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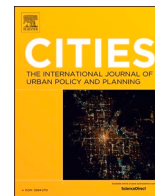
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To what extent are Dutch citizens' interests and rights protected by ethical guidelines for smart cities?

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ABSTRACT

Over the past two decades, the notion of smart cities has become increasingly popular to solve the complex problems that cities are facing. To deal with the ethical implications of smart cities, the Netherlands face a proliferation of ethical guidelines, principles, and manifests. However: To what extent are Dutch citizens' interests protected by ethical guidelines? This study answers that question using a critical discourse analysis. This exploratory analysis uncovers unnoticed themes in the ethical discourse on smart cities and offers recommendations to strengthen the protection of citizens. Together, the ethical guidelines that are selected represent at least five major cities in the Netherlands. This study finds that the ethical guidelines support the Smart City discourse in which: data is seen as a promise for the future, citizens' interests are not central and public-private governance is pre-supposed in the digital public space. Indeed, the ethical guidelines overlook how Big Data analytics transforms ways of governing, which is described as 'algorithmic governmentality'. Therefore, if guidelines want to commit to the protection of citizens' interests, this study encourages them to review their guidelines in a Big Data context. However, as ultimately only laws and regulations can ensure the protection of citizens' interests and rights, future research is encouraged to look into the restructuring of the legal system.

1. Introduction

Over the past two decades, the notion of smart cities has become increasingly popular to solve the complex problems that cities are facing (Bundens & Varró, 2019, p. 92). Since there is an increasing trend of people living in cities (i.e. 55 % of the world's population lived in cities in 2018 and this is estimated to rise to 68 % in 2050), there is a pressing need to solve urban problems, like public safety, mobility and pollution (UN.org, 2018; Bakıcı et al., 2012, p. 138; Digitale Steden Agenda, 2017, p. 7). Digital technologies then offer solutions. For instance, Barcelona employs these technologies for energy cost reduction through Smart Lanterns that automatically dim when there is no pedestrian in proximity (Smart City Lab, 2019). Upon request of the Dutch prime minister, municipalities, corporations, and scientists have drawn up the NL Smart City Strategy in 2017 with the aim to increase living conditions and economic well-being for Dutch citizens (Digitale Steden Agenda, 2017, pp. 6–7). However, the employment of Information and Communication Technologies (ICT) in smart cities, which comes with an increase in data collection and sharing, allows for a fundamental transformation of governing and brings along essential questions on ethics (Chang, 2021,

p. 1). Some researchers argue that it allows for an 'all-seeing city' that infringes upon "privacy, confidentiality and freedom of expression" (Kitchin, 2013, p. 12). As this is an emerging topic, little research is being done on the ethical and social implications of smart cities, while every day we come a step closer to its realization (Gupta et al., 2019, p. 671).

To deal with the ethical implications of smart cities, ethical guidelines are being developed in growing numbers. Their aim is to ensure a "responsible digital city for everybody" (Tada, 2019). However, some researchers hint that these guidelines bear the risk of undermining the protection of citizens' interests because these principles are formulated too abstractly (Noorman & Taylor, 2020). Furthermore, the growing number of ethical guidelines and lists seem to cause confusion (Floridi et al., 2018), and even if they are clear, they lack the power to actually prevent abuse (Van Maanen, 2022, p. 2). Critical scholars argue that guidelines are used to justify the neoliberal logic of industry self-regulation and provide the possibility for 'ethics-washing' (Bietti, 2020, p. 210; Van Maanen, 2022, p. 1). Others state that guidelines may be used to justify organizations' self-interest through 'ethics-shopping' (Floridi, 2019; Wagner, 2018). It may become just "engagement theater"

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(Mann et al., 2020, p. 7). Ethical guidelines, like the concept of the “social license to operate” (SLO), aim to gain the approval of the local community for the implementation of ‘smart city’-technologies (Mann et al., 2020, p. 6). Critics, however, argue that they often seem to be used as a public relations tactic to pre-empt opposition rather than a tool to build trust in the community (Mann et al., 2020, p. 7; Rittenbruch et al., 2021, p. 21). All of this raises the question of why ethical guidelines are developed in the first place rather than laws, policies and regulations that are legally binding.

Other scholars stress that these critiques may easily turn into ‘ethics-bashing’ that enables scholars and policymakers to dismiss these guidelines as mere corporate language (Bietti, 2020, p. 211). Yet the private and public are interwoven in the smart-city discourse – so it is important to investigate these ethical guidelines to ensure that the development of smart city technologies is in line with the interests of citizens. This study therefore investigates the question: “To what extent are Dutch citizens’ interests and rights protected by ethical guidelines for smart cities?”

Insights are gained by analyzing four ethical guidelines currently used by Dutch municipalities for the implementation of smart cities, using critical discourse analysis. With its roots in discourse theory, this paper adds a new perspective to the body of work that stems mostly from public administration. Furthermore, papers on the philosophical and legal implications of governing using algorithms will be reviewed for conceptual guidance. The purpose of this article is to reflect on current urban policies to help strengthen the aims of ethical guidelines – to create a responsible smart city. This is especially relevant when cities move from policymaking to implementation.

First, the concept of a ‘smart city’ will be explained. Second, based on Antoinette Rouvroy, a French legal and political philosopher, the logic behind the algorithmic subject will be discussed. Third, the values in ethical guidelines will be interpreted and recommendations for the protection of citizens’ interests will be given. This paper will end with a conclusion and ideas for future research.

2. Smart cities and Big Data analytics

The ‘smart city’ has resisted simple definitions in the literature. Some researchers define it as a way to improve upon the safety, sustainability and general living conditions (Bakıcı et al., 2012, p. 138; Bibri, 2020, p. 15). Others stress the economic growth that smart cities can bring (Hollands, 2008, p. 311). Nevertheless, there is a consensus amongst researchers to view smart cities as a ‘development concept’ that contributes to strategies for making cities more sustainable and livable as well as efficient and competitive, amongst others (Bunders & Varró, 2019, p. 92). Smart cities are based on six elements: Smart Economy, Smart Mobility, Smart Citizens, Smart Governance, Smart Living and Smart Environment (Alavi et al., 2018, p. 591; see Fig. 1). Still, relatively little research is being done regarding its actual social impact and governing of smart cities (Gupta et al., 2019, p. 661).

