Datafying the commons: data publics and smart citizenship

Michiel de Lange, Utrecht University, dep. Media & Culture studies | m.l.delange@uu.nl | draft version 1 - rough! | workshop "The Right to the Smart City", Maynooth, 5-6 Sept 2017 | Session 2: Urban commons

Introduction

The proliferation of (big) urban data is spurring a research and design agenda that aims to increase and improve civic participation in the smart city. In this contribution I explore how data can help foster a more participatory smart citizenship. Smart cities heavily rely on data: from control rooms and urban dashboards, to crime maps and predictive policing, to sensing and the Internet of Things. The challenge is to make sure that these data in practice do not just promote the interests of the few, but the common interests of the many in fully participating in urban life and culture. Hence, the proliferation of data in the smart city raises questions about what Lefebvre and many after him have called "the right to the city" (Lefebvre 1996: 147-159, Mitchell 2003, Harvey 2008, Pugalis and Giddings 2011, Mayer 2009, Brenner, Marcuse, and Mayer 2012). More recently, the rise of digital media in the urban realm is spurring a renewed interest in this notion (Antoniadis and Apostol 2014, Corsín Jiménez 2014, de Lange and de Waal 2013).

For some authors this renewed interest in the right to the city takes on the form of treating the city itself as a commons (Foster and Iaione 2016, Ramos 2016, Huron 2017, Feinberg, Ghorbani, and Herder 2017). "[T]he city is a commons in the sense that it is a shared resource that belongs to all of its inhabitants. As such, the commons claim is importantly aligned with the idea behind the "right to the city"—the right to be part of the creation of the city, the right to be part of the decision making processes shaping the lives of city inhabitants, and the power of inhabitants to shape decisions about the collective resource in which we all have a stake" (Foster and Iaione 2016: 288).

Foster and Iaione proceed to make an argument for "urban collaborative governance", which means allowing people to govern the city as a commons (Foster and Iaione 2016: 335). In this scenario, they say, government becomes a facilitator instead of clinging on to a "command and control" system of governance. This points to an interesting tension in the changing relationship between governments and citizens in the smart city. One the one hand cities are becoming renewed centers of political power with strong leadership (Barber 2013) and a new slate of new technologies acting as aids this ambition toward control via data and dashboards (Kitchin, Lauriault, and McArdle 2015a, Mattern 2015). One the other hand, apart from state-owned, corporate-owned, or privately-owned data, we see an emergent domain of individuals, organizations and institutions who strive to make open up data in order to further public interests and empower citizens. Frequently they invoke or allude to the language of the commons. A variety of organizations work on fostering a 'data commons', 'knowledge commons' or 'networked commons' (Paul 2006) as a potentially valuable new resource for making decisions about urban futures, ideally with the involvement of people. This part of a broader set of developments in the ream of civic media or civic technology, terms that have gained some traction to designate the potential of media technologies to foster citizen engagement (Gordon and Mihailidis 2016, Schrock 2016). The agenda attempts to counter or complement the hitherto dominant rhetoric of efficiency and solution-oriented in mostly corporate smart city visions, in which data play a

key role. The promise of civic data is to help address some of the complex societal 'wicked problems' that cities face. By now it has become clear that just opening up data is not going to do much yet. How can we reimagine data as civic media, as fostering civic engagement among so-called smart citizens with issues of common concern?

Smart city visions and discourses have received much criticism (for example Hollands 2015, Hemment and Townsend 2013, de Lange and de Waal 2013, Calzada and Cobo 2015, Söderström, Paasche, and Klauser 2014, Vanolo 2014). These critiques can be broken down in three major strands. The first strand of criticism focuses on the ill-defined notion of 'smartness'. What does 'smart' actually mean? Who are supposed to be smart? How can digital technologies be used for a pedagogy of smart urban life? The second strands targets the technocratic solutionism of these visions and the lack of agency ascribed to so-called 'smart citizens'. All too often, technology-centric smart city visions assume that there are easy technological fixes to complex urban problems. They fail to leverage citizen creativity and smartness in more participatory ways of city making. The third strand critically questions underlying simplistic views of what cities are or should be. What makes a city? Do we want city life and the urban experience to be about control, efficiency and predictability, or do we also value serendipity, friction, and playfulness?
In this contribution I want to explore how the notion of a data commons can help to addresses these criticisms by offering a fruitful alternative theoretical angle to question how data can help foster a more participatory smart citizenship.

