the "Active Citizen" service is to provide citizens with an opportunity to "… directly influence decisions made by the local authorities" (https://ag.mos.ru/). However, the interview with a person working in the project (Interviewee № 1) helps to reveal other meanings that the group of producers ascribes to the platform. She explains that the service allows the municipal authorities to gauge Muscovites' opinion on a wide range of topics, to reveal their preferences, and to get their feedback about already implemented projects. This statement is supported by the fact that it is the city authorities who formulate referenda questions. According to the *Frequently Asked Questions* section on the official web-site of the project, "in the framework of the "Active Citizen" project, the issues that are within the competence of the Moscow Government and the executive authorities of the city of Moscow are put on vote" (https://ag.mos.ru/). The absence of possibility for citizens to put their own questions on vote proves that the Moscow city authorities view the service as a tool for surveying public opinion rather than an instrument for maintaining a dialogue.

Furthermore, the project administration introduced the rules that help limit the thematic scope of referenda. First of all, according to the rules, referenda questions should not require expert knowledge to answer them. As a consequence, electronic polls rarely address significant issues. Usually, they touch upon such topics as a street or building design or leisure activities in the city. The producers of the "Active Citizen" application also have to meet certain requirements when suggesting response options to multiple-choice questions. According to the FAQ section on the official web page of the project, the authorities are allowed to offer only options, which they can guarantee to implement: "… users have to decide which of the already found solutions will be implemented by the executive authorities" (https://ag.mos.ru/). Not only does the rule limit the number of responses, but it also limits the number of polls where voters can offer their own solutions to a particular problem.

The poll on the location for a 24-metre monument to the medieval prince Vladimir the Great demonstrates how the project administration limits the number of answer choices. At the beginning of 2015, the Moscow City Parliament approved the plan to erect a giant statue to Vladimir the Great on Sparrow Hills (one of the most famous landmarks of Moscow). Since the decision caused a massive public outcry, the city officials launched a referendum on the "Active Citizen" platform. The city administration offered three alternative sites. However, Muscovites were not able to vote against the erection of the monument, as there was no such option as "not to erect at all".

Finally, the officials view the "Active Citizen" application as a tool for informing Muscovites about what is going on in the municipality. As the project representative says,

> "We explain why a certain question is discussed, why a decision on this question has to be taken and why the decision might be rather ambiguous. Moreover, we allow Muscovites to understand our (municipal authorities') way of thinking" (Interviewee №1, 14.04.2016).

The interview with the project representative as well as the analysis of the "Active Citizen" web page allows to conclude that there is an inconsistency between the declared and the actual goals of the "Active Citizen" service. While the platform producers represent it as a tool for engaging citizens in a decision-making process, in practice they use it as an instrument for collecting feedback and informing citizens about the issues the municipality is working on. As it will be shown below, the misrepresentation of the project goals often leads to conflicts between the group of producers and other groups concerned with the service.

The Relevant Social Group of Users

Although the city administration considers the whole population of Moscow to be potential users of the service, in April 2016 only 1.4 million of Muscovites participated in electronic referenda, which constituted around 10% of the Moscow population. In March 2019, the number has grown to slightly over 2 million people (around 16% of the Moscow population). Overall, the group of users is rather anonymous. According to Elena Shinkaruk, the coordinator of the project, people between 18 and 45 years old constitute 80% of all the application users (Moscow Municipality Information Center 2015). However, any

other demographic information about the project participants such as gender, level of education, and income level is not available. Therefore, the interviews with the users and the analysis of their communication in social media were the only sources of information about the group.

The interviews reveal that the user's perception of the "Active Citizen" project is based on the image of the application created by the producers. All the interviewed users believe that the platform enables them to shape (at least to some extent) the process of urban development, as they can see positive changes that have occurred in Moscow because of the decisions taken on the "Active Citizen". Interviewee №2 provides the following examples:

> *I can recall the situation when one of the Moscow metro stations wasn't renamed only because the majority of the "Active Citizen" users voted against this decision. Finally, the authorities took into account our [citizen's] opinion when they decided on the location of the statue for Vladimir the Great* (12.04.2016).

Moreover, the users are sure that, in the absence of other platforms for expressing their will, the "Active Citizen" service is the most effective tool for citizen engagement. Furthermore, the users emphasize the inefficiency of conventional public participation tools such as public hearings. According to interviewee №2, the majority of Muscovites are not able to take part in this kind of procedures as public hearings format is too time-consuming. In turn, the "Active Citizen" platform allows citizens to participate in the discussions "on the go" (Ertiö 2015:306). According to the interviewees, it usually takes around two to five minutes to read a question, look through expert opinions, and vote. Thus, they believe that the "Active Citizen" platform allows engaging more people in the decision-making process.

At the same time, users admit that the service often fails to establish a proper dialogue between the city administration and Moscow residents. The interviewed users identify two main problems in relation to the platform. First of all, they complain that most of the referenda on the "Active Citizen" platform address questions of little significance. According to interviewee №2, "They [the city authorities] should provide Muscovites with an opportunity to express their opinion on matters that are more important than the color of benches" (12.04.2016). At the same time, they are perturbed by the absence of polls regarding such issues as infill development, land use conflicts, or the expansion of paid parking areas in the city center.

Another reason for criticism of the "Active Citizen" referenda is the way the response options are formulated. Users say that in most cases response options do not cover all the potential viewpoints. Therefore, they acknowledge that they rather rank decisions taken by the city authorities than actively contribute to the decision-making process. As a result, the participants of the "Active Citizen" project feel that the city administration uses the platform to manipulate them.

Although the application does not fully meet users expectations, all the interviewees admitted that they continue using it. According to them, the launch of the "Active Citizen" service was a great step towards better governance. One of the interviewees notes that the level of public participation in the decision-making process has increased compared to the situation under Mayor Luzhkov: "The Municipality has become more open. Under Mayor Luzhkov, no one even asked people what they wanted" (Interviewee № 4, 20.04.2016).

Eventually, all the interviewed users assert that the "Active Citizen" platform would be a perfect tool for engaging citizens in the decision-making process if the producers fixed the existing problems. However, it is possible that it is the opportunity to get points and rewards that motivates users to keep participating in referenda. Although interviewee №3 does not name rewards as a primary reason to vote on the platform, he mentions that it is a nice bonus.

The analysis of the "Active Citizen" pages on social networking sites proves the hypothesis. In a comment section below each post, users tend to discuss bonuses rather than particular questions and decisions. For example, people left 62 comments below the announcement about the "One Million Trees" referendum on the "Active Citizen" page on the VK social networking site. However, almost half of the comments (29 out of 62) was motivated byrewards. Thus, it brings us to the conclusion that some users consider the "Active Citizen" service to be a mobile game rather than a public participation instrument.

Finally, there are people who use the application as a source of information. Two of my interviewees mentioned that they use the application to find out about the recent projects launched by the municipality. However, the users attribute a rather negative connotation to the platform when referring to it as a "source of information". They consider referenda to be warning signs of the forthcoming (rather negative) changes in the city. Interviewee № 3 explains:

> *When I see that they launch a new referendum, I already understand that we have a problem there… I already understand that big changes are coming…* (15.04.2016).

