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Understanding the Smart City: Framing the challenges for law and good governance

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Introduction

This paper takes as its starting point the concept of “problematization; the process by which certain kinds of conduct come to be seen as inadequate, and in need of governmental intervention. It is argued that the widespread adoption of “smart city” solutions relies upon the problematization of existing cities as being ‘insufficient’ in four key areas. These problematizations are unpinned by an overarching idea that traditional cities are failing to capture and put to work the data flows that surge through contemporary urban life. The rest of the paper explores how the smart city approach responds to this set of perceived problems by developing various strategies of “dataficiation”, “dataveillance” and “algorithmic regulation” as part of a new form of governmentality. However, these proposed ‘solutions’ to the problems of existing cities themselves raise a number of challenges for lawyers and others seeking to maintain values of democracy, equality and good governance in the light of a disruptive technology that, in the name of efficiency, modernity and smartness, challenges many aspects of social organization in ways that may not yet be fully recognized by all the categories of law that seek to regulate these areas.

The Process of Problematizing

Within a wider account of governmentality as a way of “conducting the conduct” of individuals and groups that draws upon and develops the work of Michel Foucault, Miller and Rose pose a foundational question about how particular sorts of actions or phenomena come to be seen as problematic, and therefore in need of intervention. They maintain that problems do not exist ready made. Rather particular phenomena become seen as providing challenges and difficulties, and as issues that require intervention and management. The focus of Miller and Rose’s interest is on “the way in which experience comes to be organized so as to render something as a ‘problem’ to be addressed and rectified”.1 This happens through a complex process where a particular way of seeing and dealing with an area is “manufactured” within a wider social and political context. It involves, as Foucault himself put it, “grasping the movement by which a field of truth with objects of knowledge [is] constituted”.2 This process of seeing a phenomenon in a particular way, and ensuring that others do too, typically will require drawing upon, or even creating, conceptual frameworks and vocabularies to understand the thing under consideration. It may require agreement from politicians or corporate leaders who can come together to develop a common language to articulate the problem and its various dimensions. It may involve experts or professionals bringing in specialist fields of knowledge and identifying common issues and explanations that can become part of a wider account of what is going on. It will also entail linking this interpretative account to wider understandings within economic and social developments so as to provide increased understanding of the matter in hand. Furthermore, and this is particular importance, any diagnosis

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of the problem must be accompanied by ideas about how it should be managed, as
the activity in question must be seen as amenable to intervention. As Miller and Rose
put it, the problem area must be “susceptible to some more or less rationalized set of
techniques or instruments that [allow] it to be acted upon and potentially transformed 
… the activity of problematizing is intrinsically linked to devising ways to seek to
remedy it”.3 Indeed it is a central element of the process that the problem thus
identified is capable of being resolved. Within the wider governmentality project,
which not only seeks to understand and represent the world but also act upon it in
order to transform it, there is generally a clear link to a set of actions that provide a
“solution” to the problem thus identified.

In terms of the smart city analysis of traditional cities there is, accordingly, a strong
tendency towards the utopian; this often involves simultaneously proclaiming what
are presented as the many benefits of the fully-interconnected, online city and
contrasting this with the limitations and problems of existing cities.4 There are four
problematizations here that are of particular interest. Firstly, traditional cities are
portrayed as lacking competitiveness in an ever-changing global economy. The
growth in metrics of “smartness” has increased pressure upon cities to embrace
data-driven urban government. It may well be in demonstrating competitiveness on
the global stage the appearance of smartness may often be more significant than a
genuine, long-term engagement with technology to address meaningfully wider urban
issues but the fact remains that data is presented as the key to enhanced economic
success. Secondly, existing cities are problematized as inefficient. In addition to
promising to use data to uncover hidden inefficiencies, smart city advocates offer a
seductive image of efficient, centralized urban government conducted from all-seeing
control rooms informed by “urban dashboards” crossing departmental boundaries
and bringing together hitherto disparate data sets. Simplistic, technocratic solutions
to complex urban problems are contrasted with existing practices of urban
government, which are portrayed as messy, inefficient and needlessly complex.
Thirdly, traditional cities are problematized as unsustainable. Sustainability, in smart
city discourse, is characterized as an urban virtue primarily insofar as it permits an
uninterrupted trajectory of economic growth (although of course this analysis omits
wider ideas of sustainability as well as the environmental and other costs of data
generation and storage). Fourthly, it is notable how smart city discourse tends to
offer itself as a counter to top-down views of urban governance. Greater citizen
participation is presented as a benefit of smart city solutions, implicitly suggesting
that smart cities are more democratic than their mundane equivalents (in spite of the
often-tokenistic nature of this participation).

