# Chapter 10
# Marginalised Geographies and Spatialised Identities

**Kris Erickson**

**Abstract** Many cities now collect, aggregate and oftentimes visualise data to identify neighbourhoods in need of greater policing, public assistance or restructuring. And the rhetoric about these initiatives usually includes claims that the use of digital technologies, social media platforms, and collected data will make city officials more accountable, enable greater citizen input, and improve the overall quality of urban life. As this chapter argues, however, many of these practices function to aggravate already existing racial–spatial divisions, construct and reinforce existing topologies of power, and deleteriously mediate and threaten neighbourhood identities. Specifically, this chapter investigates data-driven constructions of geographic knowledge and state power, particularly as manifested through certain affective technologies of safety and security, such as crowdsourcing smartphone applications, the digital visualisation of crime, and the more recent phenomenon of predictive policing. Relying in part on Richard Grusin's theory of premediation, I argue that the more recent and growing phenomenon of predictive policing, wherein cities use data to help predict future crimes, tends to target lower class neighbourhoods and functions to premediate and reinforce existing socio-economic disparities. Similarly, citizen-sourcing smartphone apps that encourage residents to report problems in their neighbourhoods may allow for greater agency and citizen engagement, on the one hand, but also become indicative of neoliberal techniques that shape productive, autonomous, and self-regulating citizens and ordered socio-spatial constructs.

**Keywords** Citizen-sourcing · Identity · Marginalisation · Policing · Neighbourhood

K. Erickson (✉)
Simmons University, Boston, MA, USA
e-mail: kris.erickson@simmons.edu

## 10.1  Introduction

As global urbanisation and urban sprawl intensify, the United Nations projects that over 70% of the world's population will live in cities by 2050 (Department of Economic and Social Affairs 2016). And with rapid urban population growth comes corresponding stress on physical urban infrastructures, such as increased pressure on limited capacity power grids, greater traffic flow volume, faster road degeneration, and greater pollution. In parallel with global urbanisation, approximately 90% of city residents are also now connected to mobile networks (International Telecommunication Union 2015). And cities make use of these mobile networks to gather large amounts of data to help organise and manage urban life and identify solutions to the problems that come along with increased population trends. Additionally, the ubiquity of mobile technologies also can lead to increased citizen access to city services and the potential for a greater voice in governance. But because of the inherent invisibility of big data flows, it becomes crucial to consider the consequences, particularly when unequal power differentials are reified and strengthened.

While the issues explored within this chapter are not limited strictly to city initiatives, data-saturated urban ecosystems have become harbingers of smart city and data-driven experimentations that not only help to inform our collective and individualised urban identities but also consistently reshape physical urban space and our experiences within it. It, therefore, becomes increasingly crucial, in our era of fake news, search engine optimisation, and confirmation bias, to be critical of state-sponsored rhetoric, especially claims that the use our digital devices and collected data are being used for national security and safety purposes. De Waal (2018), for instance, suggests that many urban planning and governmental policies that occur as a result of analysed data "could lead to *new* spatial regimes" (my italics). Big data practices have indeed become embedded in the everyday life of cities, but the use of analysed data is not so much creating "new" spatial regimes as functioning to reinforce existing ones. As this chapter argues, while some data-driven smart city practices can certainly lead to policies and programs that can help ease the strains of increasingly stressed urban ecosystems, these same data practices may also function to construct and reinforce existing socio-economic boundaries and (re)spatialise historically marginalised identities.

Recently, the German Chancellor, Angela Merkel was quoted as saying that "Data will be the raw material of the 21st century" (World Economic Forum 2018). Data "are to this century what oil was to the last one" (The Economist 2017, para. 4). While scholarship on the phenomenon of big data increases daily, and many work to better understand the role big data play in our daily lives, current scholarship primarily addresses its potential, whether for business, medicine, smart city planning or economies at large. And scholarship that criticises the use of big data has focused primarily on issues of hidden bias (i.e. Crawford 2013; Thatcher et al. 2018) or privacy and surveillance concerns (i.e. Christl 2017; Horvitz and Mulligan 2015). Less explored are the real material consequences of smart data practices on everyday experiences, spatialised identities or physical urban spaces, which this chapter aims

to address. Looking at several international urban case study examples, this chapter explores various data-driven constructions of geographic knowledge and state power, particularly as manifested through certain *affective* technologies of safety and security, such as crowdsourced smartphone applications, the digital visualisation of crime and disease, and the more recent phenomenon of predictive policing. This chapter argues that some urban data practices often function to not only aggravate existing racial–spatial divisions and construct and reinforce existing topologies of power but also deleteriously mediate and threaten geographically situated identities, from local neighbourhoods to nation-states, fuelling both material and discursive hegemonic geopolitics.

## 10.2  Data Ecosystems and Inherent Bias

In order to better understand how big data practices potentially mediate geographical boundaries and reinforce socio-economic identities, it is first important to understand how data is collected and interpreted. Governmental data collection is not a new phenomenon, nor are the co-constitutive relationships between information gathering, knowledge, and power (Foucault 2005). Throughout the seventeenth and eighteenth centuries, for example, data collection practices occurred regularly throughout Europe, and state officials collected a wide variety of demographic data in an effort to gather information of "interest to the state" (Ross 2010, p. 7). Historically, governments collected data on everything from population trends to numbers of marriages and deaths in an effort to not only inform state policies and actions, but also predict future needs (Ross 2010). While the methods have changed, and data are now collected in unprecedented quantities through a variety of digitalised tools and strategies, governments continue to collect data in the interest of the state and for the purpose of acquiring knowledge that will help inform urban policies and practices. The associated power that comes with such knowledge, however, does not simply lie within the quantity of information gathered, but how it is collected, interpreted, and then used—in other words, what kind of "knowledge" is produced, by whom, and for what purposes?