2.1. Big Data & algorithmic profiling

Over the past ten years the most popular theme in the context of smart cities has centered around innovations in technologies like “Big Data, Internet of things (IoT), Internet, Information and Communication Technology (ICT), Data analytics, and data driven technology” (Gupta et al., 2019, p. 665). The *NL Smart City Strategy* specifically deems the Internet of Things and data platforms, which include algorithms, models and tools for data analysis, as necessary technologies for their digital infrastructure (Digitale Steden Agenda, 2017, pp. 53, 56). This shows the central position data has taken up in smart cities and management.

Traditional city governing has always relied upon datasets, such as interviews and transport and public administration records (Kitchin, 2016, pp. 1–2). Smart Cities, on the other hand, rely on *Big Data*, which has other characteristics than traditional datasets. This can be described

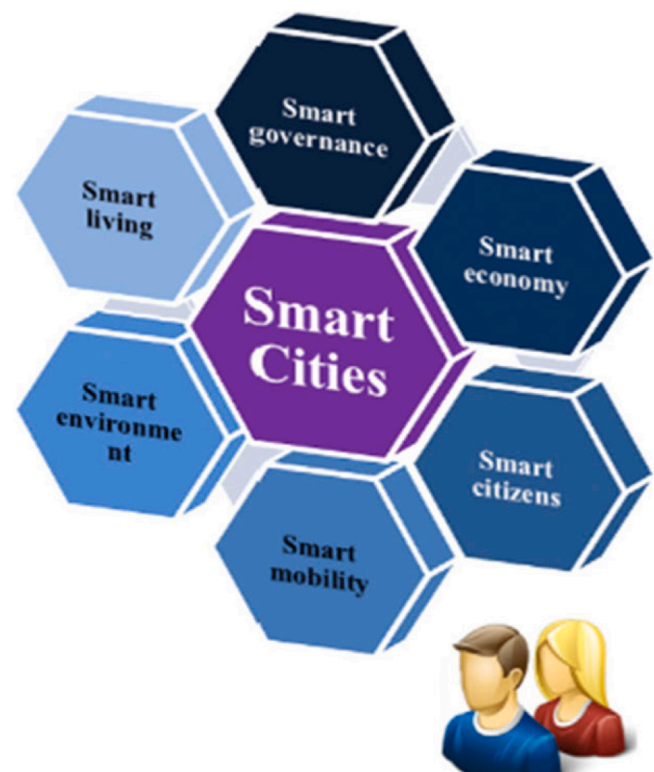


Fig. 1. Six components of smart cities.

Note. Adapted from “Internet of Things-enabled smart cities: State-of-the-art and future trends” by A. H. Alavi, P. Jiao, W.G. Buttler, & N. Lajnef, 2018, *Measurement*, 129, 589–606.

by the so-called 3 V’s: Volume, Variety and Velocity (Lutkevich & Wigmore, 2023). Volume means that the amount of data is too large for regular databases. For example, 59 trillion gigabytes of data are expected to have been stored in 2020 (Statista, 2021). Variety refers to a variety of data sources like location, sounds and images (Rouvroy, 2016b, p. 8). Velocity refers to the speed at which data is collected, which is now possible in real time. For instance, to gain insight into travel behavior, the OV card and GPS on an app can generate passengers’ location data at any time (NS, n.d.). In brief, Big Data means the gathering of *more* data, from a *multitude* of sources, in a *faster* manner.

Big Data can then be used for governing the smart city. Namely, with Big Data analytics, which includes techniques like machine learning and predictive analytics, algorithms can uncover patterns and relations between data. Through data processing, categories are generated, which are also called ‘algorithmic profiles’ when these reflect human behavior (Rouvroy, 2016b, p. 10). These profiles are not static, but dynamic as they evolve upon receiving more information. In the smart city, algorithmically mediated services open ways to profile citizen behavior without them being aware of it. This also enables the practice of ‘nudging’ citizen’s behavior. For instance, in Dublin these technologies are implemented to improve traffic flow. Cameras and other sensors are used to generate location data from cars, while information apps nudge the citizens towards empty parking spaces and shorter routes (Cardullo & Kitchin, 2019, pp. 5–6). In short, the era of Big Data analytics offers new possibilities of governing.

3. The logic of governing by algorithms

To understand how the interests of citizens can be protected, it is important to grasp the logic behind governing by algorithms to which they become subject. Using Foucault and Deleuze, Antoinette Rouvroy conceptualized the philosophical implications of these new technologies

and developed a framework that she calls ‘algorithmic governmentality’.

Governmentality is a term coined by Foucault to analyze not only the governing by the state but the techniques of governing, and its associated rationalities, as diffused throughout society as a whole (Lemke, 2002, p. 50). This makes governmentality not something that is confined to the state but encompasses “the conduct of conduct” (Lemke, 2002, p. 50; Van Houdt, 2014). In other words, it relates to how we govern ourselves and how we govern others (Lemke, 2002, p. 51). The technocratic approach seemed always to have been gravitating towards a human-centered understanding of governmentality (Fieuw et al., 2022, p. 1). However, the urban governance literature has recently started to embrace a wider notion of “others” that is not limited to just humans but includes “more-than-humans” (Sheikh et al., 2023, p. 1; Fieuw et al., 2022, p. 1). So, how does Big Data influence these strategies of governing?

With the arrival of Big Data and algorithmic profiling, Rouvroy (2013, p. 164) expects that the logic of governing will be renewed. She conceptualizes this in the notion of ‘algorithmic governmentality’, which can be separated into a three-step process: 1) Big Data collection and storage, 2) data processing and the production of knowledge and 3) action on behaviors (Rouvroy & Berns, 2013, pp. 6–9).

First, to govern using algorithms, it is necessary to collect and store Big Data. Incentives to collect as much data as possible include cutting costs, increasing public administration’s efficiency, and strengthening security and control, amongst others (Lyon, 2014, p. 6). Upon collection, the data subjects are not involved in the purpose for which their data is collected. Namely, what is relevant for governments to act upon, is not each individual piece of data, but rather the correlation *between* the data that can make up profiles. (Rouvroy & Berns, 2013, p. 6) For that reason, the logic of algorithmic governmentality demands an insatiable appetite for data.

Second, through a process called data mining, knowledge is produced in a particular way. Datamining is an automatic statistical process that tries to find correlations between raw and unfiltered data from which profiles emerge (Rouvroy & Berns, 2013, p. 7). These technologies allow for *automatic* knowledge production. Consequently, it is no longer necessary to create a hypothesis, like in traditional statistics, rather, knowledge or “norms seem to emerge directly from reality itself” (Rouvroy & Berns, 2013, p. 7). This marks a transformative shift in the data we gather, where, for the first time, we no longer rely upon the “accounts of actions” (Burrows & Savage, 2014, p. 3). For instance, when researching which citizens are likely to commit fraud, a scientist would first need to create a hypothesis to guide his data collection and analysis, while an algorithm, based on correlations, automatically points out ‘risk’ citizens.