All of these problematizations are underpinned by the idea that traditional cities have
failed to harness and analyze their data flows. More extensive capture and analysis
of data is presented as the key to moving towards smartness and all the virtues and
advantages that this is thought to bring. This way of seeing the issue is significant
because it positions the technology sector as the actor with sufficient expertise to
“read the data” and unlock the benefits of the smart city (perhaps also involving

3 Supra n. 1 at p. 15.
everything will change how we live”, Foreign Affairs (2014); A. Townsend Smart Cities: Big
data, civic hackers, and the quest for a new utopia. New York: W.W. Norton & Co. (2013);
granting privately-owned technology firms a substantial and largely unregulated governmental role). The centrality of data here, and the significance of this must be explored further.

Data, ‘Datism’, and Algorithmic Governance

The contemporary city is perhaps uniquely data rich, and a smart city is matchlessly placed to harvest this resource and put it to work within a wider governing project. Within the city, citizens are moving about, buying, communicating, browsing the web, engaging with public services and more, and, as they do so, they leave a wealth of data trails. As Kitchin describes it,

As Rob Kitchin describes it:

The result is a vast deluge of real-time, fine-grained, contextual and actionable data, which are routinely generated about cities and their citizens by a range of public and private organizations, including:
— utility companies (use of electricity, gas and water);
— transport providers (location/movement, travel flow);
— mobile phone operators (location/movement, app use and behaviour);
— travel and accommodation websites (reviews, location/movement and consumption);
— social media sites (opinions, photos, personal information and location/movement);
— crowdsourcing and citizen science (maps, e.g. OpenStreetMap; local knowledge, e.g. Wikipedia; weather, e.g. Wunderground);
— government bodies and public administration (services, performance and surveys);
— financial institutions and retail chains (consumption and location);
— private surveillance and security firms (location and behaviour);
— emergency services (security, crime, policing and response); and
home appliances and entertainment systems (behaviour and consumption).5

Smart cites are cited as being the “solution” to the “problem” of traditional cities failing to harness and analyse these data flows. This belief is fundamentally rooted in “dataism”, which, as van Dijck puts it, involves “a belief in the objectivity of quantification and in the potential of tracking all kinds of human behavior and sociality through online data”.5 Likewise, Manzerolle and Smeltzer identify similar beliefs that “with additional information and the progressive powers of ICTs society will function more smoothly, equitably, and democratically”.7 van Dijck’s critical examination of dataism shows that far from the benefits of quantification being an objective fact, this professed belief is in truth often underpinned by ideological assumptions and subjective interpretations as well as by desires to use data in ways which primarily benefit vested interests – to empower and enrich corporations, to promote consumerism, and to bolster the security apparatus of the modern state,

among others. In pursuit of these interests, the smart city promises to move dataism beyond the recognisably online, and in doing so, instrumentalise the physical world and connect it to the digital, while giving already powerful corporations significant positions of influence and authority in this new world.

