1 Chapter 1

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5 # Citizenship, Justice, and the Right to the Smart City

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Abstract

13 This chapter provides an introduction to the smart city and engages with its idea and ideals from a critical social science perspective. After setting out in 15 brief the emergence of smart cities and current key debates, we note a number of practical, political, and normative questions relating to citizenship, 17 social justice, and the public good that warrant examination. The remainder of the chapter provides an initial framing for engaging with these questions. The first section details the dominant neoliberal conception and 19 enactment of smart cities and how this works to promote the interests of 21 capital and state power and reshape governmentality. We then detail some of the more troubling ethical issues associated with smart city technologies 23 and initiatives. Having set out some of the more troubling aspects of how social relations are produced within smart cities, we then examine how citi- 25 zens and citizenship have been conceived and operationalized in the smart city to date. We then follow this with a discussion of social justice and the 27 smart city. In the fifth section, we explore the notion of the "right to the smart city" and how this might be used to recast the smart city in emanci- 29 patory and empowering ways. Finally, we set out how the book seeks to answer our questions and extend our initial framing, exploring the extent to 31 which the "right to the city" should be a fundamental principle of smart city endeavors.

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35 *Keywords*: Citizenship; social justice; smart cities; right to the city; ethics; political economy; governmentality

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1   Introduction

Since the 1950s and the birth of digital computing, the urban has become ever-more entwined with the digital. Initially, computers were used to store and process city administration, were enrolled into Supervisory Control and Data Acquisition (SCADA) systems to monitor and control utility and other infrastructures, and used within academia and policy for modelling land use and transportation scenarios. By the late 1960s, cybernetic thinking led some to recast the city as a system of systems which could be digitally mediated and optimized (Forrester, 1969), though early deployments of such ideas failed to deliver on their promise (Flood, 2011; Light, 2004). In the 1980s and 1990s, personal computers began to become widespread in central and local government, along with specialist software (e.g., GIS), used in administration and the delivery of services. These computers started to become increasingly networked with the rapid growth of the Internet in the 1990s and 2000s, which was accompanied by a large investments in e-government (the delivery of services and interfacing with the public via digital channels) and e-governance (managing citizen activity using digital tools) (Castells, 1996). This also extended the networking of infrastructure, such as the widescale adoption of traffic management systems and surveillance cameras (e.g., CCTV) (Lyon, 1994).

By the late 1990s, there was a fairly extensive literature that examined the myriad ways in which the digital was reshaping the politics, economy, culture, social relations, and functioning of cities (e.g., Castells, 1988, 1996; Graham & Marvin, 2001; Mitchell, 1995; 2001), with theses emerging with regard to "wired cities" [AU:2] (Dutton, Blumler, & Kraemer, 1987), the "city as bits" (Mitchell, 1995), the "computable city" (Batty, 1997), and "cyber cities" (Graham & Marvin, 1999). As the entwining of the digital and urban deepened throughout the 2000s with the emergence of ubiquitous computing and mobile ICT, these were accompanied by conceptual framings such as "digital cities" (Ishida & Isbister, 2000), "intelligent cities" (Komninos, 2002), "networked cities" (Hanley, 2004), and "sentient cities" (Shepard, 2011), among others (Kitchin, 2014; Willis & Aurigi, 2017).

The smart city agendum is grounded in and emerges from this longer history of urban computing and networked urbanism. In simple terms, the smart city seeks to improve city life through the application of digital technologies to the management and delivery of city services and infrastructures and solving urban issues (see Table 1.1). Unlike other neologisms, the "smart city" quickly gained traction in industry, government, and academia from the late 2000s onwards to become a global urban agenda (see Söderström, Paasche, & Klauser, 2014; Willis and Aurigi, 2017). In part, this traction was driven by companies rapidly seeking new markets for their technologies in the wake of the global financial crash, and in part, by city administrations simultaneously seeking ways to do more with less through technical solutions given austerity cuts and to attract investment and boost local economies. This was aided by an already well-established neoliberal political economy that promoted the marketization and privatization of city services. Initial momentum grew, aided by the rapid formation of a well-organized epistemic community (a knowledge and policy community) and advocacy

1   Table 1.1. Smart City Technologies.

Domain	Example Technologies
Government	E-government systems, online transactions, city operating systems, performance management systems. urban dashboards
Security and emergency services	Centralized control rooms, digital surveillance, predictive policing, coordinated emergency response
Transport	Intelligent transport systems, integrated ticketing, smart travel cards, bikeshare, real-time passenger information, smart parking, logistics management, transport apps, dynamic road signs, mobility apps, share-ride services
Energy	Smart grids, smart meters, energy usage apps, smart lighting
Waste	Compactor bins and dynamic routing/collection
Environment	IoT sensor networks (e.g., pollution, noise, weather, land movement, flood management), dynamically responsive interventions (e.g., automated flood defenses)
Buildings	Building management systems, sensor networks
Homes	Smart meters, app-controlled smart appliances, digital personal assistants

Source: Kitchin (2016).

coalition (a collective of vested interests) operating across scales from global to local, and a cohort of favorably minded technocrats embedded in government (Kitchin, Coletta, Evans, Heaphy, & Mac Donncha, 2017a).

From its inception, the notion of the smart city has received sustained critique relating to how it: frames the city as systems rather than places; takes a techno-logical solutionist approach; enacts technocratic forms of governance and reshapes governmentality; promotes corporatization and privatization of city ser-vices; prioritizes the values and investments of vested interests; reinforces inequal-ities; produces a number of ethical concerns relating to surveillance, predictive profiling, social sorting, and behavioral nudging; and potentially creates security vulnerabilities across critical infrastructures (see Datta, 2015; Greenfield, 2013; Hollands, 2008; Kitchin, 2014; Mattern, 2013; Townsend, 2013; Vanolo, 2014). In this book, we are particularly concerned with critique relating to issues of citi-zenship, social justice and the "right to the city," and the ways in which ordinary citizens' lives are affected by the drive to create smart cities.