Third, based on this knowledge, actions are taken on the subject’s behavior (Rouvroy & Berns, 2013, p. 8). More precisely, profiles that emerge from data allow for pre-emptive intervention by predicting a pattern of future behavior and on that basis modify the physical and informational environment by sending out stimuli that (usually on a subconscious level) create reflex responses (Lyon, 2014, p. 4; Rouvroy, 2014, p. 1; Macrorie et al., 2019). For example, Spotify is working on a patent where they can predict when you are feeling blue, so they can offer you a playlist with uplifting music, also without you being aware of having this inclination (Savage, 2021). As a result, inclinations to possible actions can be neutralized (Rouvroy, 2014, p. 1).

This claims a new idea of knowledge that supposedly holds absolute objectivity as human intervention is no longer needed (Rouvroy & Berns, 2013, p. 7; Foth, 2021, p. 326). Here the idealized knower is assumed to have separated their personal background from knowledge production – they have a “view from nowhere” (Foth et al., 2007, p. 2). This rationality is called ‘data behaviorism’. It views raw, unfiltered data as the holy grail for understanding reality as it is (Rouvroy & Berns, 2013, p. 6). They believe that data mining does not require any subjective mediation; hence it produces knowledge that is seemingly

objective and therefore makes Smart City policymakers believe that they can solve social problems by technical fixes (O’Malley & Smith, 2020, p. 41). Rouvroy & Berns (2013, p. 3) call this the “new regime of digital truth”, as ‘truth’ is now a modelled digital reality. No longer is ‘truth’ believed to be bound to a subjective interpretation that, for instance, language is dependent upon, but it can be directly derived from the data itself (Rouvroy, 2014, p. 1).

Burrows & Savage (2014, p. 3) refer to this as the “metricization of social life”. However, knowledge is always socially produced (Foth et al., 2007, p. 5). In Big Data knowledge production, for instance, the production is shaped by controlling the input of algorithms. Big Data then produces and performs the social in a particular way (Burrows & Savage, 2014, p. 5). This does not mean, put differently, that Big Data provides a better understanding of the “social” (p. 5), it just means that it opens possibilities for including a new type of data and a different understanding of reality. Indeed, Rouvroy & Berns (2013, p. 19) note that it actively creates its own reality. All actions are now made relative to the data, “or ‘less’ real” (p. 25). The issue with algorithmic governmentality and data behaviorism is, then, that under the guise of being ‘objective’ and ‘harmless’ it forecloses alternative understandings of reality.

Indeed, the process of data mining is not devoid of subjectivity, as each stage requires human interference and carries the risk of human bias (Foth et al., 2021, p. 326). This is what happened in the Netherlands with the governmental fraud-detecting system called “Syri”, in which certain citizens became *prima facie* suspects, under the guise of ‘objective’ algorithmic analysis (NOS, 2019). It demonstrates how the use of these technologies under the guise of ‘public safety’ can intensify the criminalization of minority groups (O’Malley & Smith, 2020, p. 40). Indeed, concerns have been raised about the possibility of increased surveillance of the public (O’Malley & Smith, 2020, p. 41). Namely, Big Data analytics enables predictive policing, allowing police to take preventative action by predicting when and where crimes will occur (Nix, 2015, p. 279).

The target of governing is then not the subject, but its statistical or digital double: our profiles that evolve in real time depending on the collected data (Rouvroy & Berns, 2013, p. 10). By way of algorithmic interventions, these statistical doubles then are influencing behaviors – the conduct of conduct (Lyon, 2014, p. 7; Macrorie et al., 2019). Rouvroy & Berns (2013, p. 16) posit that algorithmic governmentality in its purest form knows no subject – it is all about ‘data without bodies’ – and avoids all confrontation with its subjects. Its logic, in other words, may lead to exposure to bureaucratic structures that avoid any form of questioning or disagreement (Rittenbruch et al., 2021, p. 21). Indeed, this idea of being able to access the ‘ultimate’ reality through data, transfers legitimate authority and decision-making from people to things (Rouvroy & Berns, 2013, p. 18). For algorithmic governmentality, in short, the human subject no longer plays a role; there are only correlations (Rouvroy & Berns, 2013, pp. 7, 16).

From a data behaviorist standpoint, providing data seems harmless for the individual, as every piece of data *in itself* bears no meaning and can therefore be viewed as anonymous (Rouvroy & Berns, 2013, p. 7). Following this reasoning, algorithms are considered to be especially useful for evaluation practices (Zarsky, 2011, p. 312). For example, some scholars have argued that Artificial Intelligence is better at determining the re-offend rate of criminals than a judge with years of education and experience (Završnik, 2020, p. 571). Hence, in their view “thinking-by-numbers is the new way to be smart” (Ayres, 2007, p. 1).

This opens the discussion on data sovereignty, namely, how to safeguard an individual or community’s independence by upholding the right to control the data within these technological systems (Couture & Toupin, 2019, p. 11, 13). As data *in itself* bears no meaning, the question of ownership becomes a new topic of discussion within the law. For instance, the critique on current legal protection laws, like the GDPR, is that it is a law still based on a personological view of data, instead of viewing it as relational (Rouvroy & Berns, 2013, p. 28). To take it a step further, in the context of Big Data, sovereignty is merely a fantasy as the

control over data can never be achieved in a technological reality that has in the first instance always been part of capitalism's domain (Herian, 2020, p. 13). Data sovereignty is being restricted by the private sector (Thumfart, 2022, p. 2). Namely, technological citizenship centers around the 'entrepreneur' that supports optimization (yet it does not necessarily reflect community interests or the cultural values of minority groups), while this cost is often externalized (O'Malley & Smith, 2020, p. 52; Mattern, 2021, pp. 163–4). Moreover, the term has been expanded across various policies, leaving it vulnerable to commodification as well as utilization within particular neoliberal agendas (Csernaton, 2022, p. 410).

Indeed, algorithmic governmentality wants to grasp, not the already constituted individuals, but the process that precedes the individual, so it can form its behavior – it wants to grab the *pre*-individual (Rouvroy & Berns, 2013, p. 23). Hence, the target now becomes the relations itself. And as data always exists as a relation, in the sense that it signals a relation between the individual and its action, Big Data and algorithmic processing aims “to grasp the individual in and even through their relations” (Rouvroy & Berns, 2013, pp. 20, 24).