The analysis demonstrates that although the users primarily view the "Active Citizen" platform as a tool for public involvement, they also realize that the tool does not work properly. When they come to a conclusion that the service does not work as it is supposed to, they try to find other uses for the "Active Citizen" platform. They use it as a mobile game or as a source of information.

The Relevant Social Group of Critics

While users believe that the launch of the "Active Citizen" platform marks a step towards more democratic urban governance, urban activists, journalists, and academics are convinced that electronic referenda have nothing to do with democratic procedures. They constitute a relevant social group of critics. There are numerous reasons why the group of critics actively opposes the platform. First of all, they assert that instead of supporting public participation in municipal decision-making, the platform serves as an instrument of legitimation of the city administration's decisions. The deputy of the Moscow City Council Elena Shuvalova provides the following explanation: «... the project administration uses a combination of manipulative and openly illegal methods to create an illusion of public support» (Shuvalova 2015b).

The critics identify four main mechanisms that the producers of the "Active Citizen" have used to manipulate the public opinion. First of all, they note that the project administration asks people to vote for the decisions that violate both the national and international law. The referenda on the location for the statue of Vladimir the Great is an example of such kind of referenda. The city administration offered users of the "Active Citizen" platform three options where to erect the statue. The voters chose Borovitskaya Square near the Kremlin. However, the square was on the UNESCO World Heritage Site List and, hence, the decision to install the statue in this location could not have been a subject of a referendum before being approved by the UNESCO's World Heritage Committee (Shuvalova 2015a).

In addition, the critics note that the administration of the "Active Citizen" project launches referenda on questions that, according to the Urban Development Code, should be discussed at public hearings. These issues include, for instance, the decoration of residential block buildings that only the co-owners of the apartments in the building have the right to decide on. Next, the critics discuss numerous cases when the "Active Citizen" administration asked citizens to decide on issues such as maintenance of green areas. However, according to

critics, these questions require special expertise and, therefore, should be discussed by specialists in the field. Finally, the critics point out that the curators of the "Active Citizen" project held referenda on decisions that had been implemented before the referenda took place. Journalists Kirill Mazhai and Ivan Chesnokov (2015) describe the case when "Active Citizen" users were to choose a method of user ID authentication when logging onto the Wi-Fi network in the Moscow metro. The authorities launched the referendum in December 2014, but the verification method via SMS had been introduced several months before the poll was held (Mazhai and Chesnokov 2015).

However, referenda questions are not the only subject of the critics' concern. Some journalists and IT-specialists are not satisfied with the technical characteristics of the "Active Citizen" system. In November 2015, Alexander Plushchev, a journalist specializing in the Internet-related issues, wrote a blog entry where he criticizes the authentication method to verify the identity of the "Active Citizen" users. According to the journalist, the mobile phone authentication procedure allows people from all over Russia to register and vote on the platform on issues that are related to Moscow (Plushchev 2015a). Furthermore, the journalist notes that the mobile phone authentication method does not prevent the "Active Citizen" users from voting more than once on the same referendum, as they can use several phone numbers to create multiple accounts. Thus, he assumes that these security lapses leave the "Active Citizen" platform open to the possibility of frauds.

Ilya Rozhdestvensky, the journalist who carried out the investigation of the "Active Citizen" platform, expresses his concerns regarding the integrity of the referenda results. He notes that the administration of the project did not invite a third party to observe the electronic voting process and vote counting (Rozhdestvensky 2015). In this situation, the critic says, it is impossible to verify whether the administration of the "Active Citizen" project delivers accurate results. Furthermore, the critics point out that the results of the "Active Citizen" polls often do not coincide with the overall public mood, which makes it hard to believe that the referenda results are accurate. Interviewee №5 explains: "... the residents of Moscow protest against infill development of urban green areas, but the "Active Citizen" users vote for it. No one can believe that…" (19.04.2016).

Besides the critique of legal, operational and technical aspects of the "Active Citizen" referenda, the project opponents are also skeptical about the reward system. They assume that the practice of rewarding might have negative effects

on the referenda results as it makes people vote irresponsibly. The critics affirm that the "Active Citizen" users, whose main motivation to participate in the polls is rewards, tend to vote even on issues, which do not initially concern them, and, therefore, they do not make well-informed decisions.

Thus, the critics come to the conclusion that the city administration uses the "Active Citizen" service as an instrument of guided democracy. They note that the service allows the city administration to control every stage of the decision-making process and to gain approval for the already made decisions. By launching referenda on the "Active Citizen", the city administration tries to prevent any possible protests against unpopular or illegal decisions by making citizens believe that they have a voice in those decisions. As interviewee №5 notes:

> *If they [the municipal authorities] just said that we had decided not to take your opinion into account, people would rise up… And in this case, they create an illusion that people express their opinions. It is hard to deal with this kind of manipulation* (19.04.2016).

She also adds that while the authorities create more opportunities for public (pseudo-) participation in the digital space, they limit the possibilities for political expression in the offline space. She observes that the authorities often refuse to give permission for public meetings and prevent such forms of public action as one-person pickets[2] by arresting the protestors. In the given context, interviewee №5 concludes that the launch of the "Active Citizen" platform could be viewed as another attempt to exclude citizens from decision-making.

Closure of the "Active Citizen" Platform

Since interpretative flexibility of the "Active Citizen" platform is rather high, numerous conflicts arise around the artifact. To resolve these conflicts, the producers try to persuade the users and producers that the "Active Citizen" service works in accordance with the declared goals. Pinch and Bijker (2012) refer to the mechanism for achieving closure by arguments and negotiations as the "rhetorical closure mechanism". According to the authors, the rhetorical

[2] According to Federal Law № 54-FZ 'On Assemblies, Meetings, Demonstrations, Marches and Picketing' of June 8, 2012 (as amended), protesters are not required to notify the authorities of pickets held by one participant. Therefore, protesters prefer picketing in shifts instead of applying for permission for public meetings.

closure occurs when one relevant social group manages to persuade other groups that the problems they have with respect to a particular artifact have been solved (without necessarily solving them) (Pinch and Bijker 2012:37).

The Moscow municipal authorities usually begin their argument against the criticism of the "Active Citizen" platform by comparing levels of public participation in urban governance before and after the launch of the service. The authorities emphasize that Moscow residents have long been excluded from decision-making. Hence, they conclude, the launch of the "Active Citizen" platform signifies a giant step towards wider engagement of citizens in the decision-making process.

The producers stress that the functional qualities of the platform that seem to be problematic for the critics are the best solutions for the users. In this way, the project representatives explain the absence of the obligatory verification for the "Active Citizen" users. Although the producers agree that the absence of mandatory verification allows people from other regions to vote on the "Active Citizen" polls, they notice that it is very unlikely that residents of other Russian cities would be willing to vote on the Moscow-related issues.