Our concern is not to forward a line of argument that is simply "against the smart city"; after all, digital technologies are already extensively interwoven into the workings and everyday life of cities and produce many positive and

1   enjoyable effects. Indeed, such technologies are, in Althusser's (1971) terms, "seductive," promising freedom and choice, convenience, productivity, optimiza-
3   tion, and control (Kitchin & Dodge, 2011). However, seduction can be a veil, obfuscating the broader agenda and processes of neoliberalization and accumu-
5   lation by dispossession that may disadvantage citizens in the long run (Leszczynski & Kitchin, in press). Instead, we seek to "reframe, reimagine and
7   remake the smart city" (Kitchin, 2019, p. 219) as an emancipatory and empow-ering project, one that works for the benefit of all citizens and not just selected
9   populations.

      This re-conception consists of highlighting further the politics and ethics of
11 smart cities, and to move beyond the dominant postpolitical framing reproduced by its epistemic community and advocacy coalition, to reconceive notions of
13 "smart" citizenship and the purposes and ideology of smart city endeavors in ways that are thoroughly political. This means not simply stating the need for
15 citizen-focused or just smart cities at the level of the commonsensical, taken-for-granted, pragmatic, and practical, but to conceptualize what such notions con-
17 sist of in concrete terms and how they can be operationalized to transform the smart city. This involves starting to work through a set of related questions,
19 such as:

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   • How are citizens framed and conceptualized within smart cities?
23 • How are citizens expected to act and participate in the smart city?
   • How is public space and the urban commons framed and regulated in the
25   smart city?
   • What sort of publics can be formed and what actions can they take?
27 • What are the ethical implications of smart city approaches and systems?
   • To what extent are injustices embedded in city systems, infrastructures, and
29   services and in their calculative practices?
   • What systems and structures of inequality are (re)produced within smart
31   urbanism?
   • To what extent are forms of class, racism, patriarchy, heteronormativity, able-
33   ism, ageism, colonialism (re)produced in smart urbanism?
   • What models of citizenship are enacted within the smart city?
35 • What forms of social justice operate in the smart city and what are their
     effects?
37 • By whom and on what terms are these models of citizenship and justice being
     conceived and operationalized?
39 • What kind of smart urbanism do we want to enact? What kind of smart city
     do we want to create and live in?
41 • How can we move beyond the neoliberal smart city?

43   In the rest of this chapter, we provide a framing for starting to think through and answer some of these questions drawing on the emerging literature and
45 making connections with the chapters that follow. We have divided our discus-sion into five sections. In the next section, we detail the dominant neoliberal

framing and enactment of smart cities and how this works to promote the interests of capital and state power and reshape governmentality. We then detail some of the more troubling ethical issues associated with smart city technologies and initiatives. In the third section, we examine how citizens and citizenship have been conceived and operationalized in the smart city to date, following this with a discussion of social justice and the smart city. In the final section, we set out the notion of a "right to the smart city," making a case that this should be a fundamental principle of smart city endeavors.

Capital, Power, and the Smart City

There is a plethora of work that has theorized and empirically excavated the ways in which capital and power drive the processes of urbanization and reproduce socio-spatial structures and relations of cities. Such work focuses attention on the circuits of capital accumulation, the operations of neoliberalism, imperialism, colonialism and nationalism, and the playing out of identity politics in shaping the urban condition across the globe (e.g., Castells, 1977; Harvey, 1973; Massey, 2007; Robinson, 2005). Cities, critical urban theory posits, "are sculpted and continually reorganized in order to enhance the profit-making capacities of capital" since they are "major basing points for the production, circulation, and consumption of commodities," as well as themselves being intensely commodified (Brenner, Marcuse, & Mayer, 2012, p. 3). This continual unfolding shifts in shape and emphasis through the clash of vested interests, social forces, and political ideologies and is subject to instability, multiple setbacks and crises (e.g., overaccumulation, devalorization), but relentlessly prioritizes exchange-value (profit-oriented) over use-value (the satisfaction of basic needs) in urban development strategies (Brenner et al., 2012; Lefebvre, 1996). In other words, cities under capitalism operate for the benefit of a relatively small group of elite actors who own and control the means of production and reproduce inequalities and social and spatial divides (Harvey, 1973; Sassen, 1991).

From this perspective, the smart city is the latest attempt to use and reconfigure the city as an accumulation strategy, forming a tech-led version of entrepreneurial urbanism (Hollands, 2008; Shelton, Zook, & Wiig, 2015), through which private interests seek to: deepen a neoliberal political economy, capturing public assets and services by offering technological solutions to urban problems; use financialization to capture and sweat or disrupt and replace private infrastructure and services; foster local economic development and attract foreign direct investment; drive real-estate investment; and set in place the architecture of neoliberal governmentality and governance. Through these strategies, the smart city enacts a new wave of "accumulation by dispossession" (Harvey, 2008) and "capitalist enclosure" (De Angelis, 2007) that have significant consequences to the lives of citizens.

With respect to capturing public assets, city administrations are under pressure to draw on the competencies held within industry to formulate "smart" urban policy and to deliver tech-led city services through public−private

1 partnerships, leasing, deregulation and market competition, and privatization (Shelton et al., 2015). Cities, it is argued, are behind the technology curve with
3 respect to state-of-the-art ideas and systems for managing cities. They lack the core skills, knowledges, resources, and capacities to address pressing urban
5 issues and maintain critical services and infrastructures, which are becoming more socially and technically complex and require multi-tiered specialist inter-
7 ventions (Kitchin et al., 2017a). Within this mindset, the place of the public sector is to act as broker, rather than service provider, with smart city units acting
9 to source initial expertise and build partnerships. At the same time, companies seek to: capture private infrastructures and services and sweat these assets, seek-
11 ing to extract value through minimizing maintenance and long-term investment and charging the highest bearable price depending on a user's ability to pay
13 (Morozov & Bria, 2018); or to disrupt existing public and private services and infrastructures, and their regulation and labor relations, by providing new tech-
15 enabled platforms – for example, Uber and Airbnb challenging traditional taxi and short-term accommodation markets. In both cases, smart city endeavors are
17 part of a larger project of city assets (e.g., property, infrastructure, utilities, services) being captured and exploited through financialization (Christophers, 2011;
19 Moreno, 2014).