At the surface level, it may seem that algorithmic governmentality enables the individuation process. However, its logic and techniques actually prevent individuation because it works to eliminate all forms of disparity from which relations can arise (Rouvroy & Berns, 2013, p. 28). Relations are transformed into 'states', as if the relations are the individuals rather than the coming together of two disparate realities and hence there is no possibility for a meta-stable equilibrium (Rouvroy & Berns, 2013, pp. 5, 26). In other words, algorithmic governmentality seeks to “monadologize relations” (Rouvroy & Berns, 2013, p. 26).

This then can become an obstacle to the individuation process because there is no longer a 'becoming' when everything is already (Rouvroy & Berns, 2013, p. 26). To put it differently, where relations previously expressed something 'common', which is the co-appearance of beings that exchange distinctive features, they now no longer 'relate' anything and hence do no longer signify that what is common (Rouvroy & Berns, 2013, p. 28).

In short, governing by algorithms tries to grasp the human subject through its relations, which aims for a totalization of reality in which disparity is eliminated. It is geared towards a monadologizing of relations and, therefore, the algorithmic subject is constituted as incapable of sharing that what otherwise would be common to the community and a what otherwise could be a pre-condition for the citizen.

This is not to claim that the logics and techniques of algorithmic governmentality are infallible and can predict and control all aspects of (human and more than-human) life since life is too complex and unpredictable to be fully captured and controlled. Furthermore, algorithms are always already shaped by the human and more-than-human and operate within broader socio-political contexts and vice versa. Yet algorithmic governmentality, and its logics and techniques has totalizing tendencies. As such it provides the context in which ethical guidelines of smart cities function.

4. Materials and methods

This research investigates the ethical guidelines of smart cities in the Netherlands and if they effectively protect citizens' interests. The guidelines under study are strategically chosen to represent five major cities in the Netherlands, namely Amsterdam, Rotterdam, the Hague, Eindhoven and Nijmegen as well as the Vereniging Nederlandse Gemeenten (VNG), which is an organization that represents the union of all municipalities in the Netherlands.

- Vereniging Nederlandse Gemeenten (VNG, 2019): *Principes voor een Digitale Samenleving* [Principles for a digital society]. VNG is a union of Dutch municipalities founded in 1912 to support all Dutch municipalities with information. Specifically, this report offers a framework for dealing with public values in a digital society. They offer five

principles for a digital society: 1) data should serve society; 2) the citizen should have data-ownership; 3) the digital infrastructure should be accessible and safe; 4) connecting all actors; 5) transparency.

- *Tada Manifest* (Tada, 2021). It offers six values for a responsible smart city, namely inclusivity, control, human dimension, open and transparent, legitimate, and monitored, and from everyone for everyone. It was created in 2017 by a diverse group of professionals and citizens upon request of the Amsterdam Economic Board. By signing the document, organizations, companies, and municipalities like Amsterdam show they aim to deal responsibly with data.
- Centre for BOLD Cities (n.d.): *SHARED principles*: Sustainable, Harmonious, Affective, Relevant, Empowering, and Diverse. BOLD Cities is a platform by which Leiden, Delft and Erasmus University collaborate to aid research that focuses on citizens and their experience in the smart city. These principles aim to help the people that want to design and evaluate citizen engagement. They work together with the municipalities of Rotterdam and The Hague (Leiden-Delft-Erasmus Universities, n.d.)
- GeoNovum (n.d.): *Spelregels voor Sensoren in de Openbare Ruimte*. GeoNovum is a government foundation founded in 2007 with the aim of improving the accessibility of geo-information. This instruction focuses on data collection and processing from sensors in the public space and is related to the municipalities of Eindhoven, Nijmegen, Zwolle and Amsterdam.

These guidelines are especially relevant, as BOLD Cities (2019) already noted, because of the cities' reliance on these ethical guidelines for implementation of smart cities. BOLD Cities is a research platform on smart cities that created a four-step practical instruction for municipalities considering ethics and quality in the implementation of smart cities, called '*A good start: Quality and Ethics during dataprojects in municipalities in 4 steps*'. Specifically, it also mentions the same four organizations that this research investigates, on which municipalities can rely if they want to know more about public values (p. 3). In short, these guidelines offer a good basis for analyzing the discourse that influences its implementations in smart cities.

4.1. Method

This research makes use of Fairclough's critical discourse analysis (CDA) to answer the question: To what extent are Dutch citizens' interests and rights protected by ethical guidelines? This technique helps to uncover how discourse influences social structures, or in other words, how the discourse in the ethical guidelines influences its implementation in smart cities (Carranza, 1997, p. 537). Fairclough's (2015) book, *Language and Power*, has served as a baseline to get a better understanding of what questions need to be addressed in CDA. Based on the three elements of discourse, namely text, interaction, and social context, CDA offers not only to explain the content on a textual or micro-level, but also to explain it at a societal or macro level (p. 128). Specifically, the following questions have been addressed:

- Text: What relational,¹ expressive² and experiential³ values do textual features have?
- Interaction: What interpretation(s) are participants giving to the intertextual⁴ and situational contexts?
- Social context: What institutional processes does this discourse belong to and how is it ideologically determined and ideologically determinative?

The software program ATLAS.io was used to facilitate coding of the texts, which involved informed coding. Afterwards, the quotes, codes and concepts were transferred into a codebook.

5. Results & discussion: ethical guidelines and citizens' interests

From the analysis, four themes emerged that related to the impact of these ethical guidelines on citizens' interests. They will be discussed below. First, the popularity and support of smart cities by ethical guidelines. Second, the municipality as a final authority. Third, how the citizens' interests are not central to municipalities and ethical guidelines. Last, on the neoliberal resonance in the ethical guidelines. Where relevant, Rouvroy's framework of algorithmic governmentality will be referred to in discussing the findings. To help the discussion of these findings in the coming sections, Table 1 provides a summary overview of how ethical guidelines consider the role of citizens' interests.

5.1. Popularity and support of smart cities by ethical guidelines

To effectively use these guidelines, it is crucial to reflect on their perception of smart cities, instead of assuming neutrality, as this significantly shapes how they have conceived these guidelines. In line with the 'data behaviorist' narrative mentioned before, this research found that the guidelines support the promising perspective of smart cities, instead of taking a neutral stance. For example, Tada (2021) classifies 'data as serving'. Furthermore, GeoNovum (n.d.) describes data using a human metaphor (i.e. "sensor: an artificial sense"), making the presence of data feel more familiar and accessible. The human metaphor also helps to emphasize the problem-solving aspect of data: "With data we can master the problems of modern cities" (Tada, 2021).

