



Fear and Fantasy in the Smart City

Brunilda Pali¹ · Marc Schuilenburg²

© Springer Nature B.V. 2019

Abstract

The “smart city” has emerged as the latest urban buzzword in discussions of the elementary functions of the modern city. Attracting corporate power, money and private tech companies (e.g., Cisco, Google, IBM, Tesla), the smart city has become a popular brand because it is presented primarily as an evidence-based, objective and value-neutral concept. In this article, we will question precisely this “non-ideology” ideology of the smart city and argue that the phenomenon of the smart city demands a critical criminological response, as much as a philosophical and sociological one. First, we argue that instruments which were classified traditionally as tools of surveillance and control are now rebranded as essential components of the smart city package in order to increase the cleanliness and order of the city. Second, we consider how the smart city oscillates within a social imaginary populated by feelings of fear and fantasy. We conclude by suggesting that the smart city not only reproduces the social order, but also produces new social categories out of new forms of smart governance of crime and disorder.

Introduction

The “smart city” has become one of the most fascinating new concepts in relation to the governance of public space. An urban buzzword and a great marketing tool, the smart city label attracts corporate power, money and private tech companies (e.g., Cisco, Google, IBM, Tesla). While the concept dates back to the 1990s, few really know exactly what a smart city is (Albino et al. 2015), and as geographer Hollands (2008) has argued, it is the label, itself, that has created this confusion. “Smartness” seems to refer to a wide range of meanings—creative, digital, intelligent, interconnected, virtual—and the phenomenon of smart city is associated with different interpretations, projects and visions (Vanolo 2016), thereby precluding a universally acknowledged definition (Cocchia 2014).

✉ Brunilda Pali
brunilda.pali@kuleuven.be
Marc Schuilenburg
m.b.schuilenburg@vu.nl

¹ Leuven Institute of Criminology, Faculty of Law, KU Leuven, Hooverplein 10, 3000 Leuven, Belgium

² Department of Criminal Law and Criminology, Faculty of Law, VU University Amsterdam, De Boelelaan 1077, 1081 HV Amsterdam, The Netherlands

Although the concept itself is far from being unambiguous, so-called smart city projects have become increasingly popular and have proliferated all over the world. For policymakers and urban planners, the smart city is viewed as an urban utopia—one that promises to rationalize the planning and management of cities and to offer a means to solve unprecedented urban challenges, including the creation of risk-free and safe cities (Datta 2015; Ersoy 2017; Townsend 2013). According to the European Parliament, 240 European cities with populations over 100,000 have some smart city features relating to the daily livelihood of residents, environmental protection, city services, public security and other fields.¹ As we will argue in this article, we have to be particularly cautious of notions that sound beautiful or smart because they can be the ones that best mask problems and can be the hardest ones to challenge. While the smart city has become a popular brand for several reasons, a main rationale has been its framing as an evidence-based, objective and value-neutral concept that is pragmatic above everything else (Kitchin and Dodge 2011; Sadowski and Pasquale 2015).

With all the optimistic promises and hopeful visions surrounding the discourse on smart cities, it can be easy to lose track of the politics that are embedded and coded into these interconnected and technological initiatives. As Sadowski and Pasquale (2015) have argued, if we conceptualize these urban transformations as merely neutral enhancements that bring about efficiency and transparency, then we miss the socio-political and ethical aspects of what it means to be entangled in the mechanisms of the smart city, which are controlled largely by algorithmic and technological decisions. Contrary to the non-ideology ideology of the smart city, we agree with scholars who have maintained that the smart city demands social theory interpretations (see Kitchin and Dodge 2011; Sadowski and Bendor 2018; Sadowski and Pasquale 2015; Schuilenburg and Peeters 2018; Vanolo 2014), and we argue, in particular, that the phenomenon of the smart city demands critical attention and criminological analysis.

Our article builds on the already increasing amount of critical debates within social sciences that have focused on the entanglement of smart city projects, neoliberalism and technocratic governance, especially on the new forms of surveillance and control triggered by these initiatives (Graham 2012; Greenfield 2013; Halpern et al. 2013; Hollands 2008; Kitchin 2014, 2015; Schuilenburg and Peeters 2018; Söderström et al. 2014; Townsend 2013). In particular, we consider how the smart city oscillates within a social imaginary populated by feelings of fear and fantasy. Put simply, how can we understand the “smart-mentality” (Vanolo 2014) of our new cityscapes from a critical criminological perspective?

In order to answer this question, we take a closer look at the ideological origins of the smart city, their actual practices and their imaginary content. First, we focus on a delineation of the main features and arguments used to create smart cities, making clear how central the promise of safety and security is to their creation. Next, we look at the techniques that are used within smart cities in order to establish a state of permanent surveillance and control of the visitors of public spaces. We reflect on the way these techniques are used to classify people. In our conclusion, we criticize the fact that smart city is presented as a depoliticized concept, while clearly being used to support specific policies that have a large impact on our urban coexistence.

¹ <https://www.euractiv.com/section/digital/infographic/how-many-smart-cities-are-there-in-europe/>.