Beyond making the city a market in-and-of itself, the neoliberal smart city is
21 an explicitly economic project, aiming to attract foreign direct investment, fostering innovative indigenous start-up sectors or digital hubs, and attracting
23 mobile creative elites. Cities around the world have created "smart districts," designating an area of the city as a testbed for companies to pilot new technolo-
25 gies (Evans, Karvonen, & Raven, 2016; Halpern, LeCavalier, Calvillo, & Pietsch, 2014). In the UK, the Department of Business, Innovation and Skills
27 has funded smart city initiatives with the aim of positioning the UK as a leading exporter of smart city consultancy and technologies (Taylor-Buck & While,
29 2017). At the European scale, the European Innovation Partnership for Smart Cities and Communities (EIP-SCC) funds smart city projects where a key mea-
31 sure of impact is the attraction of significant private investment in the delivery of public services and a reduction in "technical and financial risks in order to
33 give confidence to investors for investing in large scale replication" (European Commission, 2016, p. 111), so that eventually "private capital can take over fur-
35 ther investments at low technical and financial risks" (European Commission, 2016, p. 108). In other words, the risks of creating new products are socialized in
37 exchange for the privatization of services and, eventually, profits.

In addition to urban-focused economic development, the smart city has
39 become a key component of property-led development. Here, smart city technologies are a central feature of new real-estate projects, operating as an attractor
41 for investors and future residents, as well as providing a shopfront for those technologies for other prospective development sites. Probably the most well-
43 known such development is Songdo in South Korea. A part of the Incheon Free Economic Zone (IFEZ) at the edge of the Seoul metropolitan area, Songdo, is
45 one of three large-scale developments initiated in 2003. The IFEZ was explicitly an economic development initiative aimed at driving domestic growth and

consolidating South Korea's position in the global economy. From this perspective, the greenfield smart city was a means to create an urban growth machine designed to attract investment capital, anchor tenants, and global workers, with a side benefit of creating a potential exportable model of "smart" development (Carvalho, 2012; Shin, Park, & Sonn, 2015; Shwayri, 2013). Other examples include the 100 smart city developments in India (see Datta, 2015), Masdar in United Arab Emirates (Cugurullo, 2013), and Hudson Yards in New York (Mattern, 2017) (also see Karvonen, Cugurullo, & Caprotti, 2018; Di Feliciantonio, this volume). In areas where smart city practices are used in regeneration programs, such as Living Labs, they act as a magnet for the in-flow and retention of "creative classes" and as gateways for gentrification (Cardullo, Kitchin, & Di Feliciantonio, 2018).

Within such new smart city developments, and through the deployment of smart city technologies across existing cities, the modes of governmentality and governance are shifting, further deepening the neoliberal project. For Foucault (1991), governmentality is the logics, rationalities, and techniques that render societies governable and enable government and other agencies to enact governance. For many analysts, the digital era of ubiquitous computing, big data, and machine learning is producing a shift in how societies are managed and controlled. The contention is that governance is becoming more technocratic, algorithmic, automated, and predictive in nature (Amoore, 2013; Kitchin & Dodge, 2011), shifting governmentality from disciplinary forms of management (designed to corral and punish transgressors and instill particular habits, dispositions, expectations, and self-disciplining) toward social control, in which their behavior is explicitly or implicitly steered or nudged. Governmentality is no longer principally about subjectification (molding subjects and restricting action) but also about control (modulating affects, desires, and opinions and inducing action within prescribed comportments) (Braun, 2014). Vanolo (2014) names this as "smartmentality," enacted through technologies such as control rooms and dashboards, smart grids and meters, traffic control rooms, and smartphone apps that seek to modulate behavior and produce neoliberal subjects (Kitchin, Coletta, & McArdle, 2017b). For example, as Davies (2015) notes with respect to Hudson Yards, a development that will be saturated with sensors and embedded computation, residents and workers will be continually monitored and modulated across the entire complex by an amalgam of interlinked systems. The result will be a quantified community with numerous overlapping calculative regimes designed to produce a certain type of social and moral arrangement, rather than people being regulated into conformity.

Ethics and the Smart City

The technologies detailed in Table 1.1 are designed to manage and control city infrastructure and services. As noted above, almost without exception, they are operated either on behalf of the state or for the generation of profit and they directly affect the management and regulation of society. A key aspect of their

1   operation is that they produce, process, and extract value and act upon streams of big data that are highly granular and indexical (directly linked to people,
3   households, objects, territories, and transactions) (Kitchin, 2014). Thus, smart city technologies raise a number of ethical issues concerning privacy, datafica-
5   tion, dataveillance and geosurveillance, profiling, social sorting, anticipatory governance, and nudging, that have significant consequence for how citizens are
7   conceived and treated (e.g., as data points, subjects to be actively managed and policed, as consumers), and can work to reproduce and reinforce inequalities
9   (Kitchin, 2016; Taylor, Richter, Jameson, & Perez del Pulgar, 2016).

    For example, a range of smart technologies has transformed geo-location
11   tracking, eroding movement privacy (Kitchin, 2016; Leszczynski, 2017). Many cities are saturated with remote controllable digital CCTV cameras that can
13   track individual pedestrians, increasingly aided by facial and gait recognition software. Large parts of the road network are monitored by inductive loops,
15   traffic cameras, and automatic number plate recognition cameras that can iden- tify vehicles. In a number of cities, sensor networks have been deployed across
17   street infrastructure such as bins and lampposts to capture and track phone iden- tifiers such as MAC addresses. The same technology is also used within malls
19   and shops to track shoppers, sometimes linking with CCTV to capture basic demographic information such as age and gender. Similarly, some cities have
21   installed a public wifi mesh which can capture and track the IDs of devices that access the network. Many buildings and public transport systems monitor smart
23   cards used to access them. Smartphones continuously communicate their loca- tion to telecommunications providers, either through the cell masts they connect
25   to, or the sending of GPS coordinates, or their connections to wifi hotspots. Such data gathering has profound implications for privacy, which many con-
27   sider a basic human right.