Yeung has described a process of “algorithmic regulation” that is helpful in understanding this further.8 This involves regulatory governance systems which employ algorithmic decision-making and engage with attempts by any entity to computationally generate knowledge from data in order to regulate behaviour in pursuit of some pre-specified goal. This could be a public transport authority seeking to regulate vehicle movement to optimise traffic flow, a social media company seeking to regulate or nudge the behaviour of its users to make it more profitable, or an individual seeking to regulate their own behaviour using a fitness tracker. While automated management systems are not new, algorithmic regulation as set out by Yeung describes a more recently-emergent form of control facilitated by predictive analysis of big datasets through machine learning, and the automatic use of the insights gained through this analysis in systems for influencing behaviour. Algorithmic regulation systems are qualitatively different from earlier systems in one or both of two ways, each of which involve significant differences in the degree of automation.

The first difference results from the ability of machine learning systems to draw inferences and make predictions from big datasets, and so generate new information from that data, without being specifically programmed to do so.9 This ability of machine learning systems to automate the process of building and training a model without specific programming or human intervention distinguishes them from previous systems. These may have involved sophisticated statistical modelling but generally speaking lacked the ability to “learn”, and react to changing circumstances automatically. The second difference between algorithmic regulation systems and previous forms of automated management is their ability to automatically use the information which they have generated to influence behaviour without further human intervention. In other words, systems such as the New York Fire Department system deployed in the 1970s, were used to inform human decision-making in management, but the new generation of systems promise to automatically influence behaviour by themselves.10

Now, and even more so in the future, smart cities will involve multiple, complex, integrated, and interacting algorithmic regulation systems with the ability to autonomously predict and influence behaviour. This introduces a particular challenge to public lawyers as it may very well involve a further penetration of private sector, commercial interests into a governing role that is more traditionally associated with the state. Because of their complexity, the amount of data required, the level of technical capability required, and the expense of their development, in many instances these algorithmic regulation systems will need to be provided by private

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corporations working within smart cities, rather than by city authorities themselves. While over the last decade or so civic governments in various cities have instituted some smart city systems in collaboration with networking infrastructure corporations such as Cisco,11 the corporations which are presently positioning themselves at the forefront of smart city developments of the future are those which are commonly grouped under the acronym “GAFAM” – Google (including its parent company, Alphabet), Amazon, Facebook, Apple, and Microsoft. Beyond the smart city context, these corporations dominate the digital world generally and, as a result, are the five most valuable companies presently in existence.12 While Apple and Microsoft primarily gained their market position and their value through their hardware and software businesses, Google, Facebook, and, to an extent, Amazon share a highly profitable business model based in the surveillance and modification of human behaviour. This is a business model that Zuboff has termed “surveillance capitalism”13 and it is to this that we must now turn.

**Surveillance Capitalism and Algorithmic Governmentality**

The core of the model that is surveillance capitalism involves the gathering of as much data as possible from as many sources as possible about as many people as possible doing as many things as possible.14 This involves “datafication”, a term coined by Mayer-Schoenberger and Cukier15 to describe the process of transforming many aspects of everyday life into quantified data for use in ICT systems. According to van Dijck, “datafication as a legitimate means to access, understand and monitor people’s behavior is becoming a leading principle, not just amongst techno-adepts, but also amongst scholars who see datafication as a revolutionary research opportunity to investigate human conduct”.16 This pursuit of datafication is fundamentally tied to dataism as described above. Facebook provides an archetypal example. It is a company that is not attempting to sell anything directly to those who use it but rather seeks to gather as much personal information as it can. As Bucher17 and Gerlitz and Helmond18 have all shown, by datafying the behaviour of its users Facebook has turned social interactions into data to be analysed and monetised. As van Dijck puts it, “the digital transformation of sociality spawned an industry that builds its prowess on the value of data and metadata”.19 Datafication is thus a key

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19 Supra n. 6 at p. 199.
part of the algorithmic regulation systems which are central both to surveillance capitalism and to the smart city.