Promises of a Smart City

What, in fact, is the smart city? When is a particular city considered a “smart” one and what elements make up the smart city? What underlying ideological assumptions are made by invoking the concept “smart” and what promises are made? Despite the fact that academic attention to smart cities and their governance is growing rapidly, the term, “smart city,” remains a fuzzy concept that is not used consistently within the literature. The existing smart cities also seem to be as varied as the nations in which they exist. But despite this large variety, we can identify some core features. One of the central elements of the smart city is the use of advanced technology—information and communication technology, big data, radio frequency identification (“rfid”) tags, smart sensors, video surveillance—that is implemented or promoted for use against all kinds of natural and societal catastrophes (Sadowski and Bendor 2018). These catastrophes can come in many forms. In relation to the smart city, the key arguments behind the usage of these advanced technologies can be classified into roughly four types of disasters or challenges.

The first argument is that “smart” provides solutions for all our current and future urban challenges. The smart city, to paraphrase Barber (2013), fits in a discourse which suggests that currently, it is *cities*, and no longer the nation states, that are becoming the playground for politics. Nowadays, cities and towns are accommodating more than half of the world’s population, thereby creating tremendous pressure on every aspect of urban living. On 23 May 2007, for the first time in history, there were more city dwellers than rural residents. Even before then—and ever since—rapid urbanization has posed major challenges with respect to environment, including diminished air quality, economic instability, energy and food insecurity, groundwater depletion and overtaxed sewage systems, which can release effluent into a region’s waterways, contributing to water pollution. Accordingly, cities have been gradually imagined and reclassified as crucial “engines of development” and as actors “responsible” for their own development (Raco and Imrie 2000; Rose 1999), which is to be achieved through “regeneration” and “entrepreneurial” actions aimed at creating attractive urban landscapes for the circuits of capital (Hall and Hubbard 1998; Harvey 1989; Katz and Bradley 2013).

The second argument is that “smart” enhances democratic processes. This is the same assertion that is made with the introduction of each new mass medium—newspaper, radio, television, Internet and social media technologies and websites. In this discourse, “e-participation” or “e-democracy” is considered to be an essential element for the functioning of a good smart city. In Vienna, Austria, almost 600 official assistance pages facilitate or replace the physical municipal authority. Surveys among the users show: “Who ‘goes online,’ saves about 2 h. Very smart!”² The democratic argument is rooted in the idea that new technologies have the potential to leverage newer and richer forms of democratic well-being. These technologies are presented as being citizen-based and as having the incredible potential to provide information to citizens in an interactive manner so that they can co-create and participate in all sorts of planning and decision-making (Kumar 2017). Smart technologies, from this perspective, are presented as having great prospects for city governance, but also for democratic processes, promising to support and enable the engagement of citizens in important democratic activities and local decision-making.

The third argument is unsurprisingly an economic one: Smart cities foster education, growth, knowledge, prosperity and more. According to this neoliberal argument, “smart”

² <https://smartcity.wien.gv.at/site/en/e-government-2/>.

adds significant value and capital in cities and improves the lives of the citizens and businesses that inhabit it. The smart city is driven by innovation and entrepreneurship with the goal of attracting business and jobs, while focusing on efficiency, productivity and savings (Caragliu et al. 2009). In the SmartSantander project in Santander, Spain, residents can turn their smartphones into the 20,000 sensors the city has installed. By downloading the “Pulse of the City” app, city officials analyze the data in real time to adjust energy use, the number of trash pickups needed in a given week, and even how much water to sprinkle on the lawns of city parks.³ Smart cities find and use technology to improve the lives of those who reside in them; in so doing, smart cities “force economic growth” and “force societal progress,” as Ginni Rometty, Chairman, President and Chief Executive Officer of IBM, proclaimed in a speech on how organizations and people can become more competitive in the “era of smart” (Rometty 2013).

The fourth argument, and the one that interests us the most, is that smart cities pave the way for a safe and secure future (Lacinák and Ristvej 2017). When a city is considering investment in smart technologies, public safety and security are often key drivers for implementing a given initiative. The possibility of permanent surveillance of citizens by using smart technology that gathers and integrates large amounts of data helps ensure better protection against the dangers of criminality and disorder. Smart cities, such as Boston and Brussels, claim that smart technologies streamline law enforcement operations in numerous ways, from tracking, searching and detecting suspects to proactive crime prevention by identifying crime hot spots.⁴ The smart city, in other words, promises to be a *safe city*, and a safe city is a city worth investing in. In what follows, we turn our attention precisely to this promise of the smart city as a safe city, and to the ways this promise has been actualized.

Perfect and Permanent Surveillance

In the literature on the smart city, many scholars have voiced the need for caution about the promises of the smart city and the neoliberal political economy that prioritizes market-led and technological solutions to city governance (e.g., Hollands 2008; Kitchin 2014; Morozov and Bria 2018). Less attention, however, has been paid to the “smart” promise of safety and security. How do smart cities claim to create a prosperous and risk-free environment without the danger of crime or disorder? In thinking about this question, it is important to identify and understand the way in which the safety and security management in smart cities differs from the more traditional ways we have looked at security and safety. With this focus in mind—and drawing on several practices to make cities smart—we have discerned at least three different types of surveillance and control in smart cities.

Traditional Techniques of Surveillance and Control

Some of the misunderstandings about the smart city result from the name it has been given. Although the notion of smart city suggests that only smart technology is used to transform and improve life within a city, this provides a limited perspective on what the smart

³ <https://www2.deloitte.com/insights/us/en/focus/smart-city/overview.html>.