Urban residents also are often encouraged, through the use of various apps and websites, to give officials feedback on city services and offer suggestions and ideas that will help shape or benefit their communities. Through the use of city-sponsored smartphone applications, for example, such as BOS:311, a non-emergency smartphone reporting app for Boston residents, one can quickly report quality of life issues, such as potholes, broken traffic signals or broken metres. Unbeknownst to the average user, however, city goverments also regularly collect and aggregate a variety of personal data, from internet browsing habits to geo-tracking and even with whom people meet up or interact (Degli-Esposti and Shaikh 2018). And many data sets are then sold or given to third-party corporate entities (Vallina-Rodriguez and Sundaresan 2017). Conversely, according to one recent source, approximately 70% of commercial smartphone apps are tracking and reporting personal data to third-party

companies, many of which then sell their data to city governments (Vallina-Rodriguez et al. 2016). Thus, governments and corporate entities often are in partnerships, sharing a variety of data collected from our devices. Rio de Janeiro, for instance, was reported to be the first city in the world that collected real-time data of drivers from the Waze application to aid in urban planning efforts (Olson 2014, para. 4). And London, Amsterdam, Barcelona, and nearly 30 other cities started using Strava app data to track cyclist movement, along with age and gender, throughout urban streets (Walker 2016). While this kind of data collection may seem somewhat benign, the practice raises a myriad of concerns and can have far-reaching implications. Smartphone apps, for instance, typically gather small bits and pieces of information and send data to different trackers, after which users' unique identifiers can then be patched together (Rathi 2016). Therefore, while one app alone may not collect much personal information, when the data is aggregated, users or a particular demographic area can be profiled more fully (Vallina-Rodriguez and Sundaresan 2017).

Furthermore, and frequently in attempts to seem transparent, many cities host their gathered data on open data platforms to make information publicly accessible and useable; but the whole system is exceedingly flawed. Major cities like New York, London, Brussels, Sydney, Berlin and Colombia, for instance, have open data platforms that are, at least theoretically, available for public viewing and use (Data Portals, n.d.). Yet one recent study found that 9 out of 10 government datasets are not actually "open;" only 7% of the total data was even accessible, and only 1 in 2 of those datasets were machine readable (World Wide Web Foundation 2017, p. 12). The World Wide Web Foundation (2017) also concluded that government-sponsored open data platforms are not only often incomplete, but of low quality and frequently fragmented, making those data sets more likely to have multiple errors in other sets. Data also are not easily interpreted by the average citizen. In most instances, the interpretation or analysis of data requires certain expertise, licence or set of professional skills or software, thus further decreasing public access. Additionally, raw data can easily contain subjective, false or repetitive information; and because data collected and fed into software algorithms are chosen by people, the entire process is vulnerable to human error and bias.

## 10.3   Data-Driven Geographical Mediations

As if the inability to trust public data were not problematic enough, power is often spatially and racially organised through data-driven public platforms and apps that then help shape physical environments. Consider, for instance, the digital visualisations of crime, public health issues or disease distribution. Cities around the world frequently visualise data (or linked to commercially visualised data) to inform its citizenry of risks and threats, but often to the detriment of already-marginalised neighbourhoods. And many of the data visualised, function to construct perceptions of unsafe spaces. Not only can one likely find an online crime map (or dozens) for practically any major city in the world, one can also choose from a growing plethora

of crime mapping smartphone apps. There are also interactive maps that visualise specific crimes, such as homicide (Keng 2016) or show criminal activity on entire continents, allowing the user to zoom into a particular geographical area to learn the specifics of recorded criminal acts (CrimeReports 2017). Worldwide, many governments and official agencies also publish interactive maps that visualise and spatially represent various public health and policy issues, such as disease (U.S. Centers for Disease Control and Prevention 2016; Institute for Future Cities 2018), worldwide drug addiction (Bouchareb 2015), as well as refugee resettlement (Dupere 2017).

But these kinds of persistent digital visualisations of data on crime, disease, poverty or even something as seemingly inconsequential as property values, can heighten the public's perception of geographical-based disorder, neglect or chaos, which in turn further constructs these elements through our responses and behaviours. Simply put, people tend to avoid areas believed to be unsafe. Furthermore, security and safety become bound up in urban political efforts to (re)construct and manage urban space. While these kinds of maps are often described as or presumed to be merely informative, allowing residents, prospective homeowners and tourists to know what areas are deemed safe or prosperous, these visualisations also help construct and reinforce existing racialised demographics and sociopolitical boundaries by profiling neighbourhoods (Scott 2016). Data-driven neighbourhood profiling, furthermore, is frequently obscured by reference to the collection and aggregation of commonplace data. "Officially lifted from the demographic variables of race," Rice and White (2010) argue, and placed on "less controversial variables," such as building inspection reports, tax records or property values, information can be patched together in such a way as to profile certain neighbourhoods as more dangerous than others, which in turn make them supposedly in need of greater policing and surveillance.