In a similar manner, the producers respond to the accusation of stimulating participation in the "Active Citizen" polls with rewards. My interviewee says that only 20% of the "Active Citizen" users convert their points into rewards. Thus, she concludes, the majority of voters are driven by altruistic motives.

There are several arguments that the project representatives put forward to address the "falsification of the results" issue. First of all, they note that the project administration has no reasons to falsify referenda results. Secondly, they emphasize that, on average, only 200-300, 000 people participate in each referendum. According to Artem Ermolaev, it does not make any sense to fabricate such small figures. Finally, he claims that the authentication method used by the project administration eliminates any possibility to cast multiple votes. He notes that the number of people who have multiple "Active Citizen" accounts is so insignificant that their votes cannot affect final referenda results (Ermolaev 2015b).

Although the producers usually deny any accusations, they have taken some actual steps to improve the reliability of the service. First of all, the project administration provided voters with the opportunity to verify if their votes were included in the tally and were recorded correctly. Secondly, the project administration started updating voting results for each referendum every 15 minutes, which made it possible to observe the voting progress in real time

(Ermolaev 2015b). Finally, in January 2016, the project administration hired the firm PricewaterhouseCoopers (PwC) to conduct an external audit and to test whether the system records user data and votes correctly and whether the system is protected from external cyber-attacks. Already in May 2016, the project administration reported that "after the retrospective analysis of the referenda results, the PwC experts did not register any deviations that would reveal that the referenda results were manipulated" (https://ag.mos.ru/).

Despite all the measures taken by the producers to demonstrate the integrity of the electronic referenda results, the critics seem not to be persuaded. They say that it does not make any sense to improve the functionality of the "Active Citizen" platform as it will not function as a tool for citizen engagement in decision-making anyway. As one of my interviewees claims: "You can't use this system to solve particular urban development issues, because its producers and users are driven by the motives other than solving urban problems" (Interviewee №7, 15.04.2016).

The critics explain that the problem is not in the platform itself, but in the context, in which it was launched. Interviewee №6 explains that, in fact, the municipal authorities are not democratically elected but appointed by the federal authorities. Consequently, he says, the citizens cannot trust the Russian authorities as they are not viewed as legitimate, and, therefore, they cannot believe in good intensions of the "Active Citizen" producers. Thus, the critics argue that that the electronic referenda platform cannot work in the given context. As interviewee №7 notices: "It is impossible to introduce electronic democracy under this [Putin's] regime" (15.04.2016).

Conclusions

The paper aims at examining how the "Active Citizen" platform transforms the relationships among different actors involved in the process of urban development. Despite the enthusiasm expressed by policy makers, public administration scholars, urban theorists and planners regarding the democratizing potential of electronic participation tools, the case of "Active Citizen" demonstrates that there is a significant gap between theoretical assumptions and the way these instruments are implemented into practice.

The analysis demonstrates that the "Active Citizen" platform, in fact, helps to overcome some of the limitations of the conventional participatory

mechanisms. It allows citizens to be more actively engaged in the decision-making process because the service gives them an opportunity to participate in urban governance "on the go", as it takes only two to five minutes to vote. In addition, gaming techniques and the reward system introduced by the producers help to attract the citizens to the service. Although the interviewed users do not consider the possibility to exchange the collected points for some services or goods to be the main motivation to participate in the electronic polls; they mention that it is a nice bonus. The analysis suggests that the convenience of use and gaming techniques helped the city administration to attract the attention of Muscovites to the service.

At the same time, the analysis of the tool shows that the platform contains the same barriers for citizen participation as the conventional procedures. First of all, it is the city administration that chooses and frames referenda questions and possible answers to them. As the examination of the platform and interviews with its users show, most of the referenda rarely address significant issues of the urban development process in Moscow. The electronic polls are usually dedicated to such topics as beautification of streets, entertainment activities in the city, or names of streets.

In addition, answer options are also limited, and users have little opportunity to make their own suggestions. The "Active Citizen" voters have to choose one of the solutions offered by the city administration and have no possibility to revoke a particular decision if they disagree with it. Therefore, it could be concluded that the platform does not support a two-way communication between the city government and urban dwellers. The users are perceived as reactive actors rather than active participants of the decision-making process. Thus, the study reveals that the "Active Citizen" platform does not allow for a high degree of citizen engagement in urban governance.

Furthermore, the introduction of the electronic participatory mechanisms in Moscow was not supported by broader institutional transformations. There is still no law that regulates the working of the "Active Citizen" platform. In the absence of such law the Moscow authorities are not obliged to translate decisions taken by the "Active Citizen" users into real actions. Therefore, they can use the "Active Citizen" service as a tool for consulting with urban dwellers. The situation demonstrates that the Moscow authorities have simply appropriated a technology that was developed in the Western world without adjusting it to the local context. However, as STS scholars Hård and Misa argue, "when technologies are introduced into a new setting, they are often substantially

modified and even given new meanings" (2008:11). This can be seen in the "Active Citizen" case — none of the actors concerned with technology sees the platform solely as a tool for public participation.

Despite all that, it is impossible to say that the "Active Citizen" service is not working. The study demonstrates that "working" and "non-working" are not intrinsic qualities of the artifact, but they are socially constructed categories. The paper reveals that different relevant social groups use different criteria for assessing whether the platform is "working" or not. The producers of the "Active Citizen" platform view the service as an instrument for surveying public opinion and, hence, they evaluate the success of the platform based on the number of people participating in polls. Since the number of the "Active Citizen" users is constantly growing, the producers believe that the service is working well. The users and critics, in turn, evaluate the service based on the "working in accordance with the declared goals" criterion. Since both relevant social groups realize that the producers use the services for purposes different from engaging citizens in decision-making, they conclude that the electronic referenda service is a non-working technology.

The analysis also demonstrates that the design of the platform is changing as negotiations among relevant social groups evolve. In order to address some problems that the relevant social groups of users and critics had with respect to the platform, the producers have come up with a number of technical and non-technical solutions. However, as my analysis reveals, the critics consider these measures not to be sufficient to resolve the conflicts around the "Active Citizen" platform. They believe that the only way to "repair" the technology is to change the context in which it operates. Thus, the discussion suggests that instead of asking "to what extent does the "Active Citizen" platform support public participation in urban governance" it might be relevant to ask the following questions: under what conditions will the platform support public participation in urban governance? Under what conditions could the closure of the platform be achieved?

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REVIEWS

Siarhei Liubimau

REVIEW OF THE BOOK BY DEBORAH LUPTON "THE QUANTIFIED SELF". CAMBRIDGE: POLITY, 2016

The book by Deborah Lupton is a timely account on the variety of issues related to self-tracking technologies, practices and imageries. In broader cultural and political circumstances it is another argument in the discussion about how digital technologies should be treated by society in long-term integrative perspective. The author dismantles those technologies as not merely material artifacts invented for improving human living conditions, but as socio-material assemblages, resting on pre-existing socio-historical tendencies and phenomena both on the user's side and on the side of institutions that invent and massively apply certain technological solutions. Lupton describes her interest in terms of "self-tracking cultures, analyzed from a critical sociological perspective" (p. 1). Her focus on cultures is primarily an instrument to avoid explanation of self-tracking as a merely technologically enabled phenomenon, and to discuss its complexity by revealing it as "the product of broader social, cultural and political processes" (p. 1).