⁴ <https://www.briefcam.com/solutions/smart-cities>.

architecture of smart cities currently entails. Given the promises and hopeful visions surrounding smart cities, it can be easy to lose sight of the fact that many of these cities still use traditional tools and techniques to improve public safety in public space. The move toward security-obsessed “smart urbanism” is rooted in retreat criminological notions of situational crime prevention (Clarke 1980; Clarke and Mayhew 1980) and defensible space (Newman 1972).

Situational crime prevention and defensible space are rooted in social and cultural processes that date back to the eighteenth century and socio-legal discourses of domestic defense (Atkinson and Blandy 2007). As crime and recidivism rates continued to rise throughout the 1970s and 1980s, these defensive features expanded beyond the domestic sphere and embedded themselves in the spatial environment, subsequently reproducing themselves in the concept of smart city governance. Although it has been argued that policy initiatives, such as situational crime prevention and defensible space, have been successful in reducing certain forms of crime, such as burglary, shoplifting and vehicle theft, critics have pointed out that they also lead to creating sterile and homogenized environments, which are governed in such a way that they “design out” unwanted people or unacceptable activities by closing off or restricting access to spaces (e.g., Hayward 2004; Raymen 2016). The most taken-for-granted forms of this type of politics of cleanliness by physical means, which are under the supervision of varying security assemblages of public and private parties and related professionals, are roadblocks to reduce people’s use of public space, barrel-shaped benches designed explicitly to prevent certain groups to use them as a bed for the night, and increasingly popular banning orders to combat troublesome behavior, such as drunkenness, harassment, loitering, panhandling, theft, vandalism and violence (Beckett and Herbert 2009; Palmer and Warren 2014; Schuilenburg 2015a; Snyder 2017).

Predictive Techniques of Surveillance and Control

A second set of tools for surveillance and control used by smart cities are techniques that identify likely targets for physical intervention and prevent or address crime by making statistical predictions, such as advanced video monitoring, automated license plate recognition systems, facial recognition systems and predictive policing. Data analytics has become an essential part of how smart cities operate, from improving traffic flow to the anticipation of where and when crimes are most likely to occur across the smart city (Diachuk 2018). The gradual displacement and supplementation of policing personnel by these techniques is, in part, a consequence of increased technological opportunities and of efforts to predict and preempt risks, as well as to broaden the concern beyond crime control to a wider security context in all kinds of urban environments (Schuilenburg 2015b). Such technology has been implemented in a number of smart cities. Aside from availability, advocates of the use of predictive technology in the governance of smart cities argue that it can be a valuable tool to combat several bureaucratic pathologies. In Atlanta, GA, and Chicago, IL, for example, IBM uses intelligent surveillance technologies to provide judicial authorities with accurate information allowing them to detect crime patterns based on big data analytics. According to IBM, they are helping the police to work better because “law enforcement’s main problem is the fragmentation of information” (Willis and Aurigi 2017: 156). Here, for the purposes of prevention, the behavior of individuals and specific groups is monitored and anticipated, and, where necessary, subjected to interventions.

Psychopolitical Techniques of Surveillance and Control

A third set of tools for surveillance and control is what we term “psychopolitical techniques.” These are persuasive techniques to profile and actively modify the behavior of the visitors to public space in smart cities. In line with the former set of techniques, these techniques use big data to make predictions relating to the safety and security of public space in smart cities. In sharp contrast to predictive techniques, however, these tools try to influence the behavior of visitors in public space. From a theoretical perspective, these psychopolitical techniques can be labeled as “nudging.” The concept of nudging has gained widespread recognition through the work of Thaler and Sunstein, who claimed in their book, *Nudge* (2009), that nudging can be understood as the attempt to alter people’s behavior in a predictable way (“paternalistic aspect”) without forbidding any options or changing significantly their incentives (“libertarian aspect”). The concept of nudge captures many of the mechanisms at play in the type of psychopolitical techniques that we associate with smart cities.

More specifically, smart cities increasingly use psychopolitical techniques, such as light and sound manipulation, to manage public space and to evoke affective responses from visitors. In the Dutch city of Eindhoven, for example, a consortium of parties, including the tech company, Philips, the Intelligent Lighting Institute, the Dutch Institute for Technology, Safety & Security, and the Institute of Mental Health Care, makes use of light manipulation in the entertainment area Stratumseind—one of the busiest streets for nightlife in the Netherlands with more than 50 cafes, bars and nightclubs. By changing color and light intensity, the aim is to reduce tension and aggression and to establish, what the consortium terms, “a happy city.”⁵ The color blue is said to have a cooling effect. When the right shade of blue is used, it can lower heart rates and reduce people’s aggression. As a result, “proper” behavior in this entertainment area is encouraged, while unwanted behavior—aggression, excessive noise, public drunkenness, vandalism and violence—is discouraged by the use of these techniques (Schuilenburg and Peeters 2018).