Indeed, this narrative can be explained through the lens of a 'data behaviorist' vision. Namely, data analysis is useful for everybody, because it allows one to grasp the 'full' scope of reality (Rouvroy, 2013, p. 146). The ethical guidelines seem to support this dominant discourse. For example, all texts share the experience that smart cities will improve the quality of urban life. Indeed, 'they are a promise to the city' according to Tada (2021). But also, the relational features of the text show a supportive relationship towards the implementation of smart cities, as the producer tries to avoid negative evaluations. For example, definitions, like "emotional investments" (BOLD Cities, n.d.) are described vaguely, which allows for ideological contestation in favor of smart cities. This also serves as a euphemistic expression that avoids the need to pay attention to what kind of emotional impact the misuse of technologies can bring (like the Dutch 'toeslagenaffaire' did in 2019, for instance). Interestingly, it is assumed that the reader of these ethical

¹ Relational values are cues to the social relationships at the descriptive level of the text (Fairclough, 2015, p. 130).

² Expressive values are cues to the "producer's evaluation (in the widest sense) of the bit of the reality it relates to" (Fairclough, 2015, p. 130). Hence, it relates to the social identities of the subjects.

³ Experiential values are cues "to the way in which the text producer's experience of the natural or social world is represented" (Fairclough, 2015, p. 130). In other words, it relates to the knowledge and belief of the producer.

⁴ Intertextual context is "a matter of deciding which series a text belongs to, and therefore what can be taken as common ground for participants, or presupposed" (Fairclough, 2015, p. 164).

Table 1

A summary of the themes related to citizens' interests in the discourse of the ethical guidelines.

Theme	Content	Relation to citizens' interests	Recommendations
Popularity and support of smart cities by ethical guidelines.	Smart cities are viewed as the promise of a better future.	Data analytics as the absolute 'truth' to the solutions of problems, can cause an elimination of alternative possibilities. This may allow citizens' interests (reality) to be overlooked.	Need for interruption, so that municipal actors and guidelines can reflect on <i>what</i> needs to be improved in the interests of the citizen and how guidelines can contribute to that.
Municipality as the final authority.	Guidelines do not impact municipal decision-making as much as they intend.	Ultimately they cannot promise the protection of citizens' interests.	Create a legal framework that protects citizens' interests, so that municipalities are forced to follow it.
Citizens' interests are not central for municipalities and ethical guidelines	Guidelines show solidarity with citizens' interests on a superficial level, on a deeper level they are normative to the smart city discourse.	The inconsistency of the centrality of the citizen signals a new logic of governance that extends to the social realm. For this citizens' interests can become irrelevant because Big Data analytics allows to regulate future behaviors, while at the same time, the subject itself can be expelled from governing.	Ethical guidelines are urged to consider their principles in relation to the renewed logic of governance and to maintain critical of municipalities to ensure the protection of citizens' interests.
Neoliberal resonance in ethical guidelines.	Ethical guidelines are normative to the public-private partnership of the governance of the public space; Elimination of the 'common' by the neoliberal conception of the citizen and algorithmic profiling.	Citizens' interests often do not align with corporate interests; The 'common' is necessary for citizens to address one another in a shared public discourse.	Urges ethical guidelines to consider if governance by private companies in the public space serves citizens' interests; Conception of citizenship needs to change from personological to relational-oriented.

guidelines is already committed to implementing smart cities, hence this will influence their interpretation of the meaning of these words and expressions.

This urge to realize the smart city is also fueled by the global smart city competition, in which every world city wants to become an example to others (Joss et al., 2019, p. 22). This can become a slippery slope, in which the drive for innovation, might override the interest of the inhabitants, posing a risk of losing touch with a local approach (p. 24).

In short, the guidelines are working within the normative discourse of 'Big Data as the promise for the future'. However, they should be wary of asserting the outcomes of data processing as the absolute 'truth', as this eliminates the possibility for alternative realities. Especially, when

the municipal actor is already committed to this belief in the promise of smart cities, there is a danger that citizens' interests (as alternative realities) are overlooked.

5.2. Municipality as the final authority

Even if the ethical guidelines manage to stay close to citizens' interests, their authority to make sure these principles are actually followed by municipalities is low. The readers of these guidelines are assumed to be municipal actors. This follows from using the SHARED-acronym, buzz words and general formal wording in *BOLD Cities* (n.d.), *VNG* (2019) and *GeoNovum* (n.d.). Furthermore, the implicit assumption regarding the text's local coherence is that the guidelines should remain concise, as it is assumed that the reader is operating within a fast-paced environment.

Even though the execution of these guidelines lies with the municipalities, the producers of the guidelines are under the impression that they have an authoritative relationship with municipalities from which they can make *demands*. For example, this follows from the use of the modal auxiliary⁵ "must": "Data and technology must contribute to the freedom of residents" (Tada, 2021).

However, this relationship is not consistent throughout the texts as it alternates with relational features that signal an *advisory* relationship between the guidelines and the municipalities. For example, using the modal auxiliary "may": "It may be the beginning of thinking about criteria that one may want to consider when designing and evaluating citizen engagement" (*BOLD Cities*, n.d.). This might open unethical practices when it comes to citizen "engagement", where involvement opportunities do not result in any *actual* agency, rather it is being turned into 'engagement theater' (Kamols et al., 2021, p. 24). This is also a critique of the Waterfront Toronto Project, where citizen engagement becomes a checkbox to be outsourced to corporate consultants. The pitfall is that there is no possibility of *actual* imagination for a different society (Mattern, 2020). Under the guise of expanding democratic values, the advisory relationship seems to lack effectiveness and is then reduced to "government through community" (Rose, 1996, p. 332). Furthermore, by depoliticizing its presentation, it ends up reproducing current political agendas (Monno & Khakee, 2012, p. 86).

The metaphor of a 'game': "Rules of the game" (VNG, 2019), also shows the municipalities' way of dealing with things. Namely, they make the rules of the game and when problems arise, they can change these rules. Interestingly, other research found in smart city policies worldwide that the metaphor of 'experimentation' was often used, which also relates to the idea of municipalities making their own rules for implementation (Joss et al., 2019, p. 18).

The fact that the guidelines take up an authoritative position towards the municipalities is ideologically creative.⁶ However, on a more subtle level, they still recognize the normative discourse of seeing the municipality as authoritative. Hence, it seems that these ethical guidelines do not influence municipal decision-making as much as the producers intended.