Surveillance capitalism involves more than just datafication. Lyon defines surveillance as “any collection and processing of personal data, whether identifiable or not, for the purposes of influencing or managing those whose data have been garnered”. Surveillance within this understanding thus involves both the gathering of data and the use of that data to control behaviour. In surveillance capitalism, the data gathered through datafication is subjected to predictive algorithmic analysis so as to produce new information, both about individuals and about their behaviour. The information produced is then used to predict future behaviour and attempt to direct it in the way desired. Within this surveillance capitalism model these systems are made available to advertisers and others, who purchase access to users so as to make use of these analytical and predictive powers in order to more effectively target consumers. Surveillance undertaken with the use of ICT – such as in surveillance capitalism – can also be seen a slightly different context too, and this has been describe by Clarke as “dataveillance” to characterise “the systematic use of personal data systems in the investigation or monitoring of the actions or communications of one or more persons”. However Clarke’s definition of dataveillance lacks the element of control, which was identified by Lyon in his classic definition (above) as being key to surveillance. Accordingly, Degli Esposti has proposed a new definition of dataveillance in order to include attempts to control behaviour. This involves defining dataveillance as “the systematic monitoring of people or groups, by means of digital information management systems, in order to regulate or govern their behaviour”. Such an updated and extended definition of dataveillance is more in line with systems involving the gathering of data about people or groups for use in digital information management systems with the aim of regulating or governing behaviour, beyond simple consumption. It can thus be characterised clearly as surveillance, which involves digital information management and data processing systems. It is exactly this sort of dataveillance system which makes up the algorithmic regulation of the smart city, and provides its unique form of governmentality.

Through their use of algorithmic regulation systems, both surveillance capitalism and its manifestations in smart cities, constitute a new form of “algorithmic governmentality”. This is, according to Rouvroy, who has written extensively about algorithmic governmentality, “an unprecedented mode of government fuelled mostly with infra-personal, meaningless but quantifiable signals (raw data and metadata), addressing individuals through their ‘profiles’”. In Rouvroy’s view,

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26 A. Rouvroy, “Algorithmic governmentality: a passion for the real and the exhaustion of the
the atunement of individuals’ (informational or physical) environments and interactions according to their constantly evolving « profiles » … [opens] the way to pre-emptive action to secure commercial profit and forestall dangerous or sub-optimal behaviors”.27

Essentially, algorithmic governmentality involves a rationality founded on the automated collection, aggregation, and analysis of big data so as to predict and pre-emptively influence human behaviour.28 This requires a technology of power in three stages: first, the collection of big data in data warehouses; second, data processing and knowledge production (involving variously predictive analytics, data mining, reality mining); and third, action on behaviours.

This element of action on behaviours in the context of the smart city may involve, for example, the creation of an extensive surveillance apparatus through instrumentalization of the urban environment, with a range of sensors, cameras, and microphones. In Toronto, for example, Sidewalk Labs (a subsidiary of Google’s parent company, Alphabet) has been granted a 12-acre area of the city’s waterfront in which to develop a smart city.29 Sidewalk’s development is planned to scale up subsequently to cover a nearby 800-acre area of the city. The Sidewalk Toronto experiment represents the transformation of whole sections of a global city into a real-world prototyping test-bed for a private corporation to refine its surveillance practices. The potential emergence of smart city systems developed by surveillance corporations in this way brings the spectre of surveillance capitalism extending into the physical world. However even where smart city systems and services of the future are not provided by surveillance corporations – if they are constructed by retailers, say, or where civic governments have contracted other corporations to provide services – data is often "shared" with “partners” on the “data market”. This market is at the core of the data economy. It involves various entities, including data brokers such as Axciom and Experian (who specialise in buying, selling, and analysing personal data), advertisers, and surveillance corporations, among others. The interactions within smart cities between devices, systems, and services, as well as emerging or future technologies such as smart and autonomous vehicles, using APIs and other interoperability standards to connect across the internet, means that the products sold by many corporations will be able to connect to the smart city, and begin to collect and transmit data on their behalf.

Even where cities have not yet undertaken to create a fully-instrumentalised public urban environment, initiatives are underway to populate public spaces with an array of kiosks, sensors, and other devices which gather data about the people nearby and their behaviours. The InLink proposals in London, for example, seek to convert public telephone boxes into internet-connected kiosks complete with sensors, cameras, and

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27 Supra.