To further explain how this cycle of neighbourhood profiling operates, Wilson and Kelling (1982) used the metaphor of a broken window, which draws negative attention to a particular area. As Wilson and Kelling argued (1982), broken windows indicate potentially unsafe areas and signal neighbourhood neglect, which then lead to an actual rise in crime. By applying this theory to contemporary visualisations of crime, disease or low property values (the digital equivalent of broken windows), Scott (2016) explains how similar perceptions of a particular space as unsafe help to further construct those spaces as dangerous. In other words, if a neighbourhood is perceived to be dangerous, it actually becomes dangerous, thereby drawing increased policing and surveillance, entrenching that community in a vicious downward cycle and further marginalising its inhabitants.

Madanipour (1996) argues that urban practices of segregation and exclusion of those considered a threat to the larger public have always been a "socio-spatial phenomenon," constructed through both physical organisation of space, as well as social control. While the methods vary over the years, the rhetoric of reclaiming public space from those who are perceived to threaten it has been a consistent strategy of geospatial marginalisation efforts. And as Sampson and Raudenbush (2004) point out, when we see or perceive disorder, we make certain socio-economic and cultural

assumptions about race and class and generate meaning that then serves to perpetu-ate those stereotypes. Zukin (1995) furthermore argues that rather than working to ameliorate the causes of socio-economic inequalities, state entities (from cities to nation states) rather tend to fortify barriers and strengthen geospatial divides (p. 39). Therefore, data-driven interactive maps that visualise various urban problems, as they draw attention to one's proximity to criminals or areas of disorder or crisis, func-tion to exacerbate existing racialised anxieties and reproduce prevailing geospatial inequalities (Scott 2016).

Foucault's (1988) work on the biopolitics of spatial knowledge, mapping and surveillance, helps to clarify how this power is constructed and maintained through the socio-spatial *effects* of data visualisation, as he noted the rise of the connec-tions between mapping, surveillance and policing practices. When Foucault (1988) cites the increase of 'new mapping [techniques] and the closer surveillance of urban space,' he infers that maps are not only a product of political knowledge, but an inter-vention or method of constructing political knowledge (p. 142). Today, digital maps of urban degeneration or degradation (whether visualising crime, disease or poverty, for example) become similar examples of biopower, as they function to both encour-age self-regulation (i.e. productive citizens should stay away from these areas) and exert power and control over those within. By mapping "deviants," these geospatial boundaries are thus reified. Urban planning theorists refer to this phenomenon as "negative institutionalised oppression" (Flyvbjerg and Richardson 2002). By iden-tifying problem people and areas, the state can better exercise its disciplinary and regulatory power. As Pløger (2008) points out in regards to Foucault's discussion of the politics of urban health that seek to reproduce self-regulating and productive citizens, the various spatial mechanisms put into place are not attempts to "care for the population" (or help residents feel safe), but are rather apparatuses of power maintained through socio-spatial order and security (p. 64). And through biopolitical normalisation processes, the identification of risks and dangers and management of crises (in this instance, through the use of data) become established, though often through invisible, power mechanisms (Šupa 2015, p. 88).

Furthermore, these kinds of data visualisation practices also are representative fea-tures of what Zukin (1995) refers to as the "institutionalisation of urban fear." Zukin theorised that the "politics of everyday fear" is constructed, in part, by amplifying existing public anxieties (p. 39). Explicit examples of this can be found on websites with maps that are accompanied by alarming headlines, such as "The world's most murderous places and other lessons from a killer map" (Byrne 2015) or "Watch the world's health crises in REAL TIME: Outbreak map reveals spread of deadly dis-eases around the globe" (Griffiths 2014). While some of these examples are overly dramatised, they are at least explicit; the institutionalisation of fear that results from data-driven processes, however, operates almost imperceptibly and often serves to normalise such fears. Importantly, the institutionalisation of fear cannot be disar-ticulated from racism, as the data visualisations that work to reinforce the public's "knowledge" of certain areas as dangerous tend to be homogenously racialised with people of colour. As Pasquale (2015) argues, "Algorithms are not immune from the fundamental problem of discrimination, in which negative and baseless assumptions

congeal into prejudice" (p. 38). So not only are the data chosen prone to inaccuracies and bias, as earlier discussed, the motivations behind the aggregation of that data (i.e. to identify hot spots for crime or areas with increased building code violations), along with often prejudiced interpretations or vested interests, proxy discrimination more easily.

The institutionalisation of fear, particularly on the national level, though trickling down into small rural communities at an alarming pace, works in tandem with what Grusin (2010) calls "premediation," which he describes as a recent media shift from mediating past events to premediating future ones. These premediations, Grusin (2010) argues, function to encourage public fear and insecurity by predicting future disasters or major threats to our security and safety. The institutionalisation of fear has increased by staggering proportions in the United States since the election of Donald Trump. The Trump administration, for instance, along with right-wing conservative media, daily promotes fear of the "illegal" immigrant, women (and the #metoo movement) and minorities. What makes premediation particularly effective, according to Grusin, is that as public fear and insecurity increases, the public then often looks to national governments to then quell that fear. Take, for example, the 2018 rhetoric from Trump and his administration about the "caravan of immigrants" that were about to "invade" the country (Mealer 2018). Trump and his administration were the ones to create this particular premediation of fear, while also offering the supposed solution—vowing to send thousands of military troops to the border to defend against the oncoming "invasion" (Mealer 2018).