Lupton specifies the term self-tracking by the terms "lifelogging", "personal informatics", "personal analytics", as well as "the quantified self" (p. 2). Empirically she works not only with the history, activists and ideology of the *Quantified Self* movement, which has crystallized around the *Wired* magazine in 2007 as a more or less conscious stance (taken mainly by digital technologies' professionals) towards the growing possibility to generate,

store and share data about one's body, health and behavior. In this sense, the title of the book is a bit misleading, for Lupton talks about the whole range of practices of self-tracking, as well as about the descriptions, reviews and discussions of the software that enables self-tracking. Her book thus adds to the broad range of existing attempts to diagnose impacts of digitalization on the forms of collective living of humans, i.e. on institutions, norms and meanings that guide and constrain individual behavior. It is also an interesting contribution to the discussion on how digitization is about shifting the boundaries of the human body; and of how the body and its material context incorporate each other via sensors and code (p. 71).

However Lupton is well aware that self-tracking is not a phenomenon specific to the digital age — those practices are much older and are not necessarily implying quantification of information about oneself (p. 29). She finds the lineage of lifelogging in one's desire to record and archive manifold aspects of life and hence to enhance one's memory (p. 10). It is just that currently it is done with the help of wearable computer devices. The digital factor of self-tracking means for her, firstly, the fact that human body is measured and monitored in a more detail (p. 4). Secondly, an important implication of digitization is that collected information is essentially interconnected. It is accessible not only to the particular ego of a self-tracker, but to other actors and agencies as well. And thirdly, digitalization in this case is an essential instrument for value creation in the new knowledge economy. Various forms of self-tracking and of digitally enabled guidance of one's behavior are thus essential for this new economy. In this respect, for Lupton self-tracking is one of the cases, which could be well described by the notion of 'prosumption' (p. 88). Ritzer and Jurgenson have recently popularized this notion (2010) in order to describe and make sense of those practices which essentially combine features of both production and consumption.

The first chapter of the book is a broad description of the currently used digital applications and devices for self-tracking health, fitness, productivity, etc., without much effort by the author to make a classification out of the discussed material. Besides, this chapter provides an overview of the prevalent empirical research on self-tracking practices. Here Lupton acknowledges that most of such research is market research, most often on issues of health and fitness, and most often in the U.S. society (pp. 30–31). Here the author briefly discusses findings of different research: a) who are most often publicly presented as self-trackers (American white men with technological literacy); b) what

are the self-trackers' common positive and negative experiences (growing self-awareness on the one hand and confusion by too much data on often unrelated processes on the other hand); c) why do people engage in self-tracking activities; d) what are the technical problems self-trackers complain about (and how they do it), etc. (pp. 32-33). In this chapter she also diagnoses the lack of in-depth anthropological studies of self-tracking.

The second chapter dwells upon the main theoretical approaches and concepts mobilized in order to make sense of self-tracking cultures. Lupton holds that humans increasingly become subjects of digitization due to embeddedness of digital devices and sensors to the public spaces and social institutions. For her this implies that it is the 'new materialism' or 'social materialism' approach that is the most helpful to understand how humans and technologies intertwine (p. 39). In her argumentation, this approach means, firstly, adhering to the science and technology studies perspective, in which material objects (and not only humans) are regarded as actors; and, secondly, having enhanced research sensitivity to the geographical material location of the studied phenomenon or process. In relation to digital technologies in particular, the 'social materialism' approach, in Lupton, is helpful to show how technology itself is the result of contextualized social interaction. The way she formulates her interest is "the ways in which people incorporate objects into the routines of their everyday lives … or effectively how they become entangled in assemblages with these objects …" (p. 41). In this respect she uses the term 'algorithmic identity' (p. 57), denoting effects of algorithms on future individual behavior (in terms of gathering and processing information on ones behavior and guiding one's further actions).

Another part of the conceptual context Lupton reconstructs is built on theoretizations of narcissism and vanity (Lasch), as well as de-traditionalization (Giddens, Beck, Bauman). At the same time the issue of how digitization affects discourses and practices of selfhood is largely discussed in the Foucauldian perspective, disciplined by his concept of governmentality as biopolitcs. She just adds that our conditions are the era "in which biopolitics and the expert knowledges that underpin biopower have become increasingly digitized" (p. 56). Generally, the literature reviewed in this chapter is rather mainstream — Beer, Savage, Burrows, Kitchin and Dodge, Lash, Beck, Giddens, Bauman, Lasch, Andrejevic. However not much attempt is made to juxtapose those different research traditions and purposes. In this sense Lupton's second chapter is rather descriptive, without operationalizations of concepts, which the author

finds relevant for her theme. The approaches that she discusses are characteristic of the studies of digitization in general. Lupton does not make much effort here to ground them in specific empirical settings of self-tracking (either technological or social). The issues she is focusing on — such as enhancement of neoliberal subjectivity by the process of digitization or changing modes of surveillance — could be discussed in the same way in relation to any other phenomenon of digitization.

Yet in the third chapter Lupton elaborates a more nuanced focus on her theme. Here she discusses the wide range of self-tracking practices from 2010s and singles out discourses which both give rise to these practices and legitimize them (such as, for instance, discourses of self-awareness and self-improvement). She shows that on the one hand, self-tracking in the context of digitization helps to produce expert knowledge on one's body or habits, which is based on quantitative information. This is fitting well into the neoliberal ethos of self-help. On the other hand, the ethos of self-tracking is much in line with the 'digital entrepreneurialism' as an orientation to try to use as many new technologies as possible (pp. 66–67). Hence this chapter is largely developing the author's answer on the very relevant question about whether, how, to what extent, and why current digitization is essentially neoliberal. The way Lupton connects phenomena of digital self-tracking and of neoliberal politics is through observation that in the discourse of neoliberal human, the notion of social structural factors is less important than the notion that people are self-made (p. 50). She suggests theorizing self-tracking as "a practice of selfhood that conforms to cultural expectations concerning self-awareness, reflection and taking responsibility for managing, governing oneself and improving one's life chances" (p. 68).

As the most obvious outcomes of neo-liberalization are usually noticed in relation to the 'pillars' of the welfare state such as education or healthcare, it is logical that Lupton's attention is mainly directed to these domains. In healthcare, for instance, self-monitoring devices are widely incentivized, on the one hand, to reduce healthcare costs by transferring certain types of monitoring to the at-home sphere and by promoting preventive health efforts, and, on the other hand, to generate big data sets for the medical research (pp. 18-19). In empirical sociological accounts on self-tracking this activity is often presented "as people's response to the problem of dealing with the uncertainties and openness of choice of late modernity" (pp. 76–77). It is thus seen as a symptom of a fundamental need to take control of one's course of action. On the other

hand, Lupton notes, for others "self-tracking may be a sign of weakness, of inability to engage in self-management without technological assistance" (p. 80). Moreover, she talks about the whole range of feelings of the lack of authenticity resulting from self-tracking — in cooking and eating, in walking around the city, etc. (pp. 81–82).