Ultimately the only obligatory relationship the municipalities seem to have is to the law. This follows from overwording like: "Municipalities will, where proportional, make the data from their own sensors available as open data as much as possible, subject to the restrictions of the laws" (VNG, 2019). But also, on an intertextual level, the importance of rules and regulations is recognized. Furthermore, as the ethical guidelines were written as an advisory paper, it signals that its producers have a lower degree of control over the execution of smart cities than if it had

⁵ Modal auxiliaries are "verbs like may might, must, should, can, can't, ought" (Fairclough, 2015, p. 142) which signals the authority of one participant to another.

⁶ Ideologically creative means that by its discourse the producer contributes to the transformation of social relations (Fairclough, 2015, p. 174).

been written in the form of a regulation.

5.3. Citizens' interests are not central to municipalities and ethical guidelines

With the aim of the ethical guidelines to make smart cities more citizen-central, they show solidarity with its inhabitants. For example, Tada (2021) addresses the 'right to be forgotten' to the reader (the municipalities): "People have the right to be digitally forgotten". Tada is trying to make a connection to the citizen as they use much informal wording. In fact, the *creation* of these ethical guidelines is already an act of solidarity, as it is perceived to be the first attempt (GeoNovum, n.d.).

Still, upon closer examination of the texts, it shows that citizens' interests are perceived as similar or even inferior to other interests, like municipal or corporate interests. For example, "All interests must be taken into account and weighed up in order to arrive at an ethically responsible choice" (VNG, 2019). Even though at first this sounds like the municipalities want to protect citizens' interests, it shows the municipalities' commitment to the *common* good. The experiential values of the texts also underline this notion. For example, citizens, municipalities, and corporations are written as the same Subject or Complement: "We, companies, governments, organizations and citizens, see this as a joint responsibility" (Tada, 2021). Hence, there is a commitment to the common good, which is seen as a trade-off between corporate, municipal and citizens' interests (GeoNovum, n.d.; VNG, 2019). Consequently, the citizen is not the priority stakeholder for the municipality. Only *BOLD Cities* (n.d.) acknowledges this phenomenon: "The current mantra in research and policy about smart cities is that citizen perspectives have often been ignored in smart city research". Hence, their solidarity with citizens' interests can be taken more seriously.

Indeed, on a more subtle level, the relational features show an alignment with the interest of municipalities. Namely, following the expressive values of the text, it shows a positive evaluation of the municipalities, namely as responsible, ethical and in service of the well-being of the citizens (GeoNovum, n.d.; VNG, 2019). Only *BOLD Cities* (n.d.) takes a critical stance towards municipalities by disapproving of previous projects that have been undertaken, signaled by the word "just": "Citizen engagement needs to be invited and organized in a way that it will last longer than just the launch of a project, or the development of a programme". Furthermore, on an intertextual level, the common experience is that municipalities behave well. For example: "It is naturally obvious that they [the municipality] set a good example" (GeoNovum, n.d.).

The good expectations of the municipalities, also follow the general perspective of Dutch citizens that the government handles their data well (Harbers et al., 2021). However, it is important to consider that municipalities *do* have an interest and stake in data mining in smart cities, as it gives them insight into the behavior of their citizens (Rouvroy & Berns, 2013, p. 6). Indeed, there is always a risk for abuse of power. Coming back to the example of 'Syri', the automatic decision-making based on the pooling of data from different public databases, led to an unequal treatment of certain areas and groups of people (Bekker, 2020, pp. 290, 306; NOS, 2021).

Then, the positive perception of the guidelines may stem from the fact that the municipalities are also involved in the production process. Their close relationship can be seen in the inclusive 'we', used by VNG (2019) and Tada (2021), that also contains the municipalities (the addressee). Only *BOLD Cities* (n.d.) signals to have a more distant relationship with the municipalities by not using a personal address. Hence, it is important to note that on a situational level, the influence of municipal actors on the production of these ethical guidelines may lead to a conflict of interest.

In short, this analysis found that there is an inconsistency in who's interests are central in the smart city discourse. The institutions (municipalities, corporations, and other data-mining organizations) help shape this discourse by viewing public interest as something that can

stand apart from data (GeoNovum, n.d.). This finding can be explained by Rouvroy & Bern's (2013, p. 24) argument that, even though every piece of data may show a *relation* that is of public interest, algorithmic governmentality overlooks what lies behind the relation and instead governs the relation as a 'state' – a monadologized relation (p. 20). Based on the fundamental perspective of seeing data as standing apart from any subjective meaning, it expels the subject from its findings (Rouvroy & Berns, 2013, pp. 24, 143). This leads to the exclusion of citizens in the smart city discourse. Hence, within this framework, their interests cannot be protected.

BOLD Cities (n.d.), however, did address this matter by putting forward that citizens' interests are being ignored. Even GeoNovum (n.d.), as an organization working more closely with the municipalities, acknowledges that there is a debate going on between municipal and citizens' interests and that the benefits of data mining in the public space will not be equally distributed. Hence, the texts aim to be ideologically creative as they show solidarity with the interests of citizens.

Nevertheless, on a subtler level, significant parts of the texts are normative to the existing power relations, where the interests of citizens are not central to the idea of the public interest. This shows the risk of ethics washing, a concept coined by Floridi (2019, p. 187), where ethical guidelines are used to make an organization appear more digitally ethical than they are, as the guidelines themselves do not reach their purpose.

This inconsistency of the centrality of the citizen is also recognized in other literature. Joss et al. (2019, p. 16) found that the smart city discourse is shifting from seeing the smart city as a technical construct towards seeing it as a social construct. Interestingly, they recognized an increasing commitment to social interest, for example, Amsterdam is cited as the 'best practice' for the social approach worldwide. (p. 16) However, the before-mentioned findings of this research, which also include the ethical guidelines on which Amsterdam bases itself, actually show that this commitment to the social is mostly on a superficial level, while on a more subtle level, the citizen is not central.

Joss et al. (2019) recognize a more fundamental shift in society, in the sense that smart cities will cause a break with 20th-century forms of governing and ways of thinking. They call this "transformative governance" (p. 24), in which the smart city is seen as the "agent of transformation" (p. 25) that wants to reach the governing of the social realm (p. 23). This is supported by Rouvroy's notion of algorithmic governmentality. Namely, it allows for the governing of the social realm by grasping the individual through its relations in the pre-individual field. It makes people's private life calculable by eliminating any form of individuation process (Rouvroy, 2016b, p. 36; Rouvroy & Berns, 2013, p. 23). Consequently, it may be able to regulate *future* behaviors and actions (Rouvroy & Berns, 2013, p. 8).