    In addition, smart city technologies potentially create a number of other pri-
29   vacy harms through the sharing and analysis of data trails (Kitchin, 2016). A   AU:3 key product of data brokers is predictive profile of individuals as to their likely
31   tastes and what goods and services they are likely to buy, their likely value or worth to a business, and their credit risk and how likely they are to pay a certain
33   price or be able to meet re-payments. Such profiles can produce "predictive pri- vacy harms" (Baracos & Nissenbaum, 2014; Crawford & Schultz, 2014), used to
35   socially sort and redline populations, selecting out certain categories to receive a preferential status and marginalizing and excluding others. In addition, such
37   profiles can be used to socially sort places to receive certain policy interventions or marketing as practiced by the geodemographics industry (Graham, 2005).
39   Specific predictive privacy harms can be produced through location tracking. For example, tracking data that reveal a person regularly frequents gay bars
41   might lead to the inference that the person is likely to be gay which, if shared (e.g., through advertising sent to the family home or via social media), could
43   cause personal harm. Similarly, co-proximity and co-movement with others might be used to infer political, social, and/or religious affiliation, potentially
45   revealing membership of particular groups (Leszczynski, 2017). Such inferences can generate inaccurate characterization that then stick to and precede an

individual. This has led to concerns that a form of "data determinism" is emerging in which individuals are not simply profiled, judged, and treated on the basis of what they have done, but on a prediction of what they might do in the future (Ramirez, 2013).

Data determinism is most clearly expressed in forms of anticipatory governance, such as that used in predictive policing, where predictive analytics are used to assess likely future behaviors or events and to direct appropriate action (Goodman, 2015; Harcourt, 2006). A number of US police forces are now using predictive analytics to anticipate the location of future crimes and to direct police officers to increase patrols in those areas. For example, the Chicago police force uses arrest records, phone records, social media, and other data to produce both general area profiling to identify hotspots and guide patrols, and more specific profiling that identifies individuals within those hotspots (Jefferson, 2018). In such cases, a person's data shadow does more than following them; it precedes them. Further, a number of police forces have invested heavily in new "smart" command-and-control centers that employ enhanced and extensive multi-instrumented surveillance (e.g., high definition CCTV, drone cameras, sensors, community reporting) to direct on-the-ground policing (Wiig, 2017). In addition, police forces monitor the communications of known activists to try and anticipate and control social unrest (Paasche, 2013). In other words, smart technologies can be used to suppress dissent and reproduce a particular polity.

Smart city technologies, the data they generate and the analytics applied to them, can thus have significant negative direct and in-direct impact on peoples' everyday lives (Kitchin, 2016). They also ensure that any "right to the smart city" derived through the present configuration of technologies is dependent on systems that inherently surveil and control. As such, there is a potentially heavy cost for the freedom and choices these technologies claim to offer, which requires careful consideration and redress.

Citizenship and the Smart City

The discussion so far regarding power, capital, governmentality, and ethics reveals the dominant ways in which the citizen is framed within the smart city: as a data-point, a targeted consumer, a user, an investor, a sorted individual, and a surveilled, controlled and policed subject. In a previous chapter, we reworked Arnstein's (1969) well-known "ladder of citizen participation" to examine the various citizen roles enacted across smart city initiatives (see Cardullo & Kitchin, 2018a). What we found was that citizens most often occupy non-participatory, consumer, or tokenistic positions and are framed within political discourses of stewardship, technocracy, paternalism, and the market, rather than being active, engaged participants where smart city initiatives are conceived in terms of rights, citizenship, the public good, and the urban commons. Citizens are to be steered, nudged, and controlled; they can browse, consume, and act. If there is civic engagement, it is in the form of a participant, tester, or

1   player who provides feedback or suggestions, rather than being a proposer, co-creator, decision-maker, or leader.

3   Similarly, Cowley, Joss, and Dayot (2018) identify four modalities of "publicness" which denote how citizens are positioned within smart cities: "service

5   user" in which citizens are framed as the consumers of services, "entrepreneurial" in which citizens are actively enrolled into co-creating and innovating,

7   "political" in which citizens take an active role in decision-making and deliberation, and "civic" in which citizens take part in grassroots community activities

9   that are not directly oriented toward market activity. They note that there is a significant variation of publicness across initiatives and cities, mostly favoring

11 "service user." In contrast, Shelton and Lodato's (in press) study of Atlanta's smart city program notes that while the city administration and companies

13 attending their events often talked of producing a citizen-focused smart city, in practice, citizens were included as two empty signifiers – and citizens themselves

15 were excluded from the policy-making arena (see also Datta, 2018). The first is as a "general citizen," a kind of catch-all community of seemingly homogenous

17 recipients or consumers of services. Here, the smart city operates within the framework of stewardship (delivering on behalf of citizens) and civic paternalism

19 (deciding what's best for citizens), rather than citizens being meaningfully involved in the vision and development of the smart city. The second is the

21 "absent citizen," referring to all those diverse communities that hold differing identities, values, concerns, and experiences to the "general citizen" (which is

23 largely framed as White, male, heterosexual, able-bodied, and middle class) and to the absence of citizens from the processes of formulating and implementing

25 smart city strategies and programs. In addition to this, it can be added a third `AU:4` figure that appears often in other smart city documents and programs, the

27 "active citizen," an entrepreneurial citizen that builds civic tech for community development through hackathons and other events (Joss, Cook, & Dayot, 2017;

29 Townsend, 2013), though within any city, this is usually just part of a handful of people who work in the tech sector and on problems set by sponsoring compa-

31 nies and administrations (Perng, Kitchin, & MacDonncha, 2018).

       And yet, most smart city initiatives claim to be "citizen-focused" or "citizen-

33 centric." The disconnect between supposed discursive intent and reality is caused by two factors. First, initiatives that were critiqued for their top-down, techno-

35 cratic nature have sought to silence detractors or bring them into the fold, while keeping the central mission of capital accumulation and technocratic governance

37 intact, by re-branding their endeavors as "citizen-centric" (Kitchin, 2015). Citizen-centric in such cases operates largely as an empty signifier, often calling

39 for citizen inclusion or searching for the "missing citizen" but retaining the underlying neoliberal ethos and mode of governmentality (Hill, 2013; Sartori,

41 2015; Shelton & Lodato, in press). Second, funding programs designed to encourage city administrations to become a smart city, such as the European

43 Commission's EIP-SCC, structurally preclude any serious intent to include citizens in the formulation of projects (Cardullo & Kitchin, 2018b). Putting together

45 a large, multi-million euro bid is time-consuming, complex, and largely unfunded task, and adding "non-expert" citizens into the process creates a

1   significant additional overhead. What this means is that in most cases, the focus, objectives, and solutions are set before any problems and suggestions from citi-
3   zens can be taken into account, and it is only when the funding is in hand that engagement occurs with local communities. Such citizen engagement has to
5   meet pre-determined milestones and fulfil the deliverables of the contract, mean-ing participants have limited scope to subsequently reframe the initiative around
7   their concerns and desires (Cardullo & Kitchin, 2018b).

      This discussion of citizen roles and framing starts to reveal the dominant neo-
9   liberal model of citizenship that underpins and operates within the smart city. In his classic text, *Citizenship and Social Class* (1950), Marshall denoted three sets
11   of rights that define the citizenship status of citizens: civil/legal (e.g., right to own property; freedom of speech; liberty of the person, and the right to justice),
13   political (e.g., right to vote and participate in the exercise of political power), and social (e.g., right to a certain level of economic welfare and security). To
15   these rights, there have been added cultural/symbolic rights that concern recog-nition, respect, and protections with respect to identity (gender, race, sexuality,
17   disability, faith, etc.). From this perspective, citizenship is "a set of practices (cultural, symbolic and economic) and a bundle of rights and duties (civil, politi-
19   cal and social) that define an individual's membership in a polity (usually a nation-state)" (Isin & Wood, 1999, p. 4).
21   In contrast, neoliberalism shifts citizenship away from inalienable rights and the common good toward a conception rooted in individual autonomy and free-
23   dom of "choice," and personal responsibilities and obligations (e.g., Brown, 2016; Ong, 2006; Vanolo, 2016). Here, the onus is on the individual to navigate
25   and negotiate the provision of services and levels of access, framed within "com-monsensical" constraints and neoliberal governmentality, based on their per-
27   sonal social, political, and economic capital. As such, there is a reorientation of citizenship toward market principles and the market acting as a "means of regu-
29   lating and coordinating the activities of numerous actors without direction from a single controlling centre" (Hindess, 2002, p. 140). As the work of city adminis-
31   trations is marketized, deregulated, and privatized, the political and social aspects of citizenship likewise become transformed: instead of rights there are
33   choices, with citizens framed increasingly as consumers able to select options on the basis of their ability to afford them. In the neoliberal smart city, "choice" is
35   extended in space and time thanks to the proliferation of interconnected and location-aware devices.
37   This is having profound effects on governmentality. Smart technologies, in the form of networked sensors and real-time big data streams, establish a neolib-
39   eral subject grounded in individual responsibility − for instance, by counting steps or measuring diets, analyzing one's own data, and then recalibrating self-
41   behavior (see Davies, 2015). Han (2017, online) calls it "smartpolitics," arguing that the politics of discipline and punishment is being replaced by exploitation
43   of the psychic realm: "instead of forbidding and depriving, [neoliberalism] works through pleasing and fulfilling." This chimes with the notion that software is
45   "seductive" because it promises rewards for use, but at the same time, it condi-tions through automation and forms of control (Kitchin & Dodge, 2011). With

AU:5

1 the coupling of personal and environmental sensor data with the affordance of digital networking technologies, smartness can lead to a "gamification effect" which
3 constitutes notions of "good" or "bad" citizen/user through disciplinary dispositives of ordering or ranking (Vanolo, in this volume; see also Gabrys, 2014).
5 According to Han (2017), the neoliberal subject is not a "labourer" any more, but a "project." Even in smart city projects that seek more effective forms of active citi-
7 zenship and citizen empowerment – for example, Living Labs, citizen science, open source software, and sharing platforms – participation is achieved by
9 co-opting citizen contributions into wider economic and neoliberal imperatives (Cardullo et al., 2018; McLaren & Agyeman, 2015; Perng et al., 2018).
11   The paradox of fostering increased choice with less meaningful participation for citizens is due to the contradictory coming together of forms of technocratic
13 and market-driven governance with poorly understood and practiced notions of conviviality, commoning, civic deliberation, resource sharing, trust building, and
15 other face-to-face forms of confrontation and living that make polis and communities work (Cardullo & Kitchin, 2018b). While claiming to increase mean-
17 ingful forms of direct participation, neoliberal governance works within structuring bureaucratic, technological, and ideological path dependencies and
19 representational practices that defines a citizenship regime (Cardullo & Kitchin, 2018b; Joss et al., 2017) and often hinges on computational forms of participa-
21 tion which are set already within circumscribed software environments and solutions (Gabrys, 2014; Kitchin et al., 2017b). As Joss et al. (2017, p. 32) note,
23 understanding the citizenship regime in operation within a smart city initiative needs to unpack: the "distribution of responsibility between the individual, the
25 community, the market, and the state"; "the rights and obligations, which establish the boundaries of a political community"; and "the governing practices,
27 including modes of citizen engagement and access to the state." While this work has begun, including how postcolonial forms of citizenship are enacted in the
29 Global South (Datta, 2018), there is much still to do across technologies, pro-
31 grams, and places.