In the fourth chapter Lupton singles out and discusses that existing research takes on the phenomenon of data in the context of digitalization. And it is in the light of the spread of big data that she comments on the practices and discourses of self-tracking. Most of this discussion is based on quotes from the mass media (mainly articles and interviews by the proponents of the *Quantified Self* movement) and from already existing research material. An interesting insight here, found in Stephen Wolfram, is that self-tracking creates personal analytics, which is analogous to organizational analytics — human body and its processes are analyzed analogically to an organization and its processes (p. 92). Various data one gets about his or her nutrition or physical exercise can be analyzed in the long term and confronted with ones mood and feelings. Self-trackers therefore are encouraged to think about their behavior in terms of correlations between different activities. Here Lupton also complements such *Quantified Self* minded argumentation with her own critical angle, for example, by discussing whether quantitative analysis of sexual intercourse is enough to judge about how good it was (p. 99). In this chapter Lupton equally discusses the range of artistic projects designed around self-tracking practices and experimenting with various modes of displaying self-tracking results (pp. 102–109).

The fifth chapter is devoted to the issue of access to personal data generated in self-tracking practices. Lupton conceptualizes those data generated by self-trackers as 'biocapital' in terms of Nikolas Rose (2008), i.e. as a value generated from biological entities of human bodies (p. 117). In this respect online platforms and applications are not really consumed, but 'prosumed' in Ritzer's and Jurgenson's terms. Lupton herself notes that self-tracking practices "produce value in terms of the intimate biological knowledges" (pp. 117–118). Besides, some insurance companies incentivize their clients to engage in preventive health and testing ones body with self-tracking technologies in order to get better deals (p. 122–123). Lupton talks about the tendencies of private companies to buy data generated by self-trackers, however does not really go into detail of particular examples of this (for instance. uses of digitally generated personal data as evidence in lawsuits). She focuses on the disadvantages

of this situation for those who are already disadvantaged in terms of "assumptions and predictions" made about individuals "on the basis of preexisting data sets" (p. 119). This is most obvious in case of calculating risks in the sphere of insurance.

Such a configuration creates predisposition for the growing digital divide, defined by the access to information — at the current stage those are only big powerful institutions, which have access to big data (p. 129). Lupton points out that only a small minority of users are advanced enough to control the process of how their data are gathered and shared, while the majority "must rely on the commercialized products that are available and therefore lose control over where their data are stored and who is able to gain access" (p. 133). It also provides a range of options for cybercriminals to get access to personal health data with the purpose to sell them illegally on the black market or to illegally get pharmaceuticals (p. 126). Besides, although Lupton discusses that a common practice among the *Quantified Self* movement people as well as among other self-tracking communities to share ones data to others is about "self-reinvention and reflexivity", she holds that those intentions are usually mobilized in the broader social context for the sake of greater neoliberal individualism (p. 133). Yet she equally recognizes examples of when the data generated via self-tracking are used in egalitarian activism, aimed at environmental issues, community development, or urbanism (pp. 135–136).

In the book's "Final Reflections" Deborah Lupton summarizes her main points and returns to the main concepts and conceptual approaches that have structured her attention to self-tracking practices. This confirms the topicality of the tendency she is scrutinizing in her book, as well as presents existing conceptual instruments to make sense of this tendency. Lupton's book is therefore another very useful reminder that digitalization is part of the bigger and more complex transformation along the lines, most often depicted as neoliberalism or late modernity. Further refinement of the notions, which describe this transformation and make it available for analysis, as well as further refinement of the notions of causality between phenomena constituting the given tendency, are among the main tasks of the current and future social science.

Benjamin Cope

MARK DORRIAN "WRITING ON THE IMAGE: ARCHITECTURE, THE CITY AND THE POLITICS OF REPRESENTATION". LONDON; NY: I. B. TAURIS, 2015

The inaugural lecture that Mark Dorrian gave on taking up his chair as Forbes Professor of Architecture at Edinburgh University was titled, "What's Interesting?: On the Ascendancy of an Evaluative Term".[1] In the lecture, Dorrian records that when he informed colleagues he was writing about the term "interesting", the tendency was to write back along the lines of: "Yes, I know, I'm always using this word, but I wish I didn't." I am now ashamed that this was how I responded, for the lecture is the most potent expression I know of why, despite everything, teaching can be a wonderful occupation.

Dorrian's approach is to take seriously the shame involved in responding to something as being "interesting": the word has become a cliché, a fall-back term used when you don't really know what to say. Dorrian goes through the shame to reflect on why generating interesting work nonetheless seems to have become the primary aim of his pedagogical praxis. In doing so, Dorrian notes a discomfort he feels when describing work as good. For this evaluative term performs an act of closure: it affirms that the work in question fulfils a pre-assigned set of standards. Work that is interesting, Dorrian argues, does something different. Such work responds to the terms in which the

[1] Mark Dorrian. What's Interesting? On the Ascendency of an Evaluative Term. *Architecture and Culture*. № 4:2. 2016. P. 173–184.

task was set (or in the language of architectural designstudios, the brief was written), but does so in a way that is surprising, that critiques, challenges or picks up on something that was latent in the premises on which the task was constructed, and thus opens up a perspective that is new for both teacher and student. Interesting, or in its more exuberant version "really very interesting" work suggests an intensity in line with the etymology of the word interesting, "inter esse", to be between. Rather than an ending, really interesting work tingles with the beginning of a joint adventure of finding new ways to think.

I start with this odd deviation not just to assert that Mark Dorrian's book, *Writing on the Image: Architecture, the City and the Politics of Representation* is for me really interesting in the sense that Dorrian described in his essay, but also to argue that this interest is born out of a generative paradox. To review this collection of twelve essays, written more or less over the first decade of the new millennium, is to be drawn simultaneously in two perhaps contradictory directions. The first is the book as an exploration of the essay form. For in this volume we encounter writing that draws us into the heft and weave of a particular case in order to become the basis for a specular argument. In other words, the meticulous acuity and poetic sensitivity of the descriptions of the different cases that comprise the book are fundamental to it. These include: Walter Scott's urban choreography of the spectacle of the visit of George IV to Edinburgh, designed in order to generate symmetry and sympathy between the watching crowd and the king of the newly united England and Scotland; the shadow of the Palace of Culture and Science, Stalin's gift to Warsaw, displaced and miniaturised, but uncomfortably so, in the works of contemporary Polish artists; the semiotic minutiae that transform a visit to the London Eye into a mythical experience of flight, wherein the visitor becomes pure eye floating over the city; or a colleague in a French ministry starting his day by opening his computer and bouncing his Google Earth this way and that to relieve the tedium of affairs of state. In the essays grouped here, it is minutely observed material details — it is surely not accidental that the author's feet or shadow intrude into his photographs — that draw the reader into cultural, philosophical and literary associations that turn each chapter into a theoretical proposition. However, such writing also leads us away from theoretical summary towards the poetically orchestrated flow of the texts themselves, along which sensuous experience broadens out into exploration of cultural references that are more than just part of the argument.