On a daily basis, the U.S. Immigration and Customs Enforcement agency (ICE) has become particularly insidious, as the department works to offer *affects* of security and safety through illusions of governmental intervention, watchfulness or policing, which in turn helps the federal government to justify the increase in surveillance and raids. And as Šupa (2015) points out, once modalities of power are normalised, sovereign power becomes further legitimated (p. 87). ICE also regularly works to analyse data in government databases in an effort to predict a potential immigrant's likelihood of committing criminal or terrorist acts (Biddle 2017). Part of that initiative involves also collecting and analysing data from "social media sites, blogs, public hearings, conferences, academic websites," and so forth (Biddle 2017, para. 8). Additionally, ICE recently signed a $2.4 million contract with a data surveillance company that collects a wide variety of personal information from the nation's networked users, most notably real-time tracking of people through smartphone GPS location data, particularly within urban areas (Da Silva 2018), signalling a national imperative of predictive policing.

By manufacturing new and reinforcing existing public anxiety about immigrants, refugees, Muslims and any other marginalised group being targeted in any given week, Trump's administration regularly premediates catastrophe to come by promoting a collective sense of insecurity of and anxiety about what *might* happen—if these people are allowed to come into or remain in the U.S. And the fearmongering rhetoric (particularly on social media) about what *might* happen is increasingly geared towards the supposed prevention of what Blow (2018) calls "white extinction anxiety," or the fear that whiteness, "white culture," or white dominance and power

is threatened. It is important to note, however, that this kind of institutionalisation of fear is neither new nor only a U.S. problem. However, as the institutionalisation of fear of "the other" becomes increasingly explicit and visible to a larger Internet public and thus increased violence and racism normalised, geospatial identities become further entrenched.

## 10.4   Predictive Policing

The more recent phenomenon of predictive policing, primarily spearheaded by the U.S. and U.K., has also emerged from urban data practices and cities around the globe are increasingly using aggregated data to predict the occurrence of future criminal behaviour and then targeting specific neighbourhoods for increased surveillance. Crime prediction software, most often created and maintained by for-profit companies, has been found to be inherently prejudiced against blacks because of the kind of data fed into the system from the start (Angwin et al. 2016). And because governments either buy their data and/or algorithms from private businesses, this "often means the algorithm is proprietary or 'black boxed," and government officials have limited knowledge about how the software makes decisions (Tashea 2017, para. 6). Along with giving new meaning to the phrase "crime pays," the for-profit nature of predictive software raises serious ethical questions. The Human Rights Data Analysis Group reports that data fed into crime prediction software is already biased, as crime committed in historically heavy crime areas is more likely to be recorded than in other areas (Lum 2016). Because law enforcement officers tend to record crime unevenly, an algorithm designed to predict urban crime is most likely to find patterns of higher crime patterns in these over-represented areas. And as more police that are sent to patrol these areas, the more they observe criminal or suspicious behaviour, which then is reported back into the already biased system, creating a "vicious cycle" of misleading data, increased neighbourhood profiling and arrests—all of which then inform and subtend data-driven institutionalised racism.

Additionally, most crime prediction software is focused on place-based predictions of criminal behaviour, rather than people; therefore, certain kinds of crime that can be better tracked by place, such as robbery or domestic violence, are more highly represented in the data and preventative policing practices, than other crimes, such as white-collar crimes or drunk driving (Moses and Chan 2016, paras. 30–33). Since "surveillance of racial and ethnic minority groups tend to be grounded in specific and bounded locations," those who are less mobile (or geographically bound due to socio-economic statuses) are likely more vulnerable to increased geographically targeted policing (Byfield 2018, para. 1). Place-based predictive policing also relies on historical data of particular neighbourhoods (assuming crime will happen again where it has in the past), which in turn signals (and often visualises) an unsafe neighbourhood. This system seems to unfairly oppress certain neighbourhoods, making it extremely difficult for community members and local business owners to improve socio-economic revitalisation efforts. While many law enforcement agencies argue

that predictive policing is precisely aimed at this effort (to make communities more safe), most research thus far seems to suggest that predictive policing, relying as it does on racially biased data, is highly problematic.

Also of concern is how these data algorithms can follow offenders or arrestees into court, as courts are increasingly adopting predictive software to help judges make data-centric sentencing decisions on issues such as bail, sentencing and parole. In the UK, as part of a research study, the Durham Constabulary used a predictive algorithm software for several years called the Harm Assessment Risk Tool (HART), which would rate people as crime risks, based on several data points such as a person's age, previous criminal history, gender and postcode. After a review of the software's results, Oswald et al. (2017) found that the system not only perpetuated existing neighbourhood stereotypes but also further exacerbated inequalities within the criminal justice system, particularly in regards to race and class. Another report that examined the COMPAS recidivism algorithm, which has become one of the most popular software products for pretrial and sentencing analysis, argues that it is biased against blacks and black defendants were twice as likely to be classified as being a "higher risk of violent recidivism" than whites and were, overall, more likely to be rated higher risk scores (for likelihood of repeat offenses) than whites (Angwin et al. 2016).