Beyond London and InLink, ostensibly free cloud Wi-Fi services, provided by similar kiosks and by other access points spread throughout cities, extend the reach of the smart city by connecting people to corporate networks in exchange for user data. In-store and in-shopping-centre customer tracking brings the smart city into retail environments. This may well include the many environments where private retail developments have been constructed on or around formerly public space, with the resulting loss to the public, both in terms of control and in terms of the culture of publicness. Smartphones and wearable devices bring the smart city into pockets and attach it to bodies. The proliferation of smart home and smart office equipment and internet-connected devices extends the smart city beyond public space and into offices and homes. In the smart city, the monitoring, datafying, tracking, and analysing of our behaviour at the behest of surveillance corporations and others thus pervades our lives, creeping into our every waking moment (and, thanks to sleep trackers and wearables, our sleeping ones, too).

These sensors, microphones, cameras, and devices, the corporate databases to which they feed data, the machine learning systems which generate insights into behaviour, and the outputs which these systems produce, together form what Haggerty and Ericson call a “surveillant assemblage”. In such an assemblage, discrete objects, technologies, and systems come together to work as a functional surveillance entity, which abstracts the corporeal, territorial individual into the digital dimension. In this dimension the individual is broken down into a series of component parts (name, age, gender, location, likes, dislikes, predicted behaviours, interests, and so on) and datafied. In creating profiles of individuals, these datafied component parts are then “reassembled into distinct ‘data doubles’ which can be scrutinized and targeted for intervention”. This is key to what, following Deleuze, has become known as the "control society" in which various entities seek to exercise power over people not in terms of their physical bodies, but in moulding them as consumers through their data bodies. In a control society, according to Deleuze, the individual (meaning ‘indivisible’) is no longer the smallest unit in society but

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33 Supra p. 608.


becomes instead a ‘dividual’ – a divisible composite of the component parts of the individual.  

The net effect of these practices and assemblages is that the proposed solution to the problematised traditional city, which is presented and justified on the basis of an unrelenting belief in dataism, is in fact far more than a smart city. It is a surveillance city, in which, by abstracting us into data doubles and breaking us down into our component parts, surveillance corporations extract private data about our behaviour from public space for their enrichment and empowerment through the technology of power of algorithmic governmentality. This raises further important issues to be addressed in smart cities related to informational asymmetries, power, and precarity.  

**Information Asymmetries, Power, and Precarity**

The algorithmic governmentality of the smart city is in many ways constructed on information asymmetries. In terms of surveillance, the ability to influence behaviour is based on the possession of power.  

By their very nature smart cities require a flow of information from the individual to the corporation (through the abstraction of the real individual into a data double), and from corporation to corporation (through the sale of data doubles or access to them on the advertising market). There is not any equivalent flow of information from the corporation to the individual. As a result, while surveillance corporations may know intimate details about an individual’s life and how to influence their behaviour, the individual may know very little indeed about the corporation or about how their data is being used in the smart city and beyond in the corporate world. Of course, since information is of use primarily in generating knowledge, we should recognise that when we talk about this asymmetry of information what we are really talking about is an asymmetry of potential knowledge. As well as a flow of information, therefore, smart cities involve a flow of knowledge, and thus a flow of power, from the individual to the corporation. Hintz et al observe that in the modern world we are “confronted with the emergence of a new power dynamic; one that is premised on an order of ‘haves’ and ‘have nots’, between those who provide personal data (digital citizens) and those who own, trade, and control it (typically, large Internet companies and the state).”

In the context of online surveillance capitalism, the same asymmetries are used to influence behaviour through a form of control which Yeung calls “hypernudge”. This involves a personalised and highly dynamic form of behavioural nudging, which links in to the wider literature on nudging as a form of choice architecture which seeks to take advantage of heuristics and other shortcuts in human decision-making to “alter  

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36 Supra p. 7.
39 Manzerolle and Smeltzer, op cit n, 7.
people’s behaviour in a predictable way without forbidding any options or significantly changing their economic incentives”.43 However, unlike traditional nudges in the physical world – such as a speed hump – which treat everyone the same and are usually fixed or adjusted periodically, hypernudges can be tailored to the individual and can respond to the individual’s behaviour. For example, online advertising can be personalised to provide adverts for products relevant to a particular user’s predicted preferences and interests, and they can be algorithmically updated to offer new suggestions in repeated attempts to induce the desired behaviour should those previously proffered be ignored by the user.