Moving in an opposite current is the sense that, notwithstanding the coverage of a broad range of themes, encompassing city scenography, architecture criticism, the view from above, miniaturisation and expansion, digital image production, clouds and silence, this collection does constitute a powerful conceptual proposition. As each individual chapter drifts between issues, such as from the visual experience offered by the first Ferris Wheel at the 1893 World Exposition in Chicago to the city's mechanised meat industry; or from the anti-spectacle of a 2002 architectural cloud installation on Lake Neuchâtel in Switzerland to air conditioning and the privatisation of purity, it should be clear that the book's overall argument is not directly given, but is to be assembled by the reader from the rich array of component elements. For me, what seems interesting (sic!) and important is that Dorrian's critiques of technologies of vision and their socio-political ramifications offer tools for analysing our contemporary moment (of post-modernity?) as a multi-scalar phenomenon.

The evolutions of the aerial view, or what one chapter deems the "adventures on the vertical", provide a strong backbone to the essays gathered in this volume. Modernity, Dorrian argues, was characterised by a new vision oscillating between the microscope and the aeroplane. Both of these views from above were celebrated as new scales for dispassionate, scientific analysis, but the new worlds thus brought into view, with their displacing of the human subject, were also sources of anxiety. The microscope expanded microbic detail into worlds populated by alien life forms, while the aerial view shrank the landscape into a model available for new modes of measurement, but also generating exultation, dread and dreams of power. The transition that occurs post-war, as Dorrian notes in his analysis of Charles and Ray Eames' short 1977 film *Powers of Ten*, is that the scales of micro and macro are extended and intensified, and in so doing they become a subject of political competition.

The implication is that following the collapse of the Cold War political order, as Dorrian goes on to explore in the case of Google Earth, the intensification and extension of multi-scalar suturing is the watchword of our times. To put it perhaps too bluntly: big data enacts a further reconnecting of micro and macro, again opening new possibilities of scientific measurement, but also new exultation, dread and battles for power. The reproduction of a Google Earth visualisation of London on the floor of the entrance of the new London City Hall provokes in Dorrian a sense of vertigo (a dizziness all the more significant as this new building was opened in 2002 for a new London Assembly, following the disbanding of its predecessor at the height of neoliberal zealousness

in the 1980s). How can the council represent London if it conducts its debates in a building that stands on a representation of the city digitally generated by a multi-national corporation, moreover a corporation that seems to have mutated into becoming our informational environment, both "everywhere and nowhere" (p. 133)?

Dorrian is acutely aware of and deeply interested in the political consequences of the spread of new modes of generating and experiencing images, of the threats and potentials involved in an unbinding and rebinding of relations between micro and macro, of the challenges and tricks involved in connecting image to argument. This politics of representation (a more pliable tool for investigating the societies of our era than the Spectacle Society?) is a theme which runs through many of the essays gathered in this volume and is developed in particularly grim form in a later text on the application of top-down imagery in the automated killing carried out by drone weapons.[2] However, Dorrian is far from technological or economic determinism. In each case, even that of drones, techniques of image production and circulation demand and, in his writing, lead to an effervescent weave of cultural, philosophical and artistic explications that bring the object in question into sharper view.

In *Seeing Like a State*, James Scott condemns modern statehood in terms comparable to a project of over-successful, but over-rigid cartography: the modern nation state project, he argues, was founded on making society legible from above.[3] According to Scott such representations travesty the complexity of social life and across many fields, from forest management, through city planning to the Cultural Revolution, have led to projects to improve the human condition whose consequences have been disastrous. As a counter-proposal Scott champions mētis, a practically oriented, vernacular knowledge, even a certain kind of cunning, like that demonstrated by Odysseus, required in and born out of finding ways to overcome the challenges of changing environments.

The atelier for art, architecture and urbanism, of which Dorrian is co-director, is also named Metis. In the work produced at the atelier or in the innovative architectural design studios he has pioneered with students at Edinburgh University, the processes of developing architectural propositions unfold through responding to the specificity of a given site by means of material and

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[2] Mark Dorrian. Drone Semiosis: Weaponry and Witnessing. *Cabinet: A Quarterly of Art and Culture*. № 54. 2014. P. 48-55.

[3] Scott, J. *Seeing Like a State: How Certain Schemes to Improve the Human Condition Have Failed*. New Haven: Yale University Press, 1998.

abstract experimentation, and in challenging and playing with divergences of scale of representation. While there is clearly common ground in Scott and Dorrian's championing of mētis, the question posed in *Writing on the Image: Architecture, the City and the Politics of Representation* is not that of debunking the failures of over-rigid state planning diagnosed by Scott. Rather, Dorrian takes as a given that the challenge of the contemporary moment is that of being beyond a primary level or mode of the organisation of vision. This situation demands a patient reconstruction, case by case, of how modes of seeing are constructed in a particular context. Working at radically contrasting scales, through different techniques and discourses of representation, and at its limits (whether these be the nebulousness of clouds or silence), and tracking these through an eye-opening array of cultural references, Dorrian opens up a blueprint for a critical cartography of our mind-spinning everyday.

Dorrian also applies a craftsman's sensitivity and patient endeavour to the text as a material form: his *Writing on the Image* is deeply researched and beautifully constructed.

Alexei Ovchinnikov

REVIEW OF THE BOOK BY JORDAN H. CARVER "SPACES OF DISAPPEARANCE: THE ARCHITECTURE OF EXTRAORDINARY RENDITION". NEW YORK: TERREFORM, 2018

Spaces of Disappearance: The Architecture of Extraordinary Rendition by Jordan H. Carver was published in 2018 in a book series *Urban Research*, the imprint of *Terreform, a* New York based center for advanced urban research. Among other books published by *Terreform* are edited volumes *Downward Spirals: El Helicoide's Descent from Mall to Prison; Beyond the Square Urbanism and the Arab Uprisings*; *Adventures in Modernism: Thinking with Marshall Berman;* as well as *2010: A Dystopian Utopia / The City after Climate Change* by Vanessa Keith / Studio TEKA. It would be necessary to mention that many of those books focus on the exchange between design and social studies. Carver's monograph is not an exception, as it is focused on design of "black sites" — hidden jails, where any possibility of human condition disappears. *Spaces of Disappearance: The Architecture of Extraordinary rendition* is a first big monograph by Jordan H. Carver. He is equally the author of *America Recovered* (released in 2019) that he made in collaboration with photography historian Miriam Paeslack and photographer Chad Ress. Carter is also known as a contributing editor to the Avery Review and a core member of the "Who Builds Your Architecture" project.