33 ## Social Justice and the Smart City

35 Linked to the notion of citizenship, and the roles, rights, and entitlements of citizens, is the notion of social justice and the expected and acceptable ways in
37 which people are treated and the conditions in which they live. Social justice relates to the fair treatment of people in particular circumstances and how peo-
39 ple should act (Smith, 1994). At a general level then, social justice concerns morality and human rights, where a right is an "obligation embedded in some
41 social or institutional context where expectation has a *moral* force" (Smith, 1994, p. 36). In other words, moral rights are those things that we as members
43 of a society expect as members, such as freedom of expression, access to accommodation, to vote in elections, full recourse to the law, access to education and
45 medical treatment, etc. Such rights though are not given and inalienable, but are often highly contested, negotiated or imposed by members of a society. As

1   Barry (1989) notes, theories of social justice are theories about the kind of social
     arrangements that can be defended. Indeed, there are a number of theories of
3   social justice, with each theory appealing to a different form of authority, logic
     and what matters most in life, and which justifies or challenges socio-spatial pro-
5   cesses that discriminate against, marginalize, and exclude some members of soci-
     ety (Harvey, 1996).
7   In general, theories of social justice fall into four broad types: distributional
     (fair share), procedural (fair treatment), retributive (fair punishment for wrongs),
9   and restorative (righting of wrongs) (see Sabbagh & Schmitt, 2016). Here, we
     want to consider the first two in relation to the smart city, though the effect on
11 these can be shaped significantly by how punishments for wrong-doing are
     administered: in other words, if there is no effective sanction for social sorting
13 and redlining within smart city initiatives, for example, then the moral argument
     with respect to distributional and procedural unfairness will have less traction.
15 Importantly, which theory of social justice one subscribes to fundamentally
     alters how one understands fairness and rights and what one might consider to
17 be a just smart city. Table 1.2 provides a snapshot of the main principles of
     seven theories and how they might apply in relation to some of the ethical issues
19 of dataveillance, social/spatial sorting, anticipatory governance, and dynamic
     pricing that differentially affect groups of citizens within the smart city (for a
21 fuller discussion of social justice theories with respect to cities and urban geogra-
     phy, see Harvey, 1973, 1996; Heynen, Aiello, Keegan, & Luke, 2018; Laws,
23 1994; Mitchell, 2003; Smith, 1994).
         What Table 1.2 highlights is that it is important to unpack the logics and
25 principles as to how present smart cities are imagined and produced as "just" or
     "unjust" cities. As Don Mitchell (2003) notes, without such normative critique,
27 the arguments used by smart city proponents will remain unchallenged in their
     claims to a common sense, pragmatic, and non-ideological approach to urban
29 issues. Vanolo (this volume) provides an example of such work using Harvey's
     theory of social justice to interrogate gamification and nudge in smart city sys-
31 tems. Equally, Table 1.2 makes clear that it is not simply enough to say one is
     interested in creating a "just smart city," as if the meaning of such a statement is
33 self-evident. Indeed, for a libertarian, a neoliberal approach that prioritizes the
     free-market and individual autonomy and supports the notion of the survival of
35 the fittest rather than a welfare state would argue that the neoliberal smart city
     and its attendant divides and inequalities are inherently just as one is treated as
37 one deserves or can afford. Such a position is considered highly unjust by egali-
     tarians, utilitarians, Marxists, and feminists. In other words, it is necessary for
39 those seeking to create a normative argument for an alternative smart city vision
     to start to articulate the principles of a just smart city − perhaps organized with
41 respect to conviviality, commoning, equality, civic deliberation, resource shar-
     ing, and social reproduction − and how these would work in practice. This does
43 not mean that one should halt seeking to attend to perceived injustices in the
     absence of such articulated principles, working in a pragmatic, instrumental,
45 and practical register (through activism and advocacy). Rather, it means that
     this should ideally be complemented with a nuanced, political, and normative

Table 1.2. Social Justice and Data-driven Harms.

Theory of Social Justice	Application to Data-driven Harms
Egalitarianism argues for equality in terms of distribution of wealth and power across all members of a society regardless of ability and inheritance	Egalitarians would see data-driven harms and differential treatment as an affront to their principles of equality and demand that it should be removed or made equal in effects across all citizens
Utilitarianism seeks the greater good for the greatest number	Utilitarians would treat the problem as a social nuisance that ought to addressed for the greater good as it reproduces and deepens inequalities and their long-term effects, or that it should be tolerated for greater good if benefits outweigh harms
Libertarianism prioritizes individual autonomy over the state and society and suggests that the free-market is inherently just	Libertarians would put the rights of data extractors and profilers at a premium and what happens between the parties involved is a private matter, with citizens receiving the treatment they deserve or can afford
Contractarianism seeks to find a distributional arrangement of resources that all involved considers just (not equal)	Contractarians would look at the problem from all sides, arguing that if one group is unwilling to tolerate such data-driven harms then nobody should and the systems should be dismantled
Marxism argues that society has to be restructured away from its current capitalist base into a society where the full value of an individual's contribution is rewarded	Marxists would argue that system that led to surveillance capitalism needs to be changed to a social democracy where people are not discriminated, exploited, and alienated
Communitarianism rejects both individual self-determination and state sanctioned arrangements and promotes the ideas of community and shared practices and values	Communatarianists would suggest that within a community system based upon shared experiences and commonality, such a system would not have arisen and such principles need to be adopted
Feminism argues for the redistribution of power, so that power relations between different groups become more just	Feminism would argue for end to practices of discrimination and a redistribution of power relations so that citizens have a much stronger say in how such systems work and receive fair treatment

Source: Reworked from Harvey's (1996) account of these theories with respect to a lead paint poisoning in rented accommodation.

argument that undermines the discourses and practices that support harmful and unjust outcomes and shifts the terrain of the debate in progressive ways. One way that such work has been advanced is through the political argument of the "Right to the City," which has its roots in Lefebvre's Marxist-inspired ideas of social justice.