### *10.4.1   Re-territorialisations and the Rise of Nationalism*

The Internet has been historically encoded with democratic ideologies and frequently described as a sort of digital bridge between people, cultures and borders. Negroponte (1995) predicted the Internet would bring about communities that would supersede national boundaries, making space irrelevant. Bell and de-Shalit (2011) suggested that with the decrease of national attachments and an increase in cosmopolitan ideals, the intersections between the city and cyberspace offered unique opportunities to offset homogenising forces. And De Souza e Silva (2006) theorised that as the Internet gave rise to connected, mobile and social hybrid digitalised spaces, users increasingly interacted with their digital–physical environments and the blurring of "traditional borders between physical and digital spaces" were even more pronounced by the unprecedented, though often invisible, flow of data (pp. 261–262).

Warf (2009), however, early on argued that all the "utopian hype" about a border-less Internet was deceptive and that "data-driven cartographies" were consistently (re)defining and (re) constructing borders (p. 67). And certainly, a deeper analysis of contemporary cyberspatial practices, such as digital visualisations of data and various cyber communication flows discussed within this chapter, suggests a phenomenon of physical border re-territorialisations and reified constructions of socio-spatial relations. While more people than ever have access to global networks, we nevertheless are in an era of increasingly tightened borders, higher surveillance and decreased governmental transparency. The World Resources Institute (n.d.) reported that more

than 100 governments "took steps to *close* civic space" in 2015 and that civil liberties violations were on the rise, fuelling worldwide "feelings of exclusion" and increased "nationalism, populism and authoritarianism around the world" (my italics, para. 1). A recent report by CIVICUS (2016) on the state of civil society around the globe similarly concluded that the Internet has become "the new frontier in the global campaign to silence civil society" (p. 3). As actual physical spaces are "increasingly constrained," monitored and policed, the report suggests, more activism occurs online; and yet, with greater opportunities for online activism come increased risk of Internet surveillance (CIVICUS 2016, p. 3). Amongst the governments listed by CIVICUS (2016) as having "significantly violated" civil rights were democratic countries such as France, Spain, Germany and the United States (pp. 4–22).

While social mobilisation, on the one hand, may sometimes flourish through Internet pathways, increased surveillance, control and online censorship may have the opposite effect of constraining our physical movements. And as flows of information increasingly transcend national boundaries and potentially threaten nation-state control, countries are reinforcing their physical borders. In Lund's (2013) exploration of mobility as an inherent characteristic of the new economy, she argues that market-led economies create "spatial fixations" that limit people to specific geographical locations, rather than liberate them. And a pervasive and dangerous rhetoric around national security and safety has surfaced in many countries, worldwide and functions not only as a justification for increased cybersecurity and surveillance, but also subtends governmental efforts to maintain and secure physical border integrity. In 2017, for example, U.S. Customs and Border Protection officials began demanding that some travellers coming into the U.S. (including, at times, its own citizens) hand over their digital devices, in part to examine their social media accounts and cloud data to determine whether they constituted any sort of threat. And in the fall of 2018, the Trump administration, citing a supposed rise in "citizenship fraud" started denying or taking away existing passports of thousands of its own American citizens living near the Mexican border, those almost exclusively of Latino heritage, born in the U.S. and possessing birth certificates (Sieff 2018; Grinberg et al. 2018), which has had the devastating effect of calling into question these peoples' citizenship and setting a precedence for the rescinding of U.S. citizenship.

## 10.5   Conclusion

Abundant with socio-economic and cultural diversity, cities hold great potential for the emergence of intersectional urbanism, wherein urban diversity is not only recognised and valued, but also critically considered when governmental officials are considering certain urban policies and practices that could potentially oppress marginalised members. As the economic power of cities continues to outrank those of nations, cities altogether possess the major portion of the global economy. According to a study by the McKinsey Global Institute, cities were projected to generate more than 60% of global wealth by 2025 (Dobbs et al. 2011, para. 1), while another

study conducted by the World Bank suggests that "more than 80% of global GDP" is currently generated by cities (Urban Development 2018). And as the percentages of foreignborn residents in many cities around the world are also rising (and contributing to the economic growth of cities), more cities are pushing back on national policies and practices that are detrimental to immigrants. For instance, many cities in the U.S. are now refusing to cooperate with federal or national immigration officials, declaring their cities to be "sanctuary cities." In New York City, for example, nearly 40% of the population are reported to be comprised of foreignborn immigrants (City of New York 2017, para. 1). So when confronted with the possibility of having to turn over information about undocumented residents of New York City to the federal government, the mayor declared that NYC, as a sanctuary city, would refuse to cooperate (Tharoor 2016, para. 11). Therefore, the significant political clout that comes with that greater economic power clearly can be leveraged against the kinds of federal practices described above (Florida, 2017). Tharoor (2016) also argues that "metropolises such as London seem increasingly detached from the right-wing populist surge in the hinterlands around them," where we increasingly hear calls to "take our country back" or, as is the case in the U.S., to "make America great again" (para. 7). However, as these cities increasingly work against the current nationalised, white supremacist agenda, they also often become targets of nationalised and state-sponsored retribution—such as through increased urban militarisation, decreased national funding or economic sanctions.