Data and the right to the smart city

First, we provide a schematic mapping of various stakeholders who have different aims and interests with urban data. We can differentiate them along the lines of the often-used triple helix, quadruple helix (Arnkil et al. 2010) and even the quintuple helix (Foster and Iaione 2016: 331). The typical triple helix consists of the typical consortia of governments - corporations - knowledge institutions. The quadruple and quintuple helix models include the loosely/non-organized civic realm, and the more institutionalized NGOs with civic aims.

1 Smart city governments are turning to data in order to improve their decision-making capacity and the legitimacy of policy (Goldsmith and Crawford 2014). Many cities open up datasets and develop data policies. How can urban publics be involved, and take 'ownership' of issues through data?

2 Corporate use of urban data can be in the form of control rooms, dashboards, analytics, etc. Many companies now collect, process, sell services, and receive venture capital based on urban data. Well-known examples include Google/ALPHABET's Sidewalk Labs, and large sharing economy platforms such as Airbnb, Uber, Nextdoor, and so on.

3 Academia turns to a data-driven 'science of cities'. Against 'pseudo-science' of urban planning. Systems view of cities as computational problems; quant. methods; predictive modelling, control over uncertainty. How can connections be forged to involve urban publics as issue owners?

4. Citizens as private individuals are in large numbers using self-tracking technologies to

monitor a wide variety of everyday activities like consumption, sleep, work outs, and so on (Lupton 2016). On a collective scale citizens are contributing to citizen science projects, or civic projects. And many people generate data without any knowledge let alone consent about what it is used for, e.g. via smartphones, everyday mobility, surveillance devices, and transactions. (see Kitchin 2014).

5. Civic organizations too are developing strategies and projects around data for the common good. A well-known example is *Code for America* and its various offsprings in other places in the world.

The importance of data in the smart city gives rise to a variety of questions about ontology, epistemology and politics. On an ontological level, data drive a view of cities as cybernetic systems that can be knowable and manageable based on rational and quantified foundations (Kitchin, Lauriault, and McArdle 2015b, a, Mattern 2014, 2015, Söderström, Paasche, and Klauser 2014). From the more cultural perspective of cities and the role of media, art and performance we can wonder whether this is not a one-sided view of city life. Many classical works underline typical qualities of urban culture such as serendipity, chaos, wonder, even myth and magic. On an epistemological level we can question the nature of our sources of knowledge about city life that are based on data. As many have stated, data are not merely a representation of reality but also contribute to the construction of that reality. For instance the typical crime map is not merely showing where crimes occur, it actually represents people's reported events, and comes to shape how we perceive certain neighborhoods, which in turn may impact reality. At the level of politics we can wonder whether data contribute to 'algorithmic governance' (Tufekci 2014), or whether they support the interests and agency of urban publics around issues of shared concern? Furthermore, it has been argued that data tend to promote technocratic rule, a 'new managerialism' (Kitchin, Lauriault, and McArdle 2015a: 14), instead of a true politics.

Urban commons, data commons - conceptualizing and positioning

What should we actually understand under the label of the urban data commons? From literature, it becomes clear that the commons are theorized both as a 'thing', a process, and a set of conditions for governance. As we shall see below, this tripartite understanding is important for understanding urban data as a commons. Moreover, as a term the commons is used in descriptive (is) and normative (ought) ways. The commons is usually understood to refer to a finite rivalrous resource that is hard to shield off from freeriders, and that runs the risk of depletion without proper management. In response to Garrett Hardin's assertion that to avoid a tragedy the commons need either state control or privatization (Hardin 1968), Elinor Ostrom shows how what she calls 'common pool resources' (CPO) can indeed by sustainably governed by collective institutions (Ostrom 1990). hence, the governance of commons typically is positioned somewhere between public (state) and private (enterprise, personal) in the hands of self-organizing collectives. When applied to the urban domain, the notion of the commons is forwarded against tendency of neoliberal commodification. The commons is positioned vis-a-vis a host of tendencies towards enclosure of urban spaces and resources (Foster and Iaione 2016: 284). There is an interesting tension in a legalistic focus on commons as inextricably connected to (discussions about) property rights, and a focus

on ‘ownership’ or ‘the right to’ as the social corollary to this legalistic understanding.

The idea of an urban commons gives rise to the question why it is productive to understand the city as a commons, and what resources in particular this term may be applied to? Many resources are important for urban life, including space, housing, public spaces, opportunities, social capital, culture. Increasingly, a key resource for urban life involves also data.

If we understand commons as things, social processes (commoning), and institutional arrangements (governance), what are the implications for the urban data commons? First, analyzing urban data commons as things means we have to look at their medium-specific qualities: materiality and affordances. Urban data are often contextual, personal, easy to copy and distribute, cheap, and have high barriers to entry in terms of processing and deriving useful information and knowledge from data, and ownership (in the sense of property rights) is sometimes fuzzy (Boellstorff 2013, boyd and Crawford 2011, Jensen 2013, Kitchin 2014). A question is whether qualities associated with classical commons like non-excludability and rivalry (or subtractability) apply to data. In classical theories commons are difficult to exclude from usage by others. Digital data are easier to silo and even when opened up to the public often require quite a bit of skills to be used productively. Rivalry means that usage by someone harms potential usage by another (as in multiple herdsman who compete to let their flocks of sheep graze on a shared pasture). If digital data technically are an infinite resource, by virtue of being easy to copy and redistribute at almost zero additional cost, then what is rivalrous or subtractable about it? Rivalry may still exist in the conflicts about issues of public concern that data give rise to: e.g. land ownership, environmental debates, platformization, and so on. It is then - for the most part - not the data as such but the issues and stakes they come to represent and back that can be taken as commons. [1] I propose to take the idea of Margaret Somers (Somers 2008: 8) who says that “rights must be recognized to be public goods”, and extend this to data. In the light of ‘the right to the city’ we can translate this to data as resources that underlie issues of public concern. We see how urban data as goods may exist on a spectrum of rights. Urban data represents the whole gamut of commons varieties: public goods - classical commons - limited commons - private ownership. What matters for my purposes is how data can help to address common issues of concern in cities like for instance environment, livability, social equity. The key question is what value can be derived from data and to what extent is that subtractable value, or perhaps also an additive value (network effect).

Second, we should understand the variety of practices associated with urban data commons. Examples we will look at include generating data, appropriating and hacking data, city making with data.

Third, questions arise about institutionalizing and governing the data-commons. In smart cities people are creating copious amounts of data. Hence, the argument goes, this data should be opened up because it belongs to all of us. But this rests on a rather simplistic view that falsely equates sharing with participation and collaboration. Many open data policies initially were just sharing data, opening up databases to the general public and exchanging data between organizations or agencies. A commons view of data is more

[1] As an aside, rivalry clearly exists in the intra-urban competitive spirit that exists between the ‘smartest cities’, which are fuelled by various rankings. Which city has the best data, and best data management system in place - certified by Bloomberg - and hence can be called smartest city?

collaborative model which sees data as the starting point for further co-creation processes. Examples include the many hackathons and app challenges that are being organized, and the experimental living labs set up in many different cities to experiment with co-design and innovation (IFTF 2010, Graaf and Veeckman 2015, Lodato and DiSalvo 2016, Schrock 2016, de Waal, de Lange, and Bouw 2017).

Yet some people have argued against this ideal of 'open by default' and take a more nuanced stance. E.g. Richard Beckwith, John Sherry, and David Prendergast (in a forthcoming chapter in the book *The Hackable City*, which I am co-editing) argue that sometimes unrestricted flow of open data may be harmful to people, and argue that sometimes a balance needs to be struck between restricting and sharing data, for the sake of community cohesion and value.

Data and urban publics in peril?

How can data as a type of urban commons shape the urban public domain and citizen participation? We need to briefly discuss urban publics.
A first way to differentiate is based on specifying the underlying basis of publicness. Urban publicness can be understood as spatial (public space); as people-based (publics); founded upon modes of communication (public info), or understood as political (public issue). Another way is by highlighting some imaginaries of urban publics. In literature we can discern three dominant imaginaries of urban publicness. Each comes with its own 'urban interface'. This allows us to explore how data-driven urbanism may constitute new commonality and publicness.

First is a rational view of urban publics. This entails a deliberative and supra-identitarian search for commonality, while ignoring difference. In terms of urban/media hybrid, this type of public is situated in early metropolis coffee houses with men reading and debating in safe indoor spaces. Associated authors include Arendt, Habermas, Sennett. The associated communication interface is speech, or to be more precise dialogue. Situated discourse acts as the interface.

Second is a more affective foundation of publicness, based on experiencing and consuming co-presence and difference though sensations and embodiment. Personal preferences were not something to be overcome but at the heart of this communal experience. The urban interfaces here are the sensual gazes and bodies of modern metropolitan flaneurs reveling in a dramaturgy of staging and watching. The archetype here is the flaneur in streets who engaged in curious yet detached gestures of staging and watching. Associated authors include Baudelaire, Benjamin, Bermann. The associated forms of communication are staging and watching.

Thirdly, a ritual publicness emerges from everyday symbolic interactions such as civil inattention, typically in spaces of mobility in the late modern city. The urban interface here is 'code': scripted common behavior between urban strangers, contractual rules, coded behavior of symbolic interactionism, and civil inattention. Public life emerges from these coded interactions.

With the datafied smart cities, are urban publics in peril? There are two opposing views of citizenship and participation. One involves a liberal view that highlights 'passive' individual rights ("the right to have rights"), while the other entails a republican communitarian view that emphasizes 'active' collective participation and civic duty (Somers

2008: 5, 14). Today's technology-driven smart cities seem to recombine these two types into a new type of participatory liberal citizenship, while stripping away their respective empowering potential and political agency. The good citizen is neither a collectively organized and vocal political agent, nor someone protected by individual rights, but primarily a mute collector of data, over which (s)he often loses any rights. Civic participation equals producing economic value. Although this is often touted to exemplify a new branch of participatory and entrepreneurial citizenship predicted upon a collectivized sharing economy, in terms of political agency it is very limited. Communal participation turns into an individualized duty: you shall be a productive citizen. How can this tendency be countered through the urban data commons?

Smart citizenship with data: strengthening ownership

I now consider how data may support public civic participation. I do so by building on the *ownership* framework developed in earlier work (de Lange and de Waal 2012, 2013). The notion of ownership bears strong similarities to the Lefebvrian idea of the *right to the city*, in the sense that both refer to a non-contractual collective sense of stewardship, commitment and right to appropriation to everyone. The following components make up this framework:

1. Networks: people self-organize as networked 'data publics'.
2. Issue: people visualize and articulate abstract shared 'data-driven issues'.
3. Engagement: involving people through (self-generated) 'data-narratives' and engaging experiences.
4. Providing a horizon for action through data-narratives, or playfulness, allowing for negotiation and collective action.
5. Pooling resources in reciprocal ways. Pooling resources: from opening up and connecting data, to messy ways of fostering data literacy and civic participation around hard to measure issues.

For each I give an illustration.
Moreover, I this framework can be to the case of InsideAirBnB, a platform that acts as a check for the ongoing privatization of oftentimes public goods like social housing. It is a data-driven dashboard that serves to recommon the tendency of platformization and privatization of urban life. Urban dashboards usually enclosed spaces: institutionalized governments (e.g. Rio dashboard), corporate-owned (e.g. the many social media dashboards used by companies), personal: e.g. quantified self apps, self-tracking. There are far fewer collective or public interfaces to data. Quite a few apps or (art/design) projects indeed do attempt to make urban data visible for everyone (e.g. Richard Vijgen's work 'Architecture of Radio' or Timo Arnall's 'Immaterials' WiFi visualizer). But often there is no horizon for action in terms of its city-making potential. How can people use these data to make their own city?

Considerations & discussion

In this section, I reflect critically on the some of the challenges and open questions that arise from the above. Issues that are addressed include the tension between self-description vs

other-ascription, agency and the governance of/by platforms, splintering urban publics, and institutional legitimacy of governing civic data. Challenges of the data-driven smart citizen include fostering new literacies in datavis, regulating mechanisms and practices of in- and exclusion, scaffolding and safeguarding the legitimacy of new institutions for data governance. Discussions further include the role of urban data commons in relation to collective identities and actions; and agency and governance of/by platforms.

References

Antoniadis, Panayotis, and Ileana Apostol. 2014. *The Right(s) to the Hybrid City and the Role of DIY Networking*. Vol. 10, *2014*. Community information; Ownership; Self-organization; Community Wireless Networks.

Arnkil, Robert, Anu Järvensivu, Pasi Koski, and Tatu Piirainen. 2010. Exploring Quadruple Helix: Outlining user-oriented innovation models. In *Final Report on Quadruple Helix Research for the CLIQ project*. Tampere: University of Tampere.

Barber, Benjamin R. 2013. *If mayors ruled the world: dysfunctional nations, rising cities*. New Haven; London: Yale University Press.

Boellstorff, Tom. 2013. Making big data, in theory. *First Monday* 18 (10).

boyd, danah, and Kate Crawford. 2011. "Six Provocations for Big Data." "A Decade in Internet Time: Symposium on the Dynamics of the Internet and Society", Oxford Internet Institute, 21 September 2011.

Brenner, Neil, Peter Marcuse, and Margit Mayer. 2012. *Cities for people, not for profit: Critical urban theory and the right to the city*. London: Routledge.

Calzada, Igor, and Cristobal Cobo. 2015. "Unplugging: Deconstructing the Smart City." *Journal of Urban Technology* 22 (1):23-43. doi: 10.1080/10630732.2014.971535.

Corsín Jiménez, Alberto. 2014. "The right to infrastructure: a prototype for open source urbanism." *Environment and Planning D: Society and Space* 32 (2):342-362.

Feinberg, Arthur, Amineh Ghorbani, and Paulien Herder. 2017. "The role of online community platforms for the management of the urban commons." 'Practicing the commons: self-governance, cooperation, and institutional change', Utrecht University, 10-14 July 2017.

Foster, Sheila R., and Christian Iaione. 2016. "The City as a Commons." *Yale Law & Policy Review* 34 (2):280-349.

Goldsmith, Stephen, and Susan Crawford. 2014. *The responsive city: engaging communities through data-smart governance*. San Francisco: Jossey-Bass. text.

Gordon, Eric, and Paul Mihailidis, eds. 2016. *Civic Media: Technology, Design, Practice* Cambridge, MA.: The MIT Press.

Graaf, Shenja van der, and Carina Veeckman. 2015. "The City as Living Laboratory: Empowering Citizens with the Citadel Toolkit." *Technology Innovation Management Review* 5 (3).

Hardin, Garrett. 1968. "The Tragedy of the Commons." *Science* (162):1243-1248.

Harvey, David. 2008. "The right to the city." *New Left Review* (53):23–40.

Hemment, Drew, and Anthony Townsend, eds. 2013. *Smart Citizens*. Manchester: FutureEverything Publications.

Hollands, Robert G. 2015. "Critical interventions into the corporate smart city." *Cambridge Journal of Regions, Economy and Society* 8 (1):61-77. doi: 10.1093/cjres/rsu011.

Huron, Amanda. 2017. "Theorising the urban commons: New thoughts, tensions and paths forward." *Urban Studies* 54 (4):1062-1069. doi: 10.1177/0042098016685528.
IFTF. 2010. A Planet of Civic Laboratories: The Future of Cities, Information, and Inclusion.
Jensen, Klaus Bruhn. 2013. "How to do things with data: Meta-data, meta-media, and meta-communication." *First Monday* 18 (10). doi: doi:10.5210/fm.v18i10.4870.
Kitchin, Rob. 2014. *The Data Revolution: Big Data, Open Data, Data Infrastructures & Their Consequences*. London; Thousand Oaks, Calif.: SAGE. text.
Kitchin, Rob, Tracey P. Lauriault, and Gavin McArdle. 2015a. "Knowing and governing cities through urban indicators, city benchmarking and real-time dashboards." *Regional Studies, Regional Science* 2 (1):6-28. doi: 10.1080/21681376.2014.983149.
Kitchin, Rob, Tracey P. Lauriault, and Gavin McArdle. 2015b. "Urban indicators and dashboards: epistemology, contradictions and power/knowledge." *Regional Studies, Regional Science* 2 (1):43-45. doi: 10.1080/21681376.2014.991485.
de Lange, Michiel, and Martijn de Waal. 2012. "Ownership in the Hybrid City." In. Amsterdam. http://virtueelplatform.nl/g/content/download/virtueel-platform-ownership-in-the-hybrid-city-2012.pdf.
de Lange, Michiel, and Martijn de Waal. 2013. "Owning the city: new media and citizen engagement in urban design." *First Monday* 18 (11). doi: doi:10.5210/fm.v18i11.
Lefebvre, Henri. 1996. *Writings on cities*. Translated by Eleonore Kofman and Elizabeth Lebas. Cambridge, Mass, USA: Blackwell Publishers.
Lodato, Thomas James, and Carl DiSalvo. 2016. "Issue-oriented hackathons as material participation." *New Media & Society* 18 (4):539-557. doi: 10.1177/1461444816629467.
Lupton, Deborah. 2016. *The quantified self: a sociology of self-tracking*. Cambridge, UK: Polity.
Mattern, Shannon. 2014. Interfacing Urban Intelligence. *Places Journal*. Accessed March 2015.
Mattern, Shannon. 2015. Mission Control: A History of the Urban Dashboard. *Places Journal*. Accessed March 2015.
Mayer, Margit. 2009. "The 'Right to the City' in the context of shifting mottos of urban social movements." *City* 13 (2-3):362-374. doi: 10.1080/13604810902982755.
Mitchell, Don. 2003. *The right to the city: social justice and the fight for public space*. New York: Guilford Press.
Ostrom, Elinor. 1990. *Governing the commons: the evolution of institutions for collective action*, *Political economy of institutions and decisions*. Cambridge [England] ; New York: Cambridge University Press.
Paul, Christiane. 2006. "Digital Art/Public Art: Governance and Agency in the Networked Commons." *First Monday; Special Issue #7: Command Lines: The Emergence of Governance in Global Cyberspace*. doi: 10.5210/fm.v0i0.1616.
Pugalis, Lee, and Bob Giddings. 2011. "A renewed right to urban life: A twenty- first century engagement with Lefebvre's initial "cry"." *Architectural Theory Review* 16 (3):278-295. doi: http://dx.doi.org/10.1080/13264826.2011.623785.
Ramos, José Mari. 2016. The City as Commons: A Policy Reader. Melbourne, Australia: Commons Transition Coalition.
Schrock, Andrew R. 2016. "Civic hacking as data activism and advocacy: A history from publicity to open government data." *New Media & Society* 18 (4):581-599. doi: 10.1177/1461444816629469.

Söderström, Ola, Till Paasche, and Francisco Klauser. 2014. "Smart cities as corporate storytelling." *City* 18 (3):307-320. doi: 10.1080/13604813.2014.906716.

Somers, Margaret R. 2008. *Genealogies of citizenship: markets, statelessness, and the right to have rights*. Cambridge: Cambridge University Press.

Tufekci, Zeynep. 2014. "Engineering the public: Big data, surveillance and computational politics." *First Monday* 19 (7). doi: http://dx.doi.org/10.5210/fm.v19i7.4901.

Vanolo, Alberto. 2014. "Smartmentality: The Smart City as Disciplinary Strategy." *Urban Studies* 51 (5):883-898. doi: 10.1177/0042098013494427.

de Waal, Martijn, Michiel de Lange, and Matthijs Bouw. 2017. "The Hackable City: Citymaking in a Platform Society." *Architectural Design* 87 (1). doi: DOI: 10.1002/ad.2131.