The name of Carver's book is a reflection of Hanna Arendt's concept "the space of appearance", which she used in her book *Human Condition*. For Hanna Arendt

"space of appearance" is an open space where people can cooperate, communicate and where "the politics can be erected" (p. 17). Carver's research is on "black sites" — secret CIA prisons located around the world and created for inquiry procedure in the times of the War on Terror. This was an extraterritorial policy started by the U.S. government after 9/11 and "picked up" by other countries. The author analyzes "black sites", their architecture, organization and legitimization. Carver discloses why "black sites" became possible, how the U.S. government organized them and for what. He finds "black sites" not only in Guantanamo or Afghanistan, but also in the structure of Bush Junior bureaucratic machine. As I have mentioned above, the author's attention to the design of "black sites" construction and representation plays a big role in his research. Artifacts, analyzed and illustrated by Carver in his book, are "black sites" in perspective of their representation and legitimization.

A reader would find in this book many examples of absurd, but at the same time systematic demonstration of power. Starting from 9/11 the administration of George Bush created a bureaucratic machine, whose main function was reproduction of "black sites". The goal of this machine was fight against terrorism. However, as Carver shows, one of its outcomes was creation of places and symbols, which cannot be defined in any way. Carver starts his book with discussion of Donald Rumsfeld's oxymoron. A statement made by the former U.S. Minister of Defense that there are "things we know we know. We also know there are known unknowns; that is to say we know there are some things we do not know" has quickly become a meme. However this absurd logic lies in the core of the U.S. official policy of "black sites" creation. We know that such places as "black sites" exist, we know that the government use it for imprisonment of people, but we do not know the juridical status of these people and for what "black sites" were organized. At the same time we both know and do not know what "black sites" are.

The infamous base in Guantanamo is a spatial example of the "known unknown" logic. We might know about its existence, but we cannot define its status. Formally Guantanamo is a territory under the U.S. control, but the U.S. laws do not apply there. Its status was defined in 1903, some years after Cuba has proclaimed its independence. The USA played a special role in this process by creating the very possibility of Cuba's independence after the Spanish-American War of 1898. In reality the newly created Cuban government was under obligation to the U.S.: the war victory has given the States means to control Cuba and the Caribbean Sea. Two governments secured a "fraternal relationships"

also by some symbolic acts, one of which was a lease of Guantanamo Bay to the U.S. for an unlimited term. De jure the bay was leased for coal loading and as a temporal station of the ships. But nobody controlled, how exactly the territory and coastal waters were used because it was beyond any jurisdiction. It is remarkable that even after revolution of 1959 Castro was personally receiving the leasing money in accordance with the 1903 contract.

This way Guantanamo became a perfect place for constructing a "black site" to keep 'informers' there. We know that the prisoners are in Cuba, in Guantanamo, but we cannot define the political and juridical status of the territory. Using the legal lacuna of the "known unknown" created in the 20th century, the Bush administration received a space, necessary for internment of people arrested during the War on Terrorism. Besides, in order for the "known unknown" logic to be realized, the status of the internees had to be defined. From the very beginning the Bush administration has refused the "prisoners of war" status. Their position was based on a statement that the U.S. did not declare war on any sovereign state. Instead, they have created a new juridical form of "enemy aliens" or "enemy combatants" (p. 40). It helped to avoid the Geneva Convention requirements and to deprive the internees of any status or rights. George W. Bush approved this decision on February 7, 2002. This political decision was based on the idea that Al Qaeda and Taliban are not sovereign countries and, therefore, their agents or participants cannot be perceived as "prisoners of war". It looked like "we" know they are enemies, but their juridical status "we" don't know. That is why there are no legal rules for interrogation of "enemy aliens". Here we again fall into the field of the "known unknown".

These examples demonstrate that sovereignty is a product of power relations based on the mechanism of spatial reproduction. This thought is not totally new for the critical theory, and, as Carver mentions, was discussed by Judith Butler and by Henry Lefebvre (p. 42). In case of "black sites" we find a space, which is is not a space. In this context one could talk not only about the sovereignty of movement, but also about sovereignty of human life. We see dehumanization of enemy aliens' bodies, as they have lost their human characteristics, and are perceived merely as accommodation of jihadist ideology (p. 43), "creators of president's authority" (p. 43). Therefore the process of interrogation of "enemy combatants" can be regulated only by the president's power. In practice, interrogation turns into enhanced interrogation and then into torture.

In Carver, history clearly reveals the arbitrariness of attitudes to enemy aliens. Initially the "black sites" were created in order to receive information

on Al Qaeda activities. The main interest of the Bush administration back then was about Osama Bin Laden's whereabouts. It was the reason for the internment of the first "'enemy aliens", for example, Abu Zubaydah, who became the first "creator of president's authority". Yet Carver refers to the essay published in *London Review of Books* by Seymour Hersh, which says that neither interrogations of Zubaydah, nor interrogations of other internees had yielded any valuable information (p. 66). Information on Bin Laden's location was received from a former Pakistani officer, who came to the U.S. embassy in Istanbul and asked for a reward for information provided. For Carver, this means that it is difficult to reliably understand the reasons for the "black sites" reproduction and their role in the War on Terrorism.

As a product of today's society, the "black sites" system and the "known unknown" are models of reproduction of space. The CIA has created specific premises to make interrogations. These premises have been exported outside the juridical zone of the United States. In fact, the CIA used the same logistic solutions for prisoners and for the premises of imprisonment (p. 57). Carver also describes contracts for *SteelCell* prison cells. For example, the cost of construction of Camp V in Guantanamo was $17.5 million, while the construction of Camp VI — $30 million. This means that we can understand the creation of the "spaces of disappearance" as part of a big capital circulation. Carver only outlined the analysis of economic frauds that occurred around the creation, the transportation and the set-up of *Steel Cells*, but did not go into detail. It seems like it was not the goal of his research. However, he managed to recreate the atmosphere of the investigation. For example, he mentioned Kyle "Dusty" Foggo, who was a key figure in the CIA operations in Europe and "the man who could find anything" (p. 49). Also, the book contains a story of Jose Rodrigues, who destroyed 95 cassettes with records of torture and interrogations. It appears that if Carver had shifted the focus, he could have written a political detective.

The book consists of two parts. The first part is called "Politics, Sovereignty and Secrecy". Here Carver describes bureaucratic foundations for creation of "spaces of disappearance", the specific status of the internees, and a spectacle of administrative investigation. The second part of the book is called "An Atlas of Extraordinary Rendition". It is the analysis of the organization and geographical location of "black sites". Here he tried to restore the logic of the American administration, which used a complicated logistic net for the transportation of enemy aliens. Carver analyzes these spaces and places, and all mechanisms used in reproduction of "black sites". Firstly, he conceptualizes the practice of

"black sites" reproduction, further on he presents the illustrations and quotations (Carver's take is basically not articulated). The book also consists of large amount of appendices. Here Carver's methodology attracts special attention. The main materials for the author's interpretation are memorandums that he took from the interviews and statements of different representatives of the U.S. administration. All those memos are presented in a special appendix. They are essential to configure the symbolic space of the book. By quoting a specific memorandum, we can define the official position regarding this or that issue. This is the only relatively distinct construction in the shadowy world of the "known unknown".