While the use of psychopolitical techniques, such as light and sound in public space, is not a new phenomenon, more than ever before, larger amounts of data can now be analyzed and shared easily among different parties. This accelerates and expands the potential of psychopolitical techniques to modify people’s behavior in public space. In order to improve the safety of the area and the well-being of the individual visitor, the smart city of Eindhoven keeps track of: the amount and nature of social interactions, police presence, waste in the street, and the presence and behavior of bouncers at cafes. The city also monitors and records beer consumption, mobile phone data (including presence of phones and movement patterns), parking density, people entering and exiting Stratumseind, social media posts, the sound level, and weather information all in an effort to forecast early signs of violence.⁶

In order to better understand how the three different types of surveillance and control—that we described above and that coexist in smart cities—function as a means to influence behavior, we now turn to the way the smart city is structured as a social imaginary. Doing so reveals how the ascribed techniques of surveillance and control serve as a generator of feelings of fear and fantasy.

⁵ <https://synchronicity-iot.eu/how-smart-eindhoven-is/>.

⁶ <https://gr1p.org/tag/stratumseind/>.

The Social Imaginary of the Smart City

The smart city is an imaginary city. Several theories of the social imaginary have tried to explain the way imagination figures in the construction of central social institutions, representations and practices. According to Taylor (2004), the social imaginary refers to the ways in which people imagine their social existence, how they fit together with others, how things transpire between them and their fellow citizens, their expectations, and the normative notions and images which underlie these expectations. In other words, the social imaginary is that common understanding which makes possible common practices, and a widely shared sense of legitimacy. As such, Taylor (2004: 92) speaks of *imaginary* to emphasize all that is carried in images, legends, stories, and so on, and which is a largely unstructured and inarticulate understanding of our whole situation, which can never be expressed adequately in the form of explicit doctrines. He speaks of *social* imaginary to emphasize the type of imaginary that is shared by large groups of people, if not the whole society.

The smart city, which represents perhaps the last phase in the “history of urban imaginaries” (Vanolo 2014; 885), is assembled and held together by different social imaginaries, which are created and maintained through the production, circulation and reception of images and symbols, fictions and representations. These imaginaries are performative in the sense that they produce the reality they aim to represent. For instance, the notion of smart city is presented in mainstream discourses as a solution to all kind of catastrophic events that cities face now and will face in the future, ranging from high rates of crime to democratic failures. In line with that promise, the smart city is presented as the most desirable model for the development of the cities of tomorrow, where the application of smart solutions will resolve all sort of regulatory, safety and social issues. As a consequence, the smart city will be a place where we will eliminate most of our current urban risks—from pollution to unemployment, from crime to traffic—due to new technologies, such as predictive policing, psychopolitical techniques (including light, smell and sound manipulation), rfid-tags, smart sensors and WiFi trackers.

Here, it is important to realize that the idea of risk, itself, is a highly imaginary and performative concept that creates its own reality. Being inherently an imaginative and future-oriented concept, risk has enabled actuarial, preemptive and preventative forms of governance in multiple fields which try to “stabilize how particular futures play out” (Kinsley 2012: 1557). Risk and imagination have in common the fact that they bring into existence what is not there—and risk assumes a projective faculty to predict future events—to imagine what could or might happen. This means that our understandings about risks are informed ultimately by culturally and socially structured conceptions and evaluations about the world (what it looks like, what it should or should not be) and conjure up those visions through the power of the social imaginary. We create categories of “risky behaviors,” “risky persons,” or “risky groups,” with the main purposes of safeguarding ourselves and our societies from them. In doing that, we inevitably fantasize, imagine and project. Sorting behaviors, persons and groups according to risk is achieved “by bringing possible future undesired events into calculations done in the present, making their avoidance the object of decision-making processes, and administering individuals, institutions, expertise and resources in the service of that ambition” (Rose 2000: 332).

As we have seen, the governance of smart cities and the application of smart technology to foster economic growth and improve the well-being of its citizens has often been considered a neutral activity. But as we have argued, although it is presented in apparently neutral terms with purported and professed concern for or interest in customers, effectiveness and

efficiency, smart cities are, in fact, anything but neutral, and their governance and use of technology have important political and social implications. Smart technology is inherently a form of power that defines “the normal” and identifies “the deviant.” In other words, “smart technology can take away from our experience of living as much as it can add to it” (Stimmel 2016: 19). To gain a better understanding of this political and social process, we return to the effects of the aforementioned three types of surveillance and control in smart cities.

Making Up People, Sorting Out People

Foucauldian genealogy has shown how the processes by which subjects are constituted always take place within specific discourse formations, regimes of truth and power–knowledge relations. Nevertheless, studies of the social construction of subjects by smart technologies are relatively underdeveloped in the social sciences, with notable exceptions, such as Hacking’s (1990) argument about statistics “making people up” or Bowker and Star’s (2000) exploration of the role of standards and classification in ordering human interaction—particularly the invisible ways in which this is normalized and made “natural.” Rouvroy and Berns (2013: 7), for example, has explored how the subjects and the physical world are taken as “objects of observation, classification and evaluation” by automated systems which end up steering and “structuring of the field of possibilities of action of others.” Likewise, Osborne and Rose (1999) have mapped several ways in which the city becomes a core element of the governance of human conduct, subjectivity and life.

Societies have always designed social categories through processes of social marking and marginalization (Brekhus 1996) to legitimize the exclusion of persons or groups deemed as deviant or problematic. This process of social marking or “social sorting,” as Lyon (2003) has called it, creates multilayer scales of people and a hierarchy of differences, whereby a vast apparatus of experts, institutions and procedures start to play key roles in creating, shaping and entrenching social categories (Conrad and Schneider 1980; Garland 1985). In fact, the etymology of the word “sorting” derives from the Latin (*sors*, *sortis*), which means lot, fate or destiny. Social sorting thus fulfills then the prophecy of deciding the fate of others. Nowadays, social sorting is a core mechanism of governmentality (conceived as “conduct of conduct”), which involves the way in which subjects form their identities through processes of government—processes that encourage and suppress actions by drawing a line between what is acceptable and what is unacceptable, between what is strange and suspicious and what is not.

Vanolo (2016) has identified four distinct imaginaries of smart cities which relate differently to people: (1) an imaginary of a city with high-tech materialities but without any human presence; (2) a dystopian city characterized by surveillance and totalitarianism; (3) the resubjectification of citizens as active smart citizens; and the (4) the ideological construction of the “citizen of the future.” These imaginaries can be overlapping and coexisting. In relation to our analysis that attempts to understand better the aim of smart cities toward establishing a perfect and permanent surveillance of citizens, we can discern at least three modes of creating and constituting subjectivities along a continuum of inclusion/exclusion in which people are (a) “designed out,” whereby spaces are purified; (b) “sorted out,” whereby spaces are filtered; or (c) “designed in,” whereby spaces are modulated. We examine these in turn.

Purification Through “Designing Out”

First, there is a growing tendency in the smart city to remove everything that is not “clean” from commercial zones, such as entertainment areas and shopping centers. This means that what is called “a matter out of place” must be removed from public space. The expression “a matter out of place” comes from Mary Douglas’ *Purity and Danger* (1966). In explaining the term “dirt,” Douglas pointed out two conditions that are implied in the definition of dirt as a matter out of place: “a set of ordered relations and contravention of that order” (1966: 44), which means that the determination of something as “out of place” is a relative idea and depends on the relationship between that object and its context. Since Douglas’s discussion of “dirt” and “out of place,” further attempts have been made to expand these terms and relate them to various contexts, including the question whether something or someone is “in place” or “out of place” in urban environments (e.g., Cresswell 1996; Schuilenburg 2018; Wright 1997).

Today, there are whole industries focusing solely on creating products that keep out unwanted behavior, people and groups. In the context of the smart city, the purification of public space takes place through “designing out” of persons or groups by making use of traditional tools of surveillance and security such as “sadistic street furniture” (Davis 1992) and banning orders. In their book *Banished* (2009), Beckett and Herbert chart the development of such powers in US cities, which range from “stay out of park orders,” “stay out of area orders,” and “trespass orders.” Similarly, in the UK, the Antisocial Behaviour, Crime and Policing Act of 2014 has expanded powers for state authorities to control who can do what in public space through “injunctions for the prevention of nuisance and annoyance,” “public space protection orders” and “dispersal orders,” which can be applied in any place if the police “suspect” a person’s behavior. In the Netherlands, smart cities, such as Eindhoven and Utrecht, use banning orders, such as the Collective Pub Ban and the Collective Shop Ban, to combat crime and disorder in the inner city (Schuilenburg 2015a). In these cities, purification starts with the removal of beggars, homeless people, loitering youth, the mentally ill, messy or slovenly individuals, those who seem technologically illiterate or unlikely to buy anything, and basically anyone who seems “out of place.” They become “social dirt” because they perturb the normalization of smart space and what the local authorities and public–private assemblages think “clean” and “harmless” means in the smart city. More importantly, these persons are considered deviant or dangerous not for what they have done, but because of *who they are*, the traits they possess—or worse—for what they might do (or “not do” if we think along with the concept of “actively smart citizen”).

Social Sorting Through “Filtering”

The smart city makes use of predictive techniques which identify likely targets for physical intervention, and prevent or address crime by making statistical predictions with the help of tools, such as advanced video monitoring, automated license plate recognition systems, facial recognition systems and predictive policing. For the purposes of prevention, the behavior of individuals and specific groups is monitored and predicted, and, where necessary, subjected to interventions. The use of predictive technologies, then, becomes both the cause and effect of processes of “social sorting” (Lyon 2003), which comprise categorization and classification, division and subdivision, and differentiation

and hierarchization—all mechanisms that are decisive in sorting populations according to perceived risk or value for the purpose of assessment and judgment (Monahan 2011).

Smart technology with the goal of monitoring and predicting likely targets has been implemented in a number of smart cities, including Amsterdam, Santa Cruz, CA, and Stockholm. Such programs are generally not expensive, due to the fact that city police departments usually have most of the tools needed already in place. According to the tech company, IBM, one of the first companies to employ the software for law enforcement, predictive policing is helping mayors and police departments to tackle crime on a reduced budget. It is a cost-effective way to “do more with less.” In Atlanta, GA, and Chicago, IL, for example, IBM uses intelligent surveillance technologies to provide judicial authorities with accurate information allowing them to detect crime patterns based on big data analytics. According to IBM, they are helping the police to work better because “law enforcement’s main problem is the fragmentation of information” (Willis and Aurigi 2017: 156).

The wider consequences of such developments have been a key concern for scholars, with a particular focus on human rights, justice and privacy (Kemshall 2008; Zedner 2009), and the issues of discrimination and marginalization of certain groups (Harcourt 2007; Monahan 2017; van Eijk 2016). These critics have pointed out that smart techniques, such as predictive policing, establish a cycle of self-fulfilling prophecies because they are based on historical data and produce discriminatory results due to the fact that crime data reflect longstanding institutional biases along income and racial lines (Smith et al. 2017; Peeters and Schuilenburg 2018).

Modulation Through “Designing In”

The third mode of creating and constituting subjectivities involves the modulation of public space in the smart city and the smart citizen, who is included in it or “designed in.” An important objective is to make public space a pleasant place to be for everyone—provided that those individuals engage in a certain set of behaviors in a specific way. As we have seen, psychopolitical techniques are used to stimulate an efficient, safe and consumption-focused use of space by modulating the mood and behavior of the users of that space. Here, neoliberal logic mingles with the logic of perfect and permanent surveillance—because what appears important in smart cities is “to control and to facilitate the freedom of movement and circulation of people from place to place, in such a way that the inherent dangers of this circulation are canceled out” (Foucault 2009: 65). In other words, the smart city seeks control without stopping or hampering the flow of visitors in public space.

In Stratumseind in the center of Eindhoven, predictive surveillance (e.g., cameras, microphones, WiFi trackers) has been combined with psychopolitical techniques (e.g., color and light intensity) to improve the safety of this smart street and the wellness of the visitors, while such visitors remain absolutely unaware of their use. In order to de-escalate potential violent conflicts between visitors in the public space, the intensity and color of light is changed when the density in the area increases and the smell of oranges is diffused to calm visitors (Naafs 2018). Remarkably, these techniques stand in sharp contrast to the ascribed traditional techniques of surveillance and control, which seek to “design out” unwanted behavior without providing cues for alternative behavior. Instead of forbidding and punishing, these techniques work through pleasing and seducing, creating interventions in the environment that subsequently condition people’s behaviors. Here, visitors are seduced by soft techniques and not by “strong signs or powers” (Baudrillard 1979: 83) in order to “keep” them safe and to deal proactively with potential aggressive behavior.

Conclusion and Reflection

The term smart city—usually understood as a city that uses technology to improve services and become more efficient—is becoming pervasive in the urban discourse of the twenty-first century. When we contemplate smart cities, we usually think of Asian cities as Seoul, Singapore and Songdo, but the reality of the smart city is that it has stretched into the everyday fabric of urban life in urban areas all over the world, from Greece to India.

Given the fact that there are a growing number of smart cities that have started to experiment with a technology-based securitization of public space, we have discerned three types of techniques embedded in the promise of smartness which operate on a continuum of inclusion/exclusion. When smartness is projected onto the city, a wide array of security techniques is used to make the city a safer and more secure place, consisting of (1) traditional techniques that are used to “design out” people; (2) predictive techniques that are used to “filter” people; and (3) psychopolitical techniques that are used to “keep” people in commercial and entertainment zones. As this development is quickly becoming a pervasive international phenomenon, it is important to understand how the smart city is triggering policies that produce subjects that are either differentially included or excluded—people who will benefit and people marginalized from the circuits of power (Hollands 2008). All of this is occurring under the guise of “apolitical” technological solutions. As we have argued in this article, although the smart city is presented as a depoliticized concept, it is clearly an example of a “political assemblage” (McFarlane 2011). As such, the smart city not only reproduces the social order, but also produces new social categories through new forms of smart governance.

Although it is sometimes difficult to see the added value of the “smart” label, our analysis demonstrates that the social imaginary of the smart city oscillates within a catastrophic narrative populated by feelings of fear and fantasy. This means that the narrative begins with all kind of catastrophes—air pollution, crime, disorder, economic instability, food insecurity and traffic—which can be solved only by the promise of smart technology. If, however, we gaze beneath the clichés and rhetoric, the smart city appears as a “naked king”—a commercial construct designed to sell a corporate vision of capital accumulation, which necessitates different types of surveillance to achieve it. As a consequence, the social body is modified, purified, sorted and thus governed according to what works best in order “to de-risk investment in smart cities and communities.”⁷

The “smartmentality” or the governance of the smart city is intrinsically related to surveillance and social control. As we have argued in this article, as the smart city continues to become a global phenomenon, it also transforms old forms and techniques of social control and creates a new discourse imbued with new instruments (e.g., “psychopolitical techniques”) and a new array of concepts (e.g., “happy city”). Accordingly, it is important for criminologists to engage critically with the phenomenon of the smart city, its imaginaries, promises and realities, in order to demystify precisely the supposedly lack of “ideology” in these projects and to understand how such projects are contributing toward new forms of social exclusion and inclusion.

⁷ This must be the main goal of the EU policies regarding smart cities, according to Martin Brynskov, Chair of Open & Agile Smart Cities and Coordinator of SynchroniCity, the European IoT Large-Scale Pilot for Smart Cities and Communities (<https://synchronicity-iot.eu/towards-de-risking-investments-in-smart-cities-communities/>).

Compliance with Ethical Standards

Conflict of interest The authors declare that they have no conflict of interest.

References

- Albino, V., Berardi, U., & Dangelico, R. M. (2015). Smart cities: Definitions, dimensions, performance, and initiatives. *Journal of Urban Technology*, 22(1), 3–21.
- Atkinson, R., & Blandy, S. (2007). Panic rooms: The rise of defensive home ownership. *Housing Studies*, 22(4), 443–458.
- Barber, B. (2013). *If mayors ruled the world: Dysfunctional nations, rising cities*. New Haven, CT: Yale University Press.
- Baudrillard, J. (1979). *Seduction*. London: Macmillan.
- Beckett, K., & Herbert, S. (2009). *Banished. The new social control in urban America*. New York: Oxford University Press.
- Bowker, G. C., & Star, S. L. (2000). *Sorting things out: Classification and its consequences*. Cambridge, MA: The MIT Press.
- Brekhus, W. (1996). Social marking and the mental coloring of identity: Sexual identity construction and maintenance in the United States. *Sociological Forum*, 11(3), 497–522.
- Caragliu, A., Del Bo, C., & Nijkamp, P. (2009). *Smart cities in Europe*. Serie research memoranda 0048, VU University Amsterdam, Faculty of Economics, Business Administration and Econometrics.
- Clarke, R. V. G. (1980). Situational crime prevention: Theory and practice. *The British Journal of Criminology*, 20(1), 136–147.
- Clarke, R. V. G., & Mayhew, P. M. (1980). *Designing out crime*. London: HMSO.
- Cocchia, A. (2014). Smart and digital city: A systematic literature review. In R. Dameri & C. Rosenthal-Sabroux (Eds.), *Smart city. Progress in IS* (pp. 13–43). Cham: Springer.
- Conrad, P., & Schneider, J. W. (1980). *Deviance and medicalization from badness to sickness*. Philadelphia, PA: Temple University Press.
- Cresswell, T. (1996). *In place/out of place: Geography, ideology, and transgression*. Minneapolis, MN: University of Minnesota Press.
- Datta, A. (2015). New urban utopias of postcolonial India: ‘Entrepreneurial urbanization’ in Dhoolera smart city, Gujarat. *Dialogues in Human Geography*, 5(1), 3–22.
- Davis, M. (1992). *City of quartz: Excavating the future in Los Angeles*. New York: Vintage.
- Diachuk, M. (2018). Data-driven smart cities: From big data to security. *DZone*. September 18. <https://dzone.com/articles/data-driven-smart-cities-from-big-data-to-security>. Accessed 28 March 2019.
- Douglas, M. ([1966] 1980), *Purity and danger. An analysis of concepts of pollution and taboo*. London: Routledge.
- Ersoy, A. (2017). Smart cities as a mechanism towards a broader understanding of infrastructure interdependencies. *Regional Studies, Regional Science*, 4(1), 26–31.
- Foucault, M. (2009). *Security, territory, population: Lectures at the Collège de France, 1977–1978*. New York: Picador.
- Garland, D. (1985). *Punishment and welfare: A history of penal strategies*. Aldershot, UK: Gower.
- Graham, S. (2012). Digital medieval. *Surveillance and Society*, 9(3), 321–327.
- Greenfield, A. (2013). *Against the smart city*. New York: Do Projects.
- Hacking, I. (1990). *The taming of chance*. Cambridge: Cambridge University Press.
- Hall, T., & Hubbard, P. (1998). *The entrepreneurial city: geographies of politics, regime, and representation*. New York: Wiley.
- Halpern, O., LeCavalier, J., Calvillo, N., & Pietsch, W. (2013). Test-bed urbanism. *Public Culture*, 25(2:70), 272–306.
- Harcourt, B. E. (2007). *Against prediction: Profiling, policing, and punishing in an actuarial age*. Chicago: University of Chicago Press.
- Harvey, D. (1989). From managerialism to entrepreneurialism: The transformation in urban governance in late capitalism. *Geografiska Annaler*, 71(1), 3–17.
- Hayward, K. (2004). *City limits: Crime, consumer culture and the urban experience*. London: Glasshouse.
- Hollands, R. (2008). Will the real smart city please stand up? Intelligent, progressive or entrepreneurial? *City*, 12(3), 303–320.

