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The right to the city and data protection for developing citizen-centric digital cities

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Abstract: Smart city urban development seems inevitable for the future of our cities, but who should decide what that future should be like and whose interest's smart urbanism serves? The 'Right to the City' calls for citizens as 'users' of cities to be integral parts to the socio-technological processes that shape urban space. This article explores how citizens can participate meaningfully, and whether data protection rights can be instrumental to this objective. It does so by analysing several smart city projects in Belgium and the Netherlands that were affected by the GDPR. The findings illustrate that data protection impacts smart city developments, but meaningful influence of citizens, as in the Right to the City, remains very limited. The article argues that already dominant actors and decision-makers remain in control of 'smart' urban developments, while citizens often lack awareness and data literacy. We suggest that participatory methods for city-making are valuable if they bring about small, incremental changes and that researchers can play an active role in lowering barriers to meaningful participation in practice.

Keywords: Smart city; right to the city; data protection; participatory city-making; material semiotics

Introduction

In 'smart' cities, urban spaces aim to integrate physical and digital worlds through information and communication technologies (ICT) and the capturing and processing of (personal) data. There can be benefits, but also major potential to subvert the exercising of citizens' rights, especially when the latter are accepted only as long as economically feasible for those who control the data (Goodman & Powles, 2019). Governance can reconfigure public values and relations between public institutions and citizens (Mosco, 2019; Swyngedouw, 2011).

This article presents research inspired by the *Right to the City* (Lefebvre, 1968) and rights to personal data protection in 'smart' or 'datafied' cities, which could be complementary in fostering involvement of citizens in decision-making. Lefebvre argued that 'users' of cities should be able to change conditions of life by (re)producing all aspects of the urban (Harvey, 2008; Kitchin et al., 2019). Rights to data protection address users of technology (data subjects) under the European legal framework for data protection and ask to '[...] seek the views of data subjects or their representatives on the

intended processing' (EU, 2016, Art 35(9)). This could empower citizens, or the data subjects of datafied cities, in decision-making (van Eck, 2019, p. 308).

The article reports on a qualitative study into provisions of the EU's General Data Protection Regulation (EU, 2016) and their implications for citizen participation using material semiotic analysis (Law, 2019). Lefebvre's notion of the 'right to the city' is employed to critique EU data protection provisions and to analyse empirical data derived from interviews and other interactions with actors (Data Protection Officers, legal advisors, start-ups, experts, data protection authority and public servants) involved in urban data processing projects across Belgium and The Netherlands. We ask how 'users' of cities can participate meaningfully in socio-technological processes that shape cities, and whether data protection rights can be instrumental to this objective? The study found that data protection impacts smart city developments in various ways, but the agency of citizens, as put forward by Lefebvre, remains limited.

Following this introduction, the smart city concept is introduced as well as the right to the city, followed by a discussion of public participation in smart cities (or participatory city-making) and the conceptual challenges of EU data protection rights. The literature review ends with an introduction to material semiotic analysis. After the employed methodology is described, findings are presented, and a conclusion discusses the findings. It argues that although data protection provisions did not increase the involvement of citizens in the studied projects, its emphasis on rights and freedoms of those whose data is being processed can be instrumental in strengthening the position of citizens, if accompanied by the right guidance from supervisory authorities, more clarifications through court decisions and active, participatory research.

Theoretical background

Smart city

Over the past couple of decades, the concept of a 'smart' city has become central in various domains and the application of associated ICT within urbanisation has become inevitable. In 2011, IBM officially registered the term as its trademark (Söderström et al., 2014). Previously, scholars had been discussing concepts of wired (Dutton, 1987), digital (Ishido, 2002), telecommunications (Graham & Marvin, 1996), informational (Castells, 1996), or intelligent (Komninos, 2002) cities and urban informatics (Foth, 2009) with similar connotations; announcing changes to urbanisation based on ICT for better or worse.