As this chapter has discussed, cities are often complicated, chaotic, contradictory and highly racialised. Historically, cities have been and still are inscribed by contentious economic and racial borders, mapped by geospatial divisions of injustice, inequality and white privilege. Cities also are spaces of increased militarisation and securitisation. And discursive urban data practices, enabled in great part by smartphone user-generated data, are both palpable and indiscernible, material and ideological, public and private. And while cities often may be perceived to be the safest and most equitable geographical spaces of diversity, institutionalised racism still exists, and the invisibility of certain data-driven practices, as earlier discussed, continue to construct and reinforce existing racial bias, socio-economic boundaries and reify existing geographically based marginalised identities.

And yet, cities are also radicalised spaces of subversion and resistance that often challenge nation-state ideologies and policies. Cities are inherently paradoxical, complex hybrid ecosystems of digital and concrete flows, simultaneously reflecting nationalised identities and yet also always composed of pluralised and diverse cultures. As Cowen (2014) explains, the urban paradox necessarily involves these contradictory tendencies: while marginalising, fragmenting and segregating, cities are also often perceived and enacted as spaces of "human resilience and innovation […] that can mitigate the oppressive character of capital-led urban growth" (para. 7). And while cities often espouse the rhetoric of "renewal," "regeneration," and "progress," urban residents are "utilising their own produced spaces to obstruct, expel and resist the devastating effects of the urban paradox" (Cowen 2014, para. 9). Ultimately, a thriving and productive urban public depends on the collective,

active engagement of individual residents with multiple viewpoints, backgrounds and experiences.

As this chapter illustrates, opportunities for agency and resistance of digital socio-spatial injustices lie with those at the heart of the city, in its people. While cities are implicated in the mediation and reinforcement of geospatial marginalisations and spatially bound identities, the inhabitants of networked cities also may be the best hope for the break down of these digitalised socio-spatial regimes, the transcendence of nation-state disciplinary power and the key to neutralising right-wing nationalism, worldwide. Furthermore, political progressiveness appears to depend upon a new form of digital-transurbanism that not only puts more communicative power in the hands of residents, but challenges growing nation-state isolationism. Dobbs et al. 2011 for example, argue that the "reclamation of public space" already is happening in "cities all around the world," and in part through citizen-sourcing projects that focus on the needs of all urban residents. When citizen-sourcing techniques are disarticulated from commercial interests, they have the potential to leverage the collective communicative power of urban residents in such a way as to reclaim public space and the development of bottom-up politics.

# References

Angwin J, Larson J, Mattu S, Kirchner L (2016, May 23) Machine bias. ProPublica. https://www.propublica.org/article/machine-bias-risk-assessments-in-criminal-sentencing. Accessed 8 Oct 2018

Bell D, de-Shalit A (2011) The spirit of cities: why the identity of a city matters in a global age. Princeton University Press, Princeton

Biddle S (2017, August 7) These are the technology firms lining up to build Trump's "extreme vetting" program. The Intercept. https://theintercept.com/2017/08/07/these-are-the-technology-firms-lining-up-to-build-trumps-extreme-vetting-program/. Accessed 11 Aug 2018

Blow C (2018, June 24) White extinction anxiety. The New York Times. https://www.nytimes.com/2018/06/24/opinion/america-white-extinction.html. Accessed 10 Dec 2018

Bouchareb I (2015) An interactive map of drug addiction throughout the world. Konbini. http://www.konbini.com/us/lifestyle/interactive-map-drug-addiction-throughout-world/. Accessed 2 Sept 2018

Burgess M (2018, March 1) UK police are using AI to inform custodial decisions—but it could be discriminating against the poor. Wired. http://www.wired.co.uk/article/police-ai-uk-durham-hart-checkpoint-algorithm-edit. Accessed 24 July 2018

Byfield N (2018, January 7) Race science and surveillance: police as the new race scientists. Soc Identities J Study Race Nation Cult. https://doi.org/10.1080/13504630.2017.1418599. Accessed 3 Nov 2018

Byrne C (2015, May 8) The world's most murderous places, and other lessons from a killer map. Fast Company. https://www.fastcompany.com/3046065/a-map-of-the-worlds-most-homicidal-places. Accessed 6 Oct 2018

Centers for Disease Control and Prevention (2016) GIS and public health at CDC. https://www.cdc.gov/gis/mapgallery/index.html. Accessed 23 Oct 2018

Christl W (2017) Corporate surveillance in everyday life. http://crackedlabs.org/en/corporate-surveillance. Accessed 6 Nov 2018

City of New York (2017, January 11) Our immigrant population helps power NYC economy. New York City Comptroller. https://comptroller.nyc.gov/reports/our-immigrant-population-helps-power-nyc-economy/. Accessed 3 Oct 2018

CIVICUS (2016) Civil society watch report. https://www.civicus.org/images/CSW_Report.pdf. Accessed 16 Oct 2018

Cowen T (2014, May 2) The urban paradox. OpenDemocracy. https://www.opendemocracy.net/opensecurity/tom-cowan/urban-paradox. Accessed 6 Nov 2018

Crawford K (2013, April 1) The hidden biases in big data. Harv Bus Rev. https://hbr.org/2013/04/the-hidden-biases-in-big-data. Accessed 28 Oct 2018

CrimeReports (2017) Welcome to CrimeReports. https://www.crimereports.com. Accessed 6 Oct 2018

Da Silva C (2018, June 7) Ice just launched a $2.4 M contract with a secretive data surveillance company that tracks you in real time. Newsweek. http://www.newsweek.com/ice-just-signed-24m-contract-secretive-data-surveillance-company-can-track-you-962493. Accessed 12 Dec 2018