The Right to the Smart City

Henry Lefebvre (1996 [1967]) built his influential concept, "The Right to the City," around the idea that citizens should not just have the right to occupy and use space, but that space should be shaped according to its inhabitants' needs (Purcell, 2002). For Isin (2000, p, 14), the right to the city is "the right to wrest the use of the city from the privileged new masters and democratise its space": it is the right of the excluded, the distressed, and the alienated to demand and receive the material (e.g., a living wage, shelter) and non-material (e.g., recognition, respect, dignity) necessities of life (Marcuse, 2012). It is a demand that the rights of private property and the profit rate do not trump all other rights that the current "right to the city, as it is now constituted […] restricted in most cases to a small political and economic elite who are in a position to shape cities more and more after their own desires" is radically reconfigured (Harvey, 2008, p. 38). As such, the "right to the city" "consist[s] of the right of all city dwellers to fully enjoy urban life with all of its services and advantages – the right to habitation – as well as taking direct part in the management of cities – the right to participation" (Fernandes, 2007, p. 208).

This includes citizens possessing a suite of related rights, such as "the right to information, the right of expression, the right to culture, the right to identity in difference and in equality, the right to self-management, […] the right to public and non-public services" (Fernandes, 2007, p. 208), as well as the right to free movement, the right to occupy public spaces and to protect the commons from private ownership, the right to meetings and gathering, and the right to political representation and to vote. It is the right for inhabitants to participate fully in the production of urban space – "the right to control the urbanization process and to institute new modes of urbanization" (Harvey, 2008, p. 40) – not simply be the recipient of the practices of stewardship and civic paternalism enacted by city administrations and the market (Mitchell, 2003). In other words, the right to the city is "a moral claim, founded on fundamental principles of justice" (Marcuse, 2012), and it is a direct challenge to the inequities and injustices of urban capitalism and neoliberalism.

More recent extensions to the idea, important in the context of the smart city and its reliance on digital, networked technologies, and the production and analysis of big data, are the "right to the digital city" (de Lange & de Waal, 2013), "digital rights to the city" (see Shaw & Graham, 2017a), and the "informational right to the city" (Shaw & Graham, 2017b). de Lange and de Waal (2013) are interested in the right to appropriation in the smart city and seek to advance an alternative form of ownership, one not grounded in contracts and proprietary

1   rights but rather in a "sense of belonging to a collective place […] and [a]
willingness to share a private resource with the collective in order to allow other
3   citizens to act, without infringing on other people's right of ownership." Here,
key infrastructures and resources, such as municipal data, are corralled within a
5   commons and citizens have the right to use smart technologies to help solve
shared issues by "networked publics" who convene around a shared matter of
7   concern. Shaw and Graham (2017b) are concerned that in an age of big data
and data-driven urbanism citizens have the right to understand what data are
9   being generated about them and places, within a framework which guarantees
transparency with respect to how these data are compiled into information and
11   the uses to which they are put, and thus have the ability to challenge and
reconfigure those uses. More broadly, Isin and Ruppert (2015) argue that, given
13   the ubiquitous nature of digital technologies in everyday life, there is a need for
digital citizens to possess a suite of digital rights. Indeed, as Attoh (2011) notes,
15   the right to the city "constitutes not a singular right, but a set of rights."

    At the same time, Marcuse (2012, p. 34), makes it clear that the "right to the
17   city is a unitary right, a single right that makes claim to a city in which all […]
separate and individual rights […] are implanted. It is *The* right to the city, not
19   *rights* to the city. It is a right to social justice, which includes but far exceeds the
right to individual justice." In this sense, it is a common right, not an individual
21   right, and exceeds individual liberty (Harvey, 2008). Marcuse (2012) notes an
"analogous concept might be that of citizenship […] that provides all rights as a
23   right to the single status of citizenship." Indeed, the concept highlights the vital
link between the emancipatory organization and operation of cities and more
25   empowering forms of citizenship and social justice. As Marcuse (2012) details,
achieving such a coupling requires a significant shift in the nature of social rela-
27   tions as "[t]o gain rights for those that do not have them will involve eliminating
some rights for those that do: the right to dispossess others, to exploit, to domi-
29   nate, to suppress, to manipulate the conduct of others." Indeed, as Mayer (2012,
p. 35) argues, in Lefebvre's terms, the right to the city is "not about inclusion in
31   a structurally unequal and exploitative system, but about democratizing cities
and their decision making processes."
33   As Don Mitchell (2003, p. 19) notes, this sense of democracy requires sys-
temic change in the underlying political economy, so that, "the use-value that is
35   the necessary bedrock of urban life would finally be wrenched free from its dom-
ination by exchange-value." In other words, pursuing the right to the city means
37   creating cities that are not rooted in and driven-by capitalism. In is only on these
terms, Harvey contends, that a "genuinely humanizing urbanism" can be
39   enacted (1973, p. 314; see Kitchin, this volume). That said, many who seek a
fairer society are not pursuing revolution, but rather a more equitable and inclu-
41   sive set of social relations within the existing structural asymmetries of capital-
ism (Marcuse, 2012; Mayer, 2012). Nonetheless, the right to the city is a rallying
43   cry for transformative political mobilization to create such a humanizing urban-
ism, a more emancipatory and empowering city.
45   But what would such a smart city look like in practice? How can a "right to
the smart city" be achieved? There are few examples of progressive smart cities,