Since then, the smart label has been driven by promises of efficiency, productivity, increased quality of life, higher levels of transparency and openness (Al Nuaimi et al., 2015; Campkin & Ross, 2013). Also, ideas of addressing environmental concerns with the connectivity, monitoring and optimisation affordances of smart cities have emerged (Foth et al., 2020; Heitlinger et al., 2019) and brought about urban resilience to absorb, recover and prepare for 'future shocks' (OECD, n.d.). Nonetheless, costs savings and commercial revenue generation are arguably its main drivers since the smart city has been conceived in a general climate of austerity (Söderström et al., 2014). Much criticism has been directed towards business interests championing needs of inhabitants (see e.g., Mosco, 2019), the 'safeguarding of core public values' (Löfgren & Webster, 2020, p. 3) or

civil rights, freedom and privacy (cf. Goodman & Powles, 2019; Komninos & Mora, 2018; Mattern, 2017)

A smart city service may be defined as a solution for a societal problem based on technology interacting with the physical world where data collection and data use are central, and several stakeholders, public and private, are involved (Vandercruysse et al., 2020; Walravens & Ballon, 2013). Hence concepts of *data* or *datafied cities* have become useful to describe trends in urban development (De Lange, 2019; Kitchin, 2014) and link up seamlessly to the active debate around data protection as discussed further below (Edwards, 2018). With that, arguments that smart city technologies can – and should – enhance inclusion of citizens, public participation and civic engagement (cf. Cardullo & Kitchin, 2017; De Lange, 2019; de Waal & Dignum, 2017) have been gaining momentum in recent years.

Despite the multifaceted debate around, and application of, the smart city concept, Hollands (2008) call for the ‘Real Smart City to please stand up’ still reverberates. ‘It is impossible to speak of THE smart city’ (Heyman, 2019, p. 7). What can be studied are manifold, diverse, sometimes overlapping, often siloed projects. They are mostly data-driven as well as local in nature, they address diverse aspects of urban life and governance, promising local government efficiency on a reduced budget (Breuer et al., 2020; Heyman, 2019). Many focus on technical aspects: WiFi tracking or Bluetooth sniffing to measure and control crowds in cities; IoT networks to measure air quality and noise, and steer many other parts of urban life; centralising databases to address safety concerns; automatic number-plate recognition (ANPR) cameras to give fines in low emission zones; and much more. These are often proof-of-concepts and experiments that could, potentially, enable citywide innovations. What this data may enable or solve is, however, vague and its potential assumed. While industry and academics thus found an environment to experiment and showcase artefacts, and cities an opportunity to face urban challenges with ‘smart’ solutions, citizens still seem to be excluded to a large degree (Cardullo & Kitchin, 2017; Mosco, 2019). Do ideas of use value arising by, and for, urban dwellers decide what ‘smart’ cities are (Castelnovo et al., 2016), or arguments of efficiency, costs savings and commercial revenue generation (Greenfield, 2013)?

Right to the city

Lefebvre’s notion of the Right to the City (Lefebvre, 1968) provides an answer by installing citizens as central decision-makers in urban development (Harvey, 2008; Kitchin et al., 2019; Purcell, 2002). It is useful to investigate roles of citizens in smart city projects and urban data processing operations, and to find parallels with rights to data protection in the EU that aim at empowering users of technology.

Lefebvre puts forward use value of space as the primary aspect for its production instead of private property rights (Harvey, 2008; Purcell, 2002). The right to the city is about ‘urban dwellers’, everyone living in, or using, a city’s space (Fernandes, 2007), not only powerful elites and large corporations (Shaw & Graham, 2017, p. 5). All urban dwellers, he argued, should be in a position to adapt the space they use to their ideas and needs (Lefebvre, 1996, p. 34); to change conditions of life by (re)producing all aspects of the urban, collectively and without being constrained (Lefebvre, 1996, p. 158). ‘The Production of Space’ (Lefebvre, 1991) is thus more than planning and

installation of objects and infrastructure, of houses, highways or parks in cities (cf. Purcell, 2002, p. 102). It concerns the triad spatial model through which social life takes place, consisting of the ‘shifting perspectives’ (Zhang, 2006): *perceived space* (spatial practices, concrete and substantial for its users), *conceived space* (representations of space based on a mental construction by those users and created in maps, drawings, etc.), and *lived space* (bridging concept of the former two, indicating subjective experiences of users’ spatial engagements). It is ‘a (social) product ... the space thus produced also serves as a tool of thought and of action ... in addition to being a means of production it is also a means of control, and hence of domination, of power.’ (Lefebvre, 1991, p. 26). In reaction, a *right to participation* demands a central and direct decision-making role; and a *right to appropriation* signifies that urban dwellers are more not only occupants but producers of space (Lefebvre, 1996; Purcell, 2002).

These rights resonate with the increasingly citizen-centric discourse about smart cities and has been taken up by a host of authors (Anastasiu, 2019; Kitchin et al., 2019; Shaw & Graham, 2017 among others), emphasising citizens as integral to socio-technological processes that shape urban space (in its perceived but also lived forms). Despite its Marxists roots, a ‘Right to the (Smart) City’ has found a mainstream audience, at the industry-led 2018 Smart City Expo in Barcelona and in business-driven consultancy reports (KPMG, 2020).

Such influence on decision-making is theoretical-normative rather than reality. Mostly, citizens in smart cities are passive ‘consumers’ or ‘users’ that participate by selecting services to acquire/use from the marketplace which are delivered on behalf of citizens by companies and administrations that decide what is best; or as ‘data products’ that contribute data by using smart city services, data from which value can be extracted again by companies (Cardullo & Kitchin, 2017, 2018). This is similar to our relationship with online platforms and the services they offer (Plantin et al., 2018). Foth et al. (2015) therefore argue for a more nuanced perspectives of the notions of use, usage and usability that reflect the complex interactions between technologies and citizens today, which happen across many contexts and in all areas of their lives. Framing the user as citizen, they provide the notion of “‘citizen-ability”, that is design not just in pursuit of a better user experience, but a better citizen experience and in fact a strengthening of the efficacy of our citizenry and its polity’ (Foth et al., 2015, p. 1). This resonates with the notions of use value of cities, of public value creation for and with urban dwellers and also of empowerment, self-determination, accountability, transparency and privacy-by-design, which are at the core to the EU’s data protection regime.

Participatory city-making

Participatory city-making, it has been argued, is a translation of the right to the city into practice (Anastasiu, 2019) and ‘the Right to the City is indeed really one that urges us to think [of] the city as a process of collective co-design and co-production.’ (Swyngedouw, 2011b). Innovators, governments and academics employ participation, involvement, participatory design, co-creation and other notions that reflect the rights of *participation* and *appropriation* (Bishop & Davis, 2002; Castelnovo et al., 2016; Mainka et al., 2016; Sanders & Stappers, 2008). The dynamics that such forms of involvement take in socio-technological processes depends on how the notion of public participation is employed.

It is argued that participation brings tacit knowledge – local, value-based and experiential – into the decision-making process (Foth & Brynskov, 2016). Focalism, the tendency to focus on one's own interests and expertise regarding variables of a problem and potential solutions (Wilson et al., 2000), can be juxtaposed by information gathered from those that experience the outcomes of decisions. The latter multi-perspective exploration and problem analysis can 'improve decision-making and increase the chances of successful technology development' (Morton et al., 2013). This can be particularly relevant in urban space that is often public and used by diverse groups of urban dwellers. In practice, this is not so easy.

It is argued that participation needs to be meaningful, which requires sufficiently informed participants, representativeness, a variety of approaches, two-way dialogues and the actual ability to influence decisions (Stewart & Sinclair, 2007). And, participants should be satisfied with their involvement. These aspects require expertise, conviction, money and institutional support. Being sufficiently informed is difficult for citizens when dealing with complex topics. Ensuring statistically representative samples of a diverse target population that translate into representation of different opinions (beyond shared characteristics such as income or ethnicity) is almost impossible as some have convincingly argued (Felt & Wynne, 2007). On the one hand, these issues can provide arguments to not involve the public in decisions, confirming prevailing trust issues (Felt & Wynne, 2007; Migchelbrink & Van de Walle, 2020). On the other hand, it can also be utilised as convenient tools for public relations, image building or winning acceptance for a decision taken behind closed doors (Arnstein, 1969; Cardullo & Kitchin, 2017).

It should be noted that participatory city-making is discussed here in the context of small scale, local and experimental smart city projects. It concerns direct, specific and feasible engagement activities, not replacing representative democracy (and citizen participation through elections) with other forms of democracy. These projects often do not involve democratically elected representatives, who may not be interested in technical and social details beyond their political interests or their domain (Rathenau Institute et al., 2020). Consequently, this only partly relates to Lefebvre's radical right to the city as 'a wider political struggle to "move beyond both [the institution of] the state and capitalism" and profoundly change not only cities, but society as a whole.' (Purcell (2014) quoted in Anastasiu, 2019, p. 244). While it is not going to change the system, this form of participatory city-making can bring incremental additions to other democratic processes (Anastasiu, 2019) and can add valuable input despite the challenges.

Data protection rights in the smart city

The ubiquity of connected, data-gathering objects in public space brings fundamental rights to privacy and data protection into play (Edwards, 2018; Ni Loideain, 2018). Smart city innovation often relies on data that may be, or can become, personally identifiable (van Zoonen, 2016). In the European Union, the General Data Protection Regulation (GDPR) adopted in 2016 regulates processing of personal data in combination with fundamental rights and freedoms enshrined in other documents (Hallinan & Martin, 2020). The GDPR's emphasis on 'data subjects' suggests intersections between rights to data protection and meaningful involvement of citizens in the socio-technological processes that make up (smart) cities, as suggested by the right to the city.

First, the GDPR only applies when the processing of personal data is happening, i.e., information which can be linked to a unique identity. Once that is the case, individuals have a fundamental right to protection of their data (Charter of Fundamental Rights of the European Union (2007/C 303/01), *n.d.*, chapter 8). Control, empowerment and informational self-determination are viewed as central in enabling such protection (van Dijk et al., 2016). These notions resonate with the right to the city which aims to strengthen the influence of citizens. Second, concrete rights are defined including the right to be informed, of access, rectification, erasure and to restrict processing (EU, 2016 ch.3). These provide operationable means to data subjects to influence the processing of their personal data (ICO, 2021). In smart city projects, citizens could, for example, request access to all their personal data, and can request to delete that data. A third potential intersection between data protection rights and the right to the city can be found in the GDPR general principles like ‘lawfulness, fairness and transparency’, ‘data minimisation’ and ‘accountability’ (EU, 2016, Art.5(2)). Increasing transparency, for example, regarding complex, opaque technical systems can help with the challenge to communicate knowledge between experts and non-experts, so that citizens can collaborate meaningfully. Transparency and accountability, which means being responsible for one’s actions and able to explain them (ICO, 2021), are already core principles for public administrations. To develop smart city initiatives, realising these principles and taking needs of citizens into account go hand in hand. Fourth, Art.35(9) of the regulation (EU, 2016) explicitly demands to ‘where appropriate, [...] seek the views of data subjects or their representatives on the intended processing’ in so-called Data Protection Impact Assessments (DPIA). This could be interpreted as a calling for democratic legitimation by involving data subjects in decisions that may cause conflict between different interpretations and fundamental rights (cf. Bieker et al., 2016; van Dijk et al., 2016). Despite the active debate about public participation, few empirical studies exist yet that investigate it in relation to data protection.

In theory, these aspects seem to be instrumental for developing and using citizen-centric smart city services. However, privacy and data protection as a claim for informational self-determination focus on the individual and his or her individual interests and control rather than collective empowerment (Cohen, 2019). In the smart city, where processing may be undertaken in the (name of the) interests of the city and its inhabitants, individual control can be difficult to operationalise. It also conflicts with Lefebvre’s collective production of space. Furthermore, it has been pointed out that corporate interests often dominate in the shaping of smart city initiatives (Calzada & Cobo, 2015; Greenfield, 2013; Kitchin, 2014; Townsend, 2013), while citizen voices are less present in the decision-making process. The GDPR affords important decision-making powers to so-called data controllers, who are mostly already powerful corporations and administrations, and leaves much leeway for their decisions due to vague and abstract provisions.

Material Semiotics

Making cities ‘smart’ and realising data protection rights are socio-technological processes in motion. A material semiotic perspective (Law, 2019, p. 1) can be used to investigate how ‘users’ of cities can be involved meaningfully, and whether data protection rights can be instrumental. Material semiotics is the belief that technology and its use are shaped by constantly shifting networks of relationships between artefacts, users and society with an

analytical equivalence of human and non-human actors. This may be framed with the inter-related social constructivist perspectives of Science & Technology Studies (Plantin et al., 2018), the social construction of technology (Pinch & Bijker, 1984) and Actor Network Theory (Callon, 1990; Law, 2007; Lievrouw, 2014). Agency is not only the capacity of individuals to act independently and make choices but also the capacity of artefacts to act: in a ‘smart’ city, space actively contributes to its making.

Social Construction of Technology (SCOT), for example, suggests that technological development is successful due to social agreements and convincing argumentation or enrolment (Pinch & Bijker, 1984, p. 424). It frames artefacts as a medium for that struggle. Data protection in the context of the smart city is in a state of ‘interpretative flexibility’: semantic variations, or different interpretations, exist and groups compete to convince others (Breuer et al., 2019). The GDPR is translated towards particular interpretations (templates, procedures, information notices etc.) that shape personal data protection in smart cities. Consequently, also small-scale and project-based involvement of citizens in decision-making and design can impact processes that make a city smart by contributing their interpretations incrementally.

Legal provisions are texts, influential in themselves but also require interpretation by lawyers, judges, experts or developers, shaped by and shaping social contexts. Human and non-human actors interact in a complex, mutually shaping ecosystem. Technologies and smart city services add more layers of relationships and delegate agency to the physical environment; through sensors, machine learning and automatic decision-making systems etc. Also other factors such as contracts, legacy IT systems, and other legislation ‘participate’. This calls for a distinct understanding of agency as manifest in relation to other actors and exerted by material objects as much as humans (Callon, 1990; Law, 2007; Lievrouw, 2014; Michael, 2016). Closing the ‘interpretative flexibility’ stage is, therefore, not limited to social groups and actions.

Methodology

In line with material semiotic theory, we believe that social inquiry is contextual and situated, and needs to be conducted through cases (Law, 2019). To answer the question *how ‘users’ of cities can be represented meaningfully in socio-technological processes that shape cities, and whether data protection rights can be instrumental to this objective* we present an empirical comparative analysis of urban data-processing projects.

The studied cases were specific (smart) city projects in Belgium and the Netherlands. This is not only because there are no real smart cities, but also because this scale of analysis makes actors/objects and their roles particularly tangible. The analysis was retrospective with a focus on processes and moments therein where human and non-human actants influenced implementation of data protection rights and/or technological development as part of the broader socio-technological process of becoming ‘smart’. The cases were selected based on the following criteria: (personal) data processing component; public space; different technologies employed and data processed; innovation logic, experimental; local and small- to medium-scale that makes direct involvement feasible; ongoing during or shortly after launch of GDPR in May 2018; at least three actors/organisations (public and private) involved in defining, executing and using the service developed; availability of interviewees; and mode of public involvement. We studied nine cases: Crowd-sourced air quality

measurement linked to (sensitive) personal data in a Dutch city; ‘Smart’ lighting that reacts to movement / sound and aims at increasing (a feeling of) safety in a Flemish city; Crowd measurement through WiFi-tracking and Bluetooth sniffing; A designated smart city testing ground; IoT object tracking; Stress measurement of citizens in public space; Youth safety at party venues; Practical, ethical guidelines for Dutch smart cities; and citizen surveys.

Data were collected through nine interviews with actors directly involved in the projects, which were complemented by two expert interviews as well as several stakeholder workshops and one roundtable with international participants organised by the researchers (van Zeeland et al., 2019). Within the projects, interviewees were selected based on their position in the project, first-hand knowledge and understanding of broader context. We chose to interview diverse roles, which allowed us to investigate different sets of relationships (see Table 1 below).¹

The semi-structured interviews were conducted in December 2019, according to a topic list and interview guide that was developed together with experts in the field. Interviews were transcribed with the f4transkript software *ad verbatim* and analysed with the qualitative research software MAXQDA. The outcome is based on an iterative-cyclical approach of identifying concepts through Grounded Theory coding.

Findings

This study concerns data processing operations in public space.² We discuss how data protection was approached in relation to the GDPR, to what extent there was meaningful participation by citizenry and the need for clear guidance on citizen involvement.

Approach to data protection and GPPR

How data protection was approached in the projects (and whether there is a chance that it facilitates any form of involvement) depended on involved actors, objectives and

Table 1. List of interviewees.

	Function	Project	Age	Gender	Organ.	Language
P1	DPO (Flemish Start-up)	IoT Parcel tracking	35–45	Female	Private	English
P2	Head of Strategy & Market Research, bigger Flemish city	Citizen Survey & DPIA repository	25–35	Male	Public	English
P3	DPO (medium-sized Flemish city)	Safer Party Zone (youth safety)	45–55	Female	Public	Dutch
P4	Project Coordinator Urban Research Centre in big Flemish city	Smart City testing ground	35–45	Male	Public	English
P5	Legal advisor to major Flemish research centre	Stress management in public space	25–35	Female	Public	English
P6	User Involvement Expert	Air quality measurement in a Dutch city	45–55	Male	Public	English
P7	Advisor Data, Technology & Society to several Dutch cities	Ethical guidelines for smart cities in the Netherlands	25–35	Female	Public	Dutch
P8	Start-up CEO and IoT expert for public service deliverer (Flanders)	Crowd Measurement	45–55	Male	Private/ Public	English
P9	User Involvement & data protection expert	Smart Lightning	25–35	Male	Public	English
P10	Data Protection Authority Representative (Netherlands)	Smart City DPIA report	25–35	Female	Public	English
P11	Data Protection Authority Representative (Netherlands)	Smart City DPIA report	25–35	Male	Public	English

deployed artefacts: *'Goals are different depending on the stakeholder in the project'* (P5). The studied cases mainly focussed on technical aspects. There often seemed to be tensions between an emphasis on technical goals, and GDPR provisions: *'Normatively, I am standing behind the GDPR. Now, that it rolled out and that we have to do it, I hate it. It's really an obstacle and makes things go slower'* (P1).

The active role of 'hard law' like the GDPR itself has already been mentioned: it *'was a reason to be concrete and forced them to think about what they wanted to do exactly ...'* (P5). There are other non-human actors, more related to 'soft law', that participate in making cities smart and the implementation of data protection. Technological artefacts such as sensors, for example, shape relationships through their technical specifications: encryption, local data processing or on servers, battery life ... *'You have your devices, which are computers in itself. So, they can store, they can cache. [...]'* (Start-up CEO). Also infrastructure (for example the networks connecting sensors) is an actor; some do not allow encryption because they prioritise low battery consumption. In this way we observe how values between laws, actors, technologies and users can be conflicting.

Meaningful Participation

The cases demonstrate how a proof-of-concept logic leaves citizens at the periphery, which also relates to the type of (passive) user involvement in the context of 'perpetual beta' and technical experiments. Even when relatively high efforts are put into engaging citizens, the purpose seems to align perspectives of participants with project goals, not the other way around. One interviewee stated that they involved citizens to get a *'general feeling how are we able to get some insight on how they experience stress'* (P5). This positions citizens even more as users of services, not as actors in deciding whether and how data is being processed around them. Direct, active and meaningful involvement of urban dwellers as required in the right to the city was not taking place in the studied cases.

The involvement efforts undertaken were not justified based on data protection provisions. The projects were preoccupied with other aspects (technological development, aligning different actors, costs, fear and uncertainty regarding introduction of GDPR) and little energy was spent on consulting data subjects as suggested in the regulation. One interviewee explained how difficult it was to align internal partners regarding general conditions and a privacy policy for their project (P6). Another explained how they *'could have saved time if we could have gotten all DPOs and legal people in the same room having the discussion live.'* (P9). Decision-making is challenging enough without opening up to the public. Another interviewee stated that he could not answer if participation would even be helpful in DPIAs (as explicitly stated in the GDPR):

If you involve end-users or citizens, what do you want to ask them? "Do you think this is proportional to your rights?" That's a very legal question. What would happen if citizens agree with something that it's not in line with fundamental rights? Are the people then wrong? What do we do with their opinion? (P9).

This points to issues of meaningfulness: involving citizens in complex contexts of law and fundamental rights renders it particularly difficult. As a result, involvement in the projects mostly took place to inform or consult but rarely to engage more substantially:

It was more of an open communication channel towards the citizens to keep them informed and to change their mindsets. Because, of course, you want to implement smart cities but you are doing it for the citizens and you need to keep that in line with what they are expecting and you need to get everybody on board, from young to old, from rich to poor. So, you need to get everybody on board because it impacts a lot of different layers in the society. And not everybody understands exactly what we are doing. A lot of people are against change. (P4)

Fostering literacy (i.e., knowledge and skills) is central in this regard. Awareness and literacy may get people interested, and possibly involved, but any citizen may get bored or annoyed by too much involvement. This also points to representativeness: involving everyone affected, as the right to the city would demand, seems impossible. Not least because not everyone is or wants to be involved. Ironically, meaningful and systemic involvement, as discussed in academic debates, can be so time-consuming and cumbersome for participants that they lose interest (P6). P4, for example, explained that in the community meetings they organised mostly a small group of recurring individuals, already active in their neighbourhood and motivated (*'mostly elderly people'*), participated. None of the studied projects intended to include truly everyone affected or had the financial means to do so. Notably, none of the projects involved citizens or 'data subjects' a priori: to ask them whether they think it would be useful or valuable before work was done and budgets were spent. Consulting citizens before a technology is implemented to solve a problem or other could provide some real value in this regard, for example in assessing what the problem actually is before a potential solution is tested. Two projects did consult citizens through surveys at an early stage to align some project goals with their requirements to a degree.

Clear guidance needed

'Nobody can tell you 'this is what you really have to do' (P9). Added value of involvement activities is not obvious, and uncommitted, abstract GDPR provisions (notably Art.35 (9)) neither create incentives. Abstract provisions require interpretations mainly by DPOs that occupy a core role in the regulation and might be able to push for opening up processes to citizens. However, in the projects, this resulted in – a sometimes uncomfortably – powerful position of being the single point of contact in their organisation for all issues related to (the lack of knowledge of) the GDPR (P3), which often resulted in tensions with colleagues. Also DPOs cannot know everything, from technical security to legal rights to public participation. Importantly, meaningful participation also depends on the literacy of organisers, their expertise, budget and time: *'Efforts of involvement are exponential with the number of participants'* (P6).

Codes of Conducts, for example, are put forward by the GDPR as an operationalised interpretation of provisions that could help with, for example, standardised retention times, transparency rules, privacy statements and more (P9). Also DPIA methodologies, templates, privacy policies and corresponding information notices have an impact on how data protection unfolds in the making of smart cities, reflecting the non-human agency. Again, clearer guidance and guidelines would take some weight of the shoulders of the data protection officers in the projects. In turn, they might have additional time to think more about how they could involve data subjects in decisions regarding data processing operations.

The GDPR does install supervisory authorities to support data controllers and subjects. Notably, the interviewees from Belgium seemed less affected by their national authority in their projects than the Dutch. P10 stated that their organisation is trying to be as active as possible (the discussed DPIA report is a path leading initiative) but is limited by its size (in proportion to the requests they receive) and their mandate in the GDPR. P10 and P11 stated that their organisation intends to increase citizen involvement through data protection regulation. More guidance, guidelines and support from this central actor is required to make a difference in the field. More generally we find that the people running the smart cities as well as the respective DPO – as a key translator or intermediary – are in need of clear guidance, in order to better align the different meanings that manifest themselves in ‘interpretative flexibility’.

Conclusion

In the smart city, much is revolving around data as well as citizens. The right to the city is a radical concept to put citizens at the core of urban development through active, direct, meaningful participation in decision-making. EU data protection rights and other fundamental rights are all about control, empowerment and self-determination of technology users. Consequently, this study investigated how ‘users’ of cities can participate meaningfully in socio-technological processes that shape cities, and whether data protection rights can be instrumental to this objective. Based on a small but meaningful sample of various real-life projects, findings suggest that this is not the case regarding the potential of data protection regulation in this context. The kind of public participation we found in the projects is still a long way removed from citizens having the right to the city.

The findings illustrate that, first, the difficult matter of complex technical systems, law and fundamental rights, and a lack of understanding of all parties involved is a major barrier for meaningful participation. In this regard, raising awareness and creating literacy not only for citizens but also for DPOs, developers and other decision-makers in the process is essential. Second, decision-making is already complicated enough without opening up to the public, while there are also insufficient incentives for doing the extra efforts. Facing challenges of meaningfulness and representativeness and related costs, also the most ambitious may be disheartened. Third, abstract and vague legal provisions in the GDPR do not provide any incentives and need to be interpreted, translated and implemented by experts and other central actors. Those who are already part of the decision-making processes therefore remain in the main positions to impact ‘smart’ urban developments. This relates to more substantial criticism regarding the GDPR: the role of the data controller is so central that any decision whether to involve citizens remains in their hands. In the smart city typically the administrations or the companies occupy the controller role. The latter may only accept the exercise of citizens’ rights as long as economically feasible for them, as stated in the introduction. Asking affected urban dwellers about their opinion, about their needs and whether a smart city project would actually be valuable for them before it is carried out, could already be a step towards a right to the city but the GDPR does not call for such *priori* consultation. The city of Barcelona demonstrates that this relationship can be reversed. While they clearly emphasise the use of data in and for their city, their idea of the ‘City Data Commons’ to guarantee sovereignty and privacy is a good example of what participatory city-making may

look like. It shows that with conviction and the right regulatory framework, governance at city or municipality level can – be truly citizen centric.

Some of these shortcomings can be improved by lawyers and judges through case law and by researchers who can identify and highlight these issues. Others could be amended by more active supervisory authorities providing clear guidelines, guidance and support. Both are likely to happen over time but still, the law remains a top-down instrument and making use of it is easier for some social groups than others who do not have the means, the knowledge or the position in society to use it to their advantage. Still, data protection rights as updated by the GDPR are an important step in the right direction. The active debates, scholarly and other, raise awareness. The studied projects, for example, would have paid much less attention, this study would not have been executed and citizens would know less about what is happening to their personal data without GDPR. And, it is important to stress that public participation is not expected or required to directly bring about major changes to how the society is organised. In this project context, any involvement that is transparent, with clear intentions actual potential for impact decisions is better than no involvement and can cause valuable incremental changes. Enough incremental steps may lead to substantial changes, as was the case in Barcelona.

Lastly, it is important to stress the role of research, that participates in this shaping of data protection in and for the development of smart cities. By asking the right questions, by raising literacy, by supporting actors through methods and techniques for participation, we can make a change and promote the development of more citizen-centric digital cities.

Notes

1. We decided to include two user involvement experts because their understanding of broader contexts complements our other research activities based on direct interactions with citizens in the form of two large-scale surveys and various workshops in 2021.
2. In privately owned spaces, like a restaurant, data may be legally processed for business interests and people can choose to not enter the space. In public space, one may not have this choice. The GDPR also provides different lawful bases for personal data processing, one of which is that of legitimate interest for businesses (ICO, 2021).

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