Data Portals (n.d.) A comprehensive list of open data portals from around the world. http://dataportals.org. Accessed 6 Oct 2018

de Souza e Silva A (2006) From cyber to hybrid: mobile technologies as interfaces of hybrid spaces. Space Cult 9(3):261–278

Degli-Esposti S, Shaikh SA (2018, April 17) With smart cities, your every step will be recorded. The Conversation. http://theconversation.com/with-smart-cities-your-every-step-will-be-recorded-94527. Accessed 18 Dec 2018

Dobbs R, Smit S, Remes J, Manyika J, Roxburgh C, Restrepo A (2011) Urban world: mapping the economic power of cities. McKinsey Global Institute. https://www.mckinsey.com/~/media/McKinsey/Featured%20Insights/Urbanization/Urban%20world/MGI_urban_world_mapping_economic_power_of_cities_full_report.ashx. Accessed 6 Oct 2018

Dupere K (2017, June 6) Interactive map shows the global refugee crisis like you've never seen it before. Mashable. https://mashable.com/2017/06/06/refugee-crisis-map-explorables/#hD50S_G0nmq8. Accessed 12 Oct 2018

England P (2015, June 28) Iceland's 'pots and pans revolution.' Independent. http://www.independent.co.uk/news/world/europe/icelands-pots-and-pans-revolution-lessons-from-a-nation-that-people-power-helped-to-emerge-from-its-10351095.html. Accessed 28 Oct 2018

Florida R (2017) The new urban crisis: how our cities are increasing inequality, deepening segregation, and failing the middle class – and what we can do about it. Basic Books, New York

Flyvbjerg B, Richardson T (2002) In search of the dark side of planning theory. In: Allmendinger P, Tewdwr-Jones M (eds) Planning futures: new directions for planning theory. Routledge, London, pp 44–62

Foucault M (1988) The dangerous individual. In: Krizman LD (ed) Politics, philosophy, culture: interviews and other writings 1977–1984. Routledge, London, p 142

Foucault M (2005) The order of things: an archaeology of the human sciences. Routledge, New York

Griffiths S (2014, October 24) Watch the world's health crises in REAL TIME: outbreak map reveals spread of deadly diseases around the globe. DailyMail. http://www.dailymail.co.uk/sciencetech/article-2806737/Watch-world-s-health-crises-REAL-TIME-Global-outbreak-map-reveals-spread-deadly-diseases-globe.html. Accessed 6 Nov 2018

Grinberg E, Gamble J, Valencia N, Vazquez M (2018, Aug 31) Washington post: US denying passports to Hispanic Americans in South Texas. CNN Politics. https://www.cnn.com/2018/08/30/politics/us-denying-passports-to-american-citizens/index.html. Accessed 6 Oct 2018

Grusin R (2010) Premediation: affect and mediality after 9/11. Palgrave Macmillan

Horvitz E, Mulligan D (2015, July 17) Data, privacy, and the greater good. Science 345(6245):253–255. http://science.sciencemag.org/content/349/6245/253?intcmp=collection-ai. Accessed 6 Oct 2018

Institute for Future Cities (2018) Glasgow health map. http://ifuturecities.com/urban-data/urban-data-visualisations/glasgow-health-map/. Accessed 21 Oct 2018

International Telecommunication Union (2015) ICT facts & figures: the world in 2015. https://www.itu.int/en/ITU-D/Statistics/Documents/facts/ICTFactsFigures2015.pdf. Accessed 6 Oct 2018

Keng K (2016, June 27) Map: here are countries with the world's highest murder rates. PRI. https://www.pri.org/stories/2016-06-27/map-here-are-countries-worlds-highest-murder-rates. Accessed 3 Nov 2018

Lum K (2016, October 10) Predictive policing reinforces police bias. Human rights data analysis group. https://hrdag.org/2016/10/10/predictive-policing-reinforces-police-bias/. Accessed 13 Nov 2018

Lund R (2013) Mobility in marginalized spaces: maneouvring for survival among the Veddas in Sri Lanka. Norsk Geografisk Tidsskrift—Nor J Geogr 67(4):200–209

Madnipour A (1996) Social exclusion and space. In: Madanipour A, Cars G, Allen J (eds) The city reader. Routledge, NY, pp 203–211

Mealer B (2018, November 26) This is what trump's caravan 'invasion' really looks like. The Guardian. https://www.theguardian.com/us-news/2018/nov/26/migrant-caravan-disabled-children. Accessed 9 Dec 2018

Moses LB, Chan J (2016, November 8) Algorithmic prediction in policing: assumptions, evaluation, and accountability. Polic Soc. https://doi.org/10.1080/10439463.2016.1253695

Negroponte N (1995) Being digital. Alfred A. Knopf, New York

Olson P (2014, July 7) Why google's Waze is trading user data with local governments. Forbes. https://www.forbes.com/sites/parmyolson/2014/07/07/why-google-waze-helps-local-governments-track-its-users/#6fbae8239ba3. Accessed 17 Nov 2018

Oswald M, Grace J, Urwin S, Barnes G (2017, August 31) Algorithmic risk assessment policing models: lessons from the Durham HART model and 'experimental' proportionality. Inf Commun Technol Law. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3029345. Accessed 8 Nov 2018