In summary, the solidarity to citizens is well-intended, but it stays on a superficial level, while on a more subtle level, the guidelines support the normative, smart city discourse in which the citizens' interests is not central to the societal interest. This inconsistency of the centrality of citizens' interests shows an articulation of a new discourse type, in which the allegiance of the municipality is still unclear. However, following Rouvroy, it can be explained that Big Data analytics renews the logic of governing that makes citizens' interests irrelevant to governing as it may allow for regulating future behaviors, while at the same time, the subject itself can be expelled from governing.

5.4. Neoliberal resonance in ethical guidelines

One of the interests municipalities show allegiance to, is corporate interest: "Where necessary, they [the municipality] protect rights and interests in data of individuals, institutions and companies" (VNG, 2019) Here, the corporate interest is taken to be just as important as the citizens' interests. Furthermore, the relational features of the text avoid naming the important role of (big) tech corporations in the realization of smart cities: "The power of organizations that have data is also

increasing" (VNG, 2019). Their role is also avoided by the obfuscation of agency and causality in this sentence, while actually the actions of the data-collecting corporations definitely play a role in their increasing control. For example, Alphabet, the parent company of Google, has invested approximately \$1.3 billion in developing infrastructure for the Sidewalk Labs in Toronto and is solely owned by Alphabet Inc. (Teale, 2019; Mann et al., 2020, p. 5). In fact, none of the texts explicitly name the role that big tech companies are going to play, while this is a very relevant matter as Dutch municipalities rely on them because of missing expertise and increasing budget cuts (Van Zoonen, 2016, p. 5). Indeed, this might be a reason for ethics washing as "the costs of doing the right thing" (Floridi, 2019, p. 188) are high, namely, developing the digital infrastructure in-house. The high costs also mean that municipalities are forced to consider the interest of tech companies in the implementation of smart cities (VNG, 2019).

Tech companies are not only involved as businesses in the implementation of smart cities, but the common experience seems to be that municipalities will work together with private companies to *govern* the public digital space, also known as the *public-private ecosystem* (VNG, 2019). Indeed, this follows from the idea that they *share* the responsibility of the digital infrastructure in the public space with corporations: "They [municipalities] are also jointly responsible for the digital infrastructure in the public space" (VNG, 2019). This finding supports other research that recognizes this public-private partnership in the discourse of smart cities. For instance, Joss et al. (2019, p. 19) put forward that even though public interest is mentioned to be the driving factor behind the implementation of smart cities, "it is framed in a market-oriented discourse" (p. 19). The allegiance of the municipalities towards corporate interest can also be explained by a "neoliberal restructuring of the public sector" (Grossi & Pianezzi, 2017, p. 80; cf. Van Houdt & Schinkel, 2013) in which public services are marketized (Warner, 2012, p. S39; O'Malley & Smith, 2020, p. 41).

Similarly, the ethical guidelines perceive the citizen as a neoliberal subject that is responsible for their own actions and aims for entrepreneurial endeavors (Brown, 2016, p. 5; Cardullo & Kitchin, 2018, pp. 813, 817; Schinkel & Van Houdt, 2010). For example, the expressive values reveal a perception of the citizen as a uniform group wanting to be productive and able to bear the responsibility to deal well with data: "Everyone can use them [data]" (Tada, 2021). Moreover, the experiential values classify the role of data as making people more efficient, to 'organize yourself', "To shape life according to your own insight, to collect information yourself, to develop knowledge, to find space to organize yourself" (Tada, 2021).

The 'public' is now characterized as "individuals accessing public services and information, with smart city intervention aimed at improving the user experience" (Joss et al., 2019, p. 20). Hence, these findings support the conclusion of Joss et al. (p. 20) that in the smart city discourse, the idea of the 'citizen' or the 'public', is devoid of any kind of "collectivity" or a "shared public discourse". In other words, there is an elimination of the 'common' as posited by Rouvroy and Berns (2013, pp. 27–8). Namely, the increasingly individual approach of algorithmic governing that stabilizes relations in the pre-individual field, eradicates the possibility for individuals to find each other in their shared uncertainty and disparity (Rouvroy, 2013, p. 161). Through algorithmic profiling, governing is no longer concerned with the *actual* citizens, but with their data doubles that are fragmented and calculable in the form of risk and opportunity (i.e. fraudster, potential customer, productive student, reliable employee) which can apply to the subject without the necessity for a collective context, that, for example, ethnic or gender profiling would allow for (Rouvroy, 2016a, p. 34). This 'common' is central to the interests of citizens, because when sharing something common, it always means to have a *relation* to something 'other', another reality, from which citizens can individuate themselves and "that is what compels us to address one another" (Rouvroy & Berns, 2013, p. 28). Hence, what constitutes citizenship is not personological, rather it is relational (Rouvroy & Berns, 2013, p. 28).

6. Conclusions & openings

Transforming into smart cities seems to be the next step for municipalities in governing their cities. Therefore, it is hopeful that more attention is being paid to its ethical implication by the creation of guidelines, as the implementation of smart cities also opens fundamental questions on privacy, autonomy, and the freedom of expression (Kitchin, 2013, p. 12). Hence, “To what extent are Dutch citizens’ interests and rights protected by ethical guidelines for smart cities?”

To answer this question, this study found that the ethical guidelines aim to protect citizens’ interests, however, on a more subtle level, they are normative to the smart city discourse and supportive of the public-private partnership. Furthermore, the guidelines have shown to overlook how Big Data analytics transforms the way of governing (Chang, 2021, p. 1). Rouvroy’s framework of algorithmic governmentality shows us that the employment of Big Data analytics works to govern people’s digital double. Consequently, the safeguarding of citizens’ interests is compromised, as the ethical guidelines align with the smart city discourse that is built on the exclusion of citizens in governing. Accordingly, this has implications for the citizens of smart cities, because if successful it would result in an elimination of what is common to them, an elimination of what allows citizens to form themselves and build connections with each other. While it is important to acknowledge that this reasoning is not wholly feasible given the complex nature of the world, it is still essential to understand that it forms the basis of ethical guidelines, which in turn influence real policy decisions.

In short, if municipalities want to commit to the protection of citizens’ interests, this study encourages them to review their guidelines in a Big Data context. In that case, the guidelines might serve as an inspiration for the restructuring of the legal system, because ultimately, only laws and regulations can ensure the protection of citizens’ interests and rights.

6.1. Limitations & future research

In interpreting this study, it should be noted that due to its length, the concepts mentioned would benefit from further research, like the renewed logic of governing and its relation to neoliberalism as well as to human rights. Furthermore, there might be a translation barrier as the ethical guidelines are written in Dutch. Also, as Fairclough (2015) mentions “it is only really self-consciousness that distinguishes the analyst from the participants she is analyzing” (p. 176), it is important to reflect on our own predispositions as researchers that are specialized in digital ethics and departure from a critical approach.