1   but Barcelona's recent reorientation of its smart city ambitions offers some poin-
    ters (also see Ribera-Fumaz, this volume). Under a right-wing government,
3   Barcelona was a blueprint for neoliberal smart urbanism, partnering with multi-
    nationals, such as CISCO, and performing various smart city initiatives with
5   aggressive self-promotion, as well as initiating the SCEWC to promote smart cit-
    ies more globally (March & Ribera-Fumaz, 2016). Since May 2015, however,
7   there has been a new political and organizational approach to smart cities. This
    has included making smart city initiatives much more citizen-centric and partici-
9   patory, adopting the concept of "technological sovereignty" as a new form of
    citizenship, and appointing a new commissioner of Technology and Digital
11 Innovation. Technological sovereignty is the notion that technology should be
    orientated to and serve local residents, and be owned as a commons, rather than
13 applying a universal, market-orientated, proprietary technology (Galdon, 2017;
    Morozov & Bria, 2018). Here, there is a commitment to using open source tech-
15 nologies and to retaining ownership and control of its data infrastructure while
    guaranteeing access for its citizens (Galdon, 2017). A new set of experiments
17 with open data, control of personal data, civic apps, and crowdsourced sensors
    are connecting citizens to technology without curtailing their rights and entitle-
19 ments (Bria, 2017). Further, service provision (electricity and water) is being re-
    municipalized and there are experiments with universal basic income and forms
21 of rent control. Barcelona has thus sought to *re-politicize* the smart city and to
    shift its creation and control away from private interests and the state toward
23 citizens and communities, civic movements, and social innovation. The city's
    attempt to re-envisage the smart city around technological sovereignty offers a
25 different form of smart citizenship, one that seems much more grounded in the
    hopes and politics of the "right to the city" agenda.
27   Beyond the Barcelona example, a number of other cities are considering or
    have implemented specific measures to address various concerns relating to the
29 neoliberal smart city. Morozov and Bria (2018, p. 23) classify these into: "those
    offering an alternative regime for dealing with citizen-produced data; those pro-
31 moting an alternative, more cooperative model of service provision […] which
    does not rely on or promote data extractivism by a handful of giant tech firms;
33 those seeking to control the activities of platforms like Airbnb or Uber […]; and
    those promoting and building alternative infrastructures to compete with Silicon
35 Valley." In addition, within many cities, there are bottom-up, community-
    driven, and activist initiatives that seek to enact a different kind of smart city. It
37 is clear, nonetheless, that creating the right to the smart city will require a
    ground-swell of action by social and political movements to demand change and
39 to formulate and implement alternative configurations, deployments, and uses of
    smart city technologies. As Morozov and Bria (2018) note, however, it is not a
41 matter of deciding which strategy comes first, the "technological sovereignty" or
    the right to inhabitation through, say, social housing and accessible services:
43 both struggles are valid. Rather, this is a matter of understanding the limits and
    possibilities of each strategy and integrating one inside the others.

1 **The Book**

The role of critical urban studies in enacting the right to the smart city is to "expose, propose, and politicize" (Marcuse, 2007). As Marcuse (2012, p. 37) elaborates, "*Expose* in the sense of analyzing the roots of the problem and making clear and communicating that analysis to those that need it and can use it. *Propose*, in the sense of working with those affected to come up with actual proposals, programs, targets, strategies, to achieve the desired results. *Politicize*, in the sense of clarifying the political action implications of what was exposed and proposed and the reasoning behind them, and supporting organizing around the proposals by informing action." This is the ambition of this book: to expose, propose, and politicize the smart city, to envisage an alternative smart city founded on the principles of the "right to the city." Each chapter seeks to elaborate a particular aspect of such an endeavor and is an outcome of a workshop held at Maynooth University in September 2017, funded by the European Research Council (ERC-2012-AdG 323636-SOFTCITY).

The book has been divided into two parts. The first part examines issues such as citizenship, social justice, and the commons, and tends toward a more conceptual discussion, though the chapters all include empirical examples. In Chapter 2, Katharine Willis examines who is and is not included within smart city visions, focusing on the urban poor, street traders, and those who live in informal settlements in Chennai, India. She contends that rather than creating a right to the city, smart urbanism is further reinforcing and reproducing the spatial and economic exclusion of marginalized groups. Jiska Engelbert then examines the critique of neoliberalism at the heart of smart city initiatives, and its assumptions concerning civic participation, and considers whether politically meaningful agency by ordinary citizens is possible in the neoliberal smart city. In Chapter 4, Alberto Vanolo examines the ethical and political implications of gamification in smart city technologies through the lens of governmentality and social justice, arguing that civic participation through gamified processes raises a number of troubling effects that need redress. Michiel de Lange then explores the production and use of a data commons to foster participatory smart citizenship and enable the "right to the datafied city." Likewise, Paolo Cardullo similarly examines the notion of a commons and the practices of commoning with respect to the provision of public Internet infrastructure, advocating for a central role for the public as key stakeholder in creating and maintaining the urban commons. Closing the part, Cesare di Feliciantonio explores the nature of a "smart community" being developed in Milano 4 You, the first smart district in Italy, through the lens of critical political economy, noting that the residents are envisaged as self-entrepreneurs, willing to re-appropriate their lifestyles and data in order to live a smart lifestyle; the potential for alternative rationalities to emerge is also explored.

The second part of the book considers more practical and political interventions and issues of civic engagement, participation, and the right to the smart city. Catherine D'Ignazio, Eric Gordon, and Elizabeth Christoforetti open the section, contending that community-centered smart cities can only be achieved if

present invisible infrastructure, such as a sensing network, is made visible and legible to citizens, examining two projects that seek to create such "seamful" interfaces. Andrew Schrock then considers how to address the issues of inclusion in smart cities by examining the humanizing potential of civic tech to achieve sustainable technology design in urban contexts by bridging between community and government. In Chapter 10, Sung-Yueh Perng considers the extent to which different kinds of hackathons provide a means of enabling civic participation in city making and claiming the right to the smart city. Gabriele Schwila then examines the use of "design thinking" increasingly used by governments to tackle urban problems to enhance citizen participation in city making, principally through the strategy of co-design. This is followed by Nancy Odendaal account of the strategies used by civil society organizations in Cape Town, South Africa, to challenge what she calls "dashboard urbanism," in which big data and data analytics are used to manage the city, seeking to re-appropriate and use such data in more nuanced and emancipatory ways. Ramon Ribera-Fumaz then details Barcelona's attempt to reconfigure the ethos of smart cities to one underpinned by technological sovereignty that challenges neoliberal urbanism and instead promotes public infrastructures and services and open platforms designed to serve the public good.

In the final concluding chapter, Rob Kitchin examines whether it is possible to create a genuinely humanizing smart urbanism, considering whether another smart city is possible, and arguing for the need not just to expose, propose, and politicize the present structures, processes, and injustices of smart cities, but also reconfigure their future visioning. Collectively, the chapters argue for a normative vision of smart cities that is rooted in ideas and ideals of citizenship, social justice, the public good, and the right to the city. Our challenge to readers is to help make such smart cities.

Acknowledgments

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