- Katz, B., & Bradley, J. (2013). *The metropolitan revolution: How cities and metros are fixing our broken politics and fragile economy*. Washington, DC: Brookings Institution Press.
- Kemshall, H. (2008). Risks, rights and justice: Understanding and responding to youth risk. *Youth Justice*, 8(1), 21–37.
- Kinsley, S. (2012). Futures in the making: Practices to anticipate ‘ubiquitous computing.’ *Environment and Planning A: Economy and Space*, 44(7), 1554–1569.
- Kitchin, R. (2014). The real-time city? Big data and smart urbanism. *GeoJournal*, 79(1), 1–14.
- Kitchin, R. (2015). Making sense of smart cities: Addressing present shortcomings. *Cambridge Journal of Regions, Economy and Society*, 8(1), 131–136.
- Kitchin, R., & Dodge, M. (2011). *Code/space: Software and everyday life*. Cambridge, MA: The MIT Press.
- Kumar, V. T. M. (Ed.). (2017). *E-democracy for smart cities*. New York: Springer.
- Lacinák, M., & Ristvej, J. (2017). Smart city, safety and security. *Procedia Engineering*, 192, 522–527. <https://doi.org/10.1016/j.proeng.2017.06.090>.
- Lyon, D. (Ed.). (2003). *Surveillance as social sorting: Privacy, risk, and digital discrimination*. New York: Routledge.
- McFarlane, C. (2011). The city as a machine for learning. *Transactions of the Institute of British Geographers*, 36(3), 360–376.
- Monahan, T. (2011). Surveillance as cultural practice. *The Sociological Quarterly*, 52(4), 495–508.
- Monahan, T. (2017). Regulating belonging: Surveillance, inequality, and the cultural production of abjection. *Journal of Cultural Economy*, 10(2), 191–206.
- Morozov, E., & Bria, F. (2018). *Rethinking the smart city: Democratizing urban technology*. New York Office: Rosa Luxembourg Stiftung.
- Naafs, S. (2018). ‘Living laboratories’: the Dutch cities amassing data on oblivious residences. *The Guardian*. March 1. <https://www.theguardian.com/cities/2018/mar/01/smart-cities-data-privacy-eindhoven-utrecht>. Accessed 28 March 2019.
- Newman, O. (1972). *Defensible space*. New York: Macmillan.
- Osborne, T., & Rose, N. (1999). Governing cities: Notes on the spatialisation of virtue. *Environment and Planning D: Society and Space*, 17(6), 737–760.
- Palmer, D., & Warren, I. (2014). The pursuit of exclusion through zonal banning. *Australian & New Zealand Journal of Criminology*, 47(3), 429–446.
- Peeters, R., & Schuilenburg, M. (2018). Machine justice: Governing security through the bureaucracy of algorithms. *Information Polity. An International Journal of Government and Democracy in the Information Age*, 23(3), 267–280.
- Raco, M., & Imrie, R. (2000). Governmentality and rights and responsibilities in urban policy. *Environment and Planning A: Economy and Space*, 32(12), 2187–2204.
- Raymen, T. (2016). Designing-in crime by designing-out the social? Situational crime prevention and the intensification of harmful subjectivities. *The British Journal of Criminology*, 56(3), 497–514.
- Rometty, G. (2013). *Leadership in the era of smart*. Speech delivered at Think Forum Japan. <https://www.youtube.com/watch?v=1LfiSCMhIU>. Accessed 15 March 2019.
- Rose, N. (1999). *Power of freedom: Reframing political thought*. Cambridge: Cambridge University Press.
- Rose, N. (2000). Government and control. *The British Journal of Criminology*, 40(2), 321–339.
- Rouvroy, A., & Berns, T. (2013). Gouvernementalité algorithmique et perspectives d’émancipation. *Réseaux*, 1(177), 163–196.
- Sadowski, J., & Bendor, R. (2018). Selling smartness: Corporate narratives and the smart city as a socio-technical imaginary. *Science, Technology & Human Values*. <https://doi.org/10.1177/0162243918806061>.
- Sadowski, J., & Pasquale, F. (2015). The spectrum of control: A social theory of the smart city. <http://firstmonday.org/ojs/index.php/fm/article/view/5903/4660>. Accessed 15 March 2019.
- Schuilenburg, M. (2015a). Behave or be banned? Banning orders and selective exclusion from public space. *Crime, Law and Social Change*, 64(4–5), 277–289.
- Schuilenburg, M. (2015b). *The securitization of society: Crime, risk, and social order*. New York: New York University Press.
- Schuilenburg, M. (2018). Opperuimd staat netjes. *Over de sociologie van gebiedsverboden en de praktijk van het Collectief Winkelverbod, Justitiële verkenningen*, 44(2), 27–40.
- Schuilenburg, M., & Peeters, R. (2018). Smart cities and the architecture of security: Pastoral power and the scripted design of public space. *City, Territory and Architecture*, 5(13), 1–9.
- Smith, G. J. D., Bennett Moses, L., & Chan, J. (2017). The challenges of doing criminology in the big data era: Towards a digital and data-driven approach. *The British Journal of Criminology*, 57(2), 259–274.
- Snyder, G. (2017). *Skateboarding LA: Inside professional street skateboarding*. New York: New York University Press.

- Söderström, O., Paasche, T., & Klauser, F. (2014). Smart cities as corporate storytelling. *City*, 18(3), 307–320.
- Stimmel, C. L. (2016). *Building smart cities. Analytics, ICT, and design thinking*. Boca Raton, FL: CRC Press.
- Taylor, C. (2004). *Modern social imaginaries*. Durham, NC: Duke University Press.
- Thaler, R. H., & Sunstein, C. R. (2009). *Nudge: Improving decisions about health, wealth and happiness*. London: Penguin Books.
- Townsend, A. M. (2013). *Smart cities: Big data, civic hackers, and the quest for a New Utopia*. New York: W. W. Norton & Company.
- Van Eijk, G. (2016). Socioeconomic marginality in sentencing: The built-in bias in risk assessment tools and the reproduction of social inequality. *Punishment & Society*, 19(4), 1–19.
- Vanolo, A. (2014). Smartmentality: The smart city as disciplinary strategy. *Urban Studies*, 51(5), 883–898.
- Vanolo, A. (2016). Is there anybody out there? The place and role of citizens in tomorrow's smart cities. *Futures*, 82, 26–36. <https://doi.org/10.1016/j.futures.2016.05.010>.
- Willis, K. S., & Aurigi, A. (2017). *Digital and smart cities*. London: Routledge.
- Wright, T. (1997). *Out of place: Homeless mobilizations, subcities, and contested landscapes*. Albany, NY: State University of New York Press.
- Zedner, L. (2009). *Security*. London: Routledge.

Publisher's Note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.