Siarhei Liubimau

REVIEW OF THE BOOK BY BAS VAN HEUR "CREATIVE NETWORKS AND THE CITY. TOWARDS A CULTURAL POLITICAL ECONOMY OF AESTHETIC PRODUCTION". BIELEFELD: TRANSCRIPT VERLAG, 2010

The reviewed book is noteworthy first of all in the light of the context, in which it was generated; as well as in the light of expected and actual impact on the current urban studies and on public discussions of urban governance in Europe. In "Creative Networks and the City" there was a very good showcase of the mainstream studies of relations between the terms of 'governance of cultural symbolic production' and 'urban development'. This book did not really generate new concepts and did not reveal radically new regularities regarding those relations. Yet it has well structured and presented the discourses on how 'governance of cultural symbolic production' is relevant for 'urban development' and vice versa. At least back in 2010 those discourses were dominant both in the academic urban studies and in urban development. Characteristically, Van Heur's research project was localized in Goldsmith College London and Center for Metropolitan Studies Berlin — the ones among the most recognizable nodes of popularization of this research agenda in European academia. In this light one could expect from this book examination and critical analysis of the rhetoric about culture-led urban development; as well as analysis of how this rhetoric is grounded in governance strategies. One could also expect from this study more sophisticated theorizations of culture led urban development than publicly reproduced.

On the most general level the book poses the question of relations between three terms — 'accumulation', 'regulation', and 'networks in aesthetic (cultural) production'. The first two terms (and relations between them) are summarized with little discussion and presented in the classical version of regulationist approach to neoliberalism (with Bob Jessop as the central reference). In this version, mode of regulation is understood as process, which "normalizes" capital accumulation. Here one could notice the author's tendency to question and reflect on the limits of economy, politics and social strategies. The book's hypothesis remains rather cautious in relation to the empirical and conceptual context, and says that in case of aesthetic production, networks should be understood as emerging from the mechanisms of accumulation and regulation (p. 18). Therefore, Van Heur suggests considering mechanisms of accumulation and regulation as primary ones, while networks of aesthetic (in this particular case — music) production as determined by already formed dominant modes of regulation and accumulation.

In the empirical sense this book describes networks of production of electronic music in Berlin and London. The choice of electronic music as a researched case is justified on the one hand by predominantly "grassroots" aesthetic production (with minimal engagement of big commercial events and major labels), and on the other hand by the growth of popularity of this type of music simultaneously with the strengthening of accumulation regimes typical of the 'knowledge society'. The author focuses on three key aspects of the tendencies, summed up by the terms 'knowledge society' (sometimes 'knowledge economy') and 'creative industries'. The first aspect is urban spaces as key localizations of transforming capitalism. The second aspect is the role of strategies of urban creative industries as the state's tools to exploit creativity and knowledge. The third aspect is the role of networks of aesthetic (cultural) production in strategies of urban, and, wider, capitalist development. Van Heur tries to work with all those three aspects simultaneously, and to coordinate approaches of cultural studies and of political economy in the field of urban research on creative industries. In this case the main argument of the former approach is about 'culturization' of the economy; while the main argument of the latter approach is about commodification, local clusterization, and about exploitation of labor in cultural and aesthetic practices. Generally, Van Heur pays a lot of attention to the existing conceptual context, which makes incorporation of his own arguments into this context often overextended. Moreover, here he creates an impression that the regulationist paradigm is

the only possible one for the analysis of relations between aesthetic production and urban environment.

One should acknowledge that this does not hinder the author to precisely and interestingly summarize the strong sides of the regulationist approach. His efforts to explore and to develop the regulationist paradigm of research on 'creative city' often turn out to be a fundamental deconstruction of the cliché of state rhetoric about creativity as an instrument of urban development. For instance, Van Heur argues and constantly assumes that the networks of aesthetic production are mainly temporal categories, not spatial ones. It means that it is possible to identify much more interesting regularities in their temporal (not spatial) aspects of functioning. And in the process of localized learning of skills necessary for the process of aesthetic production, the social (not spatial) context is more important. This is against fetishization of place in neoliberal state rhetoric. For instance, as Van Heur shows, in terms of localized learning, clusters are helpful to acquire entrepreneurial skills, but are not useful in terms of acquiring technical skills. Generally the argument is that clusters of aesthetic (cultural) production are not that much a spatial model for aesthetic production, but a mode of regulation of aesthetic (cultural) entrepreneurs on the urban scale.

In such perspective spatial units of clusters of aesthetic production are regarded by Van Heur as designed by the state with an aim for turning diverse and often uncoordinated activities related to those spatial units, into relatively formalized and regulated process of capitalist production. The author shows that practical activities of many participants of electronic music production and distribution clusters have not changed radically after the emergence of the state rhetorical apparatus of creativity. Van Heur considers this apparatus as legitimizing the set of terms aimed at description and reglamentation of 'knowledge society', "cultural entrepreneurialism', 'flexible employment', etc. In this light, a cluster to Van Heur is essentially a unit of economic imagination, which has performative effect. This performative effect implies that a cluster is not only a discursive, but also a regulative phenomenon. And "creative" clusters are only one of the niches of regulation (in the broader regulation regime). Thus, Van Heur shows that under the current regime of accumulation and regulation the cliché "cluster' serves rather for objectification of industry and for legitimation of state intervention into this industry. [1]

[1] The author examines it in better detail here: Bas van Heur. "The Clustering of Creative Networks: Between Myth and Reality" in Urban Studies 46(8), 2009,.pp. 231—252. In

Van Heur's entire book is primarily an effort to sum up regulationist approach to urban development seen through the lenses of 'knowledge society'. The book's structure articulates this author's aspiration well. Appropriate concepts are operationalized very distinctly and clearly, however it does not always imply structured argumentation. Sometimes it feels as if the author repeats himself. Besides, the book creates an impression that due to fixation on the strict operationalizations, the author sacrifices big amounts of empirical material: presentation of data — especially the qualitative one — lacks narrative and more detailed discussion. The most innovative conceptual endeavor of the author is juxtaposition of the concept of 'network' with the concepts of 'accumulation' and 'regulation'. In this case he fruitfully uses the concept of 'emergent culture' by Raymond Williams. Actualization of this concept looks like the main addition to the regulationist theory. In particular, in the research environment the focus on the process of emergence instead of on the process of structuration and disciplining significantly valorizes practices of description vis-a-vis practices of explanation.

this article he is more articulate in confronting networks on the one hand and clusters on the other, saying that the rhetoric and popularity of the cluster imagery is rather the result of the state intervention with a goal to stabilize and routinize prevalent accumulation regime.

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