In the smart city, a similar process can be undertaken, again facilitated by informational asymmetries, to influence behaviour in the way desired by the civic government, by corporations, and according to the rationalities of efficiency, sustainability, and participation. The information gathered and stored by smart cities, and the knowledge gained from that information through predictive analytics, allows their systems to operate in such a way as to intervene upon behaviour, either at an individual level or at a group level, in much the same way as in online spaces. At an individual level, the smart city can attempt to influence behaviour through notifications and nudges on phones and in apps; through personalised adverts in shops, on hoardings, and elsewhere; or through differential pricing (by which prices are algorithmically tailored to individuals based on their predicted ability or willingness to pay so as to induce or match demand and thus maximise sales, subscriptions, or other forms of uptake). At a group level, and under the rubric of efficiency, sustainability, and flexibility, and the other smart city rationalities which we can recognised as being a particular form of dataism, smart city regulation systems can manage traffic flow by directing drivers as a group to particular routes, or adjusting traffic lights, or by encouraging people to move to various areas of civic and retail space to manage pedestrian activity and crowd control. Automating these systems through algorithmic regulation means, of course, that city management requires fewer employees, saving costs at the expense of livelihoods, while at the same time appealing to local tax-payers who may (possibly) see efficiencies in reduced costs.

As they move through the smart city, the individual is thus cajoled and corralled into a process of perpetual choice-making – whether to ignore nudges, adverts, and other messages or to engage and tap, buy, or subscribe; whether to use a particular smart service, to use a competing service, or to use none at all; whether to follow the prompted route which maximises traffic flow or to go their own way (which may be quicker or more convenient for them individually). As a result, and through the information asymmetries discussed above and the technology of algorithmic governmentality, smart cities remake the individual such that they are acting in the smart city simultaneously as a citizen and as a consumer. It has long been recognised that neo-liberal modes of government remake the individual as a consumer-citizen, engaged in perpetual choice-making in all aspects of life.44 The emergence of identifiably neo-liberal societies after the 1970s, particularly in the


Anglo-American West, required a corresponding remaking of the citizen-state relationship on neo-liberal foundations. In this remade relationship, consumer-citizens actively engage with government and civil society in making choices to interact with public services which, while still largely funded by the state and ostensibly under its control, are often provided by private entities. According to Powell and Steel, "neo-liberalism is especially concerned with inculcating a new set of values and objectives orientated towards incorporating citizens as both players and partners in a marketized system". This very much reflects Foucault’s account of the development of neo-liberal government as a transition in the modern state from a civil society to a social market. However, the smart city, with its array of public services provided by private actors, brings the expectations and consumption patterns of consumer-citizenship to ever-increasing areas of life in ways that are joined up and self-reinforcing in ways that Foucault could not have imagined.

Individuals who fail to sufficiently perform consumer-citizenship as constituted in the smart city by not participating fully in the smart city may find themselves relegated to a new form of “data underclass". This could be as a result of refusing to share personal data, or not having smart devices, or not having sufficiently up-to-date smart devices to ensure continued civic participation. Edwards points out that in a smart city the consequences of this may be both digital and physical:

Certain people (or their cars) might be physically restricted from entering some streets – a new type of “gated community” – or certain shops or entertainment complexes. The complex nature of public-private partnership in smart cities also seems important here – what happens to any right to assembly in public squares (or public speech generally) when all spaces are at least partly privatised?

As a result, consumer-citizens in the smart city enter a form of civic precarity, where unless their acquiescence to the governmentality of the smart city is sufficiently total they are relegated to a data underclass; marginalised, unable to interact with its

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supposedly public services, and potentially prevented from travelling on ