THE RIGHT TO THE SMART CITY

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Chapter 1

Citizenship, Justice, and the Right to the Smart City

Rob Kitchin, Paolo Cardullo and Cesare Di Feliciantonio

Abstract

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 brief the emergence of smart cities and current key debates, we note a number of practical, political, and normative questions relating to citizenship, 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 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. Having set out some of the more troubling aspects of how social relations are produced within smart cities, we then examine how citizens 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 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 emancipatory and empowering ways. Finally, we set out how the book seeks to answer our questions and extend our initial framing, exploring the extent to which the "right to the city" should be a fundamental principle of smart city endeavors.

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

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 infra-structures, 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 infra-structure, such as the widescale adoption of traffic management systems and sur-veillance cameras (e.g., CCTV) (Lyon, 1994).

By the late 1990s, there was a fairly extensive literature that examined the myr-iad 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), with theses emerging with regard to "wired cities" (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 agenda 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

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 technological solutionist approach; enacts technocratic forms of governance and reshapes governmentality; promotes corporatization and privatization of city services; prioritizes the values and investments of vested interests; reinforces inequalities; 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 citizenship, 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

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

   This re-conception consists of highlighting further the politics and ethics of smart cities, and to move beyond the dominant postpolitical framing reproduced by its epistemic community and advocacy coalition; to reconceive notions of "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 citizen-focused or just smart cities at the level of the commonsensical, taken-for-granted, pragmatic, and practical, but to conceptualize what such notions consist 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, such as:

- How are citizens framed and conceptualized within smart cities?
- 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 smart city?
- What sort of publics can be formed and what actions can they take?
- What are the ethical implications of smart city approaches and systems?
- To what extent are injustices embedded in city systems, infrastructures, and services and in their calculative practices?
- What systems and structures of inequality are (re)produced within smart urbanism?
- To what extent are forms of class, racism, patriarchy, heteronormativity, ableism, ageism, colonialism (re)produced in smart urbanism?
- What models of citizenship are enacted within the smart city?
- What forms of social justice operate in the smart city and what are their effects?
- By whom and on what terms are these models of citizenship and justice being conceived and operationalized?
- What kind of smart urbanism do we want to enact? What kind of smart city do we want to create and live in?
- How can we move beyond the neoliberal smart city?

   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 making connections with the chapters that follow. We have divided our discussion 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

partnerships, leasing, deregulation and market competition, and privatization (Shelton et al., 2015). Cities, it is argued, are behind the technology curve with 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 issues and maintain critical services and infrastructures, which are becoming more socially and technically complex and require multi-tiered specialist interventions (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 to source initial expertise and build partnerships. At the same time, companies seek to: capture private infrastructures and services and sweat these assets, seeking to extract value through minimizing maintenance and long-term investment and charging the highest bearable price depending on a user's ability to pay (Morozov & Bria, 2018); or to disrupt existing public and private services and infrastructures, and their regulation and labor relations, by providing new tech-enabled platforms − for example, Uber and Airbnb challenging traditional taxi and short-term accommodation markets. In both cases, smart city endeavors are part of a larger project of city assets (e.g., property, infrastructure, utilities, services) being captured and exploited through financialization (Christophers, 2011; Moreno, 2014).

Beyond making the city a market in-and-of itself, the neoliberal smart city is an explicitly economic project, aiming to attract foreign direct investment, fostering innovative indigenous start-up sectors or digital hubs, and attracting 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 technologies (Evans, Karvonen, & Raven, 2016; Halpern, LeCavalier, Calvillo, & Pietsch, 2014). In the UK, the Department of Business, Innovation and Skills 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, 2017). At the European scale, the European Innovation Partnership for Smart Cities and Communities (EIP-SCC) funds smart city projects where a key measure 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 give confidence to investors for investing in large scale replication" (European Commission, 2016, p. 111), so that eventually "private capital can take over further investments at low technical and financial risks" (European Commission, 2016, p. 108). In other words, the risks of creating new products are socialized in exchange for the privatization of services and, eventually, profits.

In addition to urban-focused economic development, the smart city has 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 for investors and future residents, as well as providing a shopfront for those technologies for other prospective development sites. Probably the most well-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 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

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, households, objects, territories, and transactions) (Kitchin, 2014). Thus, smart city technologies raise a number of ethical issues concerning privacy, datafication, dataveillance and geosurveillance, profiling, social sorting, anticipatory governance, and nudging, that have significant consequence for how citizens are 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 (Kitchin, 2016; Taylor, Richter, Jameson, & Perez del Pulgar, 2016).

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

In addition, smart city technologies potentially create a number of other privacy harms through the sharing and analysis of data trails (Kitchin, 2016). A key product of data brokers are predictive profiles of individuals as to their likely 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 price or be able to meet re-payments. Such profiles can produce "predictive privacy harms" (Baracos & Nissenbaum, 2014; Crawford & Schultz, 2014), used to socially sort and redline populations, selecting out certain categories to receive a preferential status and marginalizing and excluding others. In addition, such profiles can be used to socially sort places to receive certain policy interventions or marketing as practiced by the geodemographics industry (Graham, 2005). Specific predictive privacy harms can be produced through location tracking. For example, tracking data that reveal a person regularly frequents gay bars 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 cause personal harm. Similarly, co-proximity and co-movement with others might be used to infer political, social, and/or religious affiliation, potentially revealing membership of particular groups (Leszczynski, 2017). Such inferences can generate inaccurate characterization that then stick to and precede an