Pasquale F (2015) The black box society: the secret algorithms that control money and information. Harvard University Press, Cambridge

Pløger J (2008) Foucault's dispositif and the city. Plan Theory 7:51–70. https://doi.org/10.1177/1473095207085665

Rice S, White M (2010) Race, ethnicity, and policing: new and essential readings. NYU Press, New York

Ross S (2010) Introductory statistics, 3rd edn. Academic Press, MA

Ross E (2016, August 19) Apps for democracy—open data and the future of politics. The Guardian. https://www.theguardian.com/media-network/2016/aug/19/apps-for-democracy-open-data-and-the-future-of-politics. Accessed 3 Nov 2018

Rathi A (2016) A new study shows how government—collected "anonymous" data can be used to profile you. Quartz. https://qz.com/691181/a-new-study-shows-how-government-collected-anonymous-data-can-be-used-to-profile-you/. Accessed 6 Dec 2018

Sampson R, Raudenbush S (2004) Seeing disorder: neighborhood stigma and the social construction of 'broken windows'. Soc Psychol Q 67(4):319–342

Scott K (2016) The digital city and mediated urban ecologies. Palgrave Macmillan, Cham

Sieff K (2018, Sept 13) U.S. is denying passports to Americans along the border, throwing their citizenship into question. The Washington Post. https://www.washingtonpost.com/world/the_americas/us-is-denying-passports-to-americans-along-the-border-throwing-their-citizenship-into-question/2018/08/29/1d630e84-a0da-11e8-a3dd-2a1991f075d5_story.html?utm_term=.0091702513f5. Accessed 3 Nov 2018

Šupa M (2015) Mapping practices of social control: a Foucauldian analysis of urban space. Kriminologijos Studijos 3:82–123. https://doi.org/10.15388/CrimLithuan.2015.3.8951

Tashea J (2017, April 17) Courts are using AI to sentence criminals. That must stop now. Wired. https://www.wired.com/2017/04/courts-using-ai-sentence-criminals-must-stop-now/. Accessed 1 Nov 2018

Tharoor I (2016, November 22) The West's major cities are a bulwark against the tide of right-wing nationalism. The Washington Post. https://www.washingtonpost.com/news/worldviews/

wp/2016/11/22/the-wests-major-cities-are-the-best-defense-against-the-tide-of-right-wing-nationalism/?noredirect=on&utm_term=.d2ad6fae34fb. Accessed 3 Dec 2018

Thatcher J, Shears A, Eckert J (2018) Thinking big data in geography: new regimes, new research. University of Nebraska, Nebraska

The Economist (2017, May 6) Data is giving rise to a new economy. https://www.economist.com/briefing/2017/05/06/data-is-giving-rise-to-a-new-economy. Accessed 3 Nov 2018

Urban Development (2018) The World Bank. https://www.worldbank.org/en/topic/urbandevelopment/overview. Accessed 10 Dec 2018

United Nations Department of Economic and Social Affairs (2016) The world's cities in 2016. http://www.un.org/en/development/desa/population/publications/pdf/urbanization/the_worlds_cities_in_2016_data_booklet.pdf

Vallina-Rodriguez N, Sundaresan S (2017) 7 in 10 smartphone apps share your data with third-party services. The Conversation. http://theconversation.com/7-in-10-smartphone-apps-share-your-data-with-third-party-services-72404. Accessed 3 Nov 2018

Vallina-Rodriguez N, Sundaresan S, Razaghpanah A, Nithyanand R, Allman M, Kreibich C, Gill P (2016) Tracking the trackers: towards understanding the mobile advertising and tracking ecosystem. https://arxiv.org/pdf/1609.07190.pdf. Accessed 6 Aug 2018

Walker P (2016, May 9) City planners tap into wealth of cycling data from Strava tracking app. The Guardian. https://www.theguardian.com/lifeandstyle/2016/may/09/city-planners-cycling-data-strava-tracking-app. Accessed 13 Sept 2013

Warf B (2009) From surfaces to networks. In: Warf B, Arias S (eds) The spatial turn: interdisciplinary perspectives. Routledge, New York, pp 59–76

Wilson J, Kelling G (1982, March 1) Broken windows: the police and neighborhood safety. The Atlantic. https://www.theatlantic.com/magazine/archive/1982/03/broken-windows/304465/. Accessed 16 July 2018

World Economic Forum [Davos] (2018, January 24) Data will be the raw material of the 21st century, says Angela Merkel. But there is a risk that Europe will lag behind if we can't decide how to deal with data because we are debating philosophical issues. #wef18#angelamerkel [Tweet]. https://twitter.com/Davos/status/956160575679139841. Accessed 3 Nov 2018

World Resources Institute (n.d.) Open Government Partnership. http://www.wri.org/our-work/project/open-government-partnership. Accessed 19 Nov 2018

World Wide Web Foundation (2017) Open data barometer: global report. https://opendatabarometer.org/doc/4thEdition/ODB-4thEdition-GlobalReport.pdf. Accessed 30 July 2018

Zukin S (1995) The cultures of cities. Blackwell Publishers, Cambridge

**Kris Erickson** is the author of The Digital City and Mediated Urban Ecologies (2016, Palgrave) and teaches at Simmons University in Boston, Massachusetts. Erickson's work examines how governmental use of social media, mobile apps, and data collection, aggregation, and visualization are built into the logic and organization of everyday urban spatial practices.