Given these points, this study should be considered as an exploratory analysis that draws attention to unnoticed themes in the ethical discourse on smart cities. Furthermore, future research is encouraged to look into the restructuring of the legal system in the Big Data context.

6.2. Openings

Firstly, as we have seen that the ethical guidelines align with the appeal of the promises associated with smart cities, it shows that there is a need for interruption (Rouvroy, 2013, p. 160): to take a step back from this global approach, and first ask ourselves *what* we would like to see improved, and how technology can contribute. Mattern (2021, p. 163) suggests creating areas where citizens can freely express themselves, thereby providing room for intervention in urban governance. This enables us to move beyond the ‘global smart city’ discourse and create guidelines that are closer to the lived experiences of citizens.

Secondly, as the execution of these ethical guidelines is often perceived by municipalities as a ‘game’ in which they can make up their own rules, guidelines need to be aware that they do not influence municipal decision-making, and therefore protect citizens’ interests, as much as they intended. The ethical guidelines are a good start, but the next step is to create a legal framework regarding the ethical

implementation of smart cities so that municipalities are forced to follow it.

Critical scholars are right to question why guidelines are being drawn up instead of binding legal frameworks if they lack the power to actually prevent abuse (Van Maanen, 2022, pp. 2, 5). This preference for guidelines might stem from the neoliberal logic of industry self-regulation, where Smart Citizens are being empowered in so far as they stay “efficient, engaged economic subjects” (Herian, 2020, p. 4). Considering a broader demand for “innovation” (Herian, 2020, p. 5), this logic questions the use of binding regulation altogether, instead favoring guidelines that provide flexibility to meet the ongoing requirement for optimization. Indeed, guidelines then become merely a PR strategy to uphold the SLO (Van Maanen, 2022, p. 6). Van Maanen (2022, p. 5) suggests that – similar to how data scientists are accountable for their products – data ethicists (or guideline producers) also carry the responsibility for the (mis)use of guidelines. A binding legal framework is necessary to prevent the risk of ethics shopping or ethics washing (Bietti, 2020; Van Maanen, 2022; Wagner, 2018).

An interesting proposal by Wagner (2018, p.2; Yeung et al., 2020) is to look at our fundamental rights and make them binding in a Big Data context so they can be upheld upon violation. Our legal system should prioritize safeguarding our data sovereignty and protecting individuals from automatic algorithmic processing (Foth et al., 2021, p. 227). To this end, Rouvroy (2016b, p. 37) proposes in a white paper to the European Commission two concepts, that she calls “meta-rights”, that could serve as the central focus for legal subjects. With this, she aims to move the focus within legal subjectivity from people’s controllable intentions towards assuming their spontaneity. First, the “faculty to disobey” (p. 37) which means that individuals are not expected to do what the algorithm has predicted them to do. This ensures consistency in an environment where data flows become increasingly continuous. Second, the “responsibility to ourselves account for our own actions” (p. 37). This ensures that people are not locked into algorithmically made ‘categories’. In short, this approach aims to open the possibility for unpredictability and spontaneity that help to form ourselves and our connection to others. (p. 36) Currently at computer scientific conferences like ACM FAT*, interdisciplinary collaborations already occur, bringing together computer scientists with social scientists to conduct research on the topic of data justice (Taylor, 2019, p. 24).

Thirdly, as this research has shown the lack of centrality of citizens’ interests to the ethical guidelines, they are urged to consider their principles in relation to the renewed logic of governing, as it has implications on how citizens are dealt with, and therefore how their interests can be protected. This also asks for a renewed commitment of municipalities towards citizens’ interests, in which it should take up a more central role. Now, the smart city is imagined by technology experts and policy professionals, but if it wants to be the promise for the future, the first step would be to involve a broader set of people in the creation of these smart cities (Joss et al., 2019, p. 25). Moreover, it is essential to extend the concept of smart urban governing to all beings and not just humans. According to Sheikh et al. (2023, p. 10) a “more-than-human” smart urban governance approach can help address the current ecological crisis, especially because smart cities hold the revolutionary possibility to tell the story of other lifeworlds through new ways of data collection (Sheikh et al., 2023, p. 4). Moreover, the benefit of this approach, is that it considers the importance of the notion of ‘becoming’ (Fieuw et al., 2022, p. 7). Furthermore, the producers of ethical guidelines should maintain critical of the municipalities, as smart cities also open new opportunities for the abuse of power.

Fourthly, this study showed how the discourse of the ethical guidelines aligns with the public-private partnership in the public space. Hence, a fundamental question we should ask ourselves is: Do we want private actors co-governing our public space? Commercial interests often do not align with public interests. Therefore, ethical guidelines should not try to look away from municipalities’ dependency on big tech companies but instead, consider it upon developing them. This does not

mean we should entirely reject the use of technologies or services from tech giants. Rather data sovereignty in this context could be focused on “protecting [oneself] from forms of dispossession” (Couture & Toupin, 2019, p. 12). Currently, approaches are in development which are focused on a decentralized technology system over centralized, cloud-based ones (Foth et al., 2021, p. 329). Safeguarding data control is important because data can be used to avoid public accountability following the data behaviorist vision, as seen in the Dutch benefit scandal where an ‘impartial’ system made life-changing biased decisions (Foth et al., 2021, p. 326; RTL Nieuws, 2020). But also, because the input of algorithms can reinforce neoliberal and colonial ideologies (Foth et al., 2021, p. 326). In general, the goal for Europe is to “become free from hardware and software dependencies” (Csernaton, 2022, p. 409).

Hence, ethical guidelines should be aware that they are working within this neoliberal framework, so they can avoid (unintentionally) supporting it. Especially, their conception of ‘citizenship’ should change, so that they can enable a shift of power that protects citizens’ interests in an increasingly privatized environment. This recommendation is also supported by research on smart city policy on a European level (Cardullo & Kitchin, 2018, pp. 813, 825). Especially, as the aim for complete optimization limits civic action to the mere “consumption of communication resources” (Powell, 2021, p. 163). So, to protect citizens’ interests, the role of algorithmic profiling as a reinforcement of the elimination of the common should be considered.

As we are standing at the dawn of smart cities, we should ask ourselves the question: “What kind of society do we want?” Is it one in which citizens lose connection to themselves and others? Where private lives are subject to corporate interest? Or is it one where the citizens and ‘more-than-humans’ are *actually* central to the city of the future? This is a question all designers of smart cities should think about.

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Data will be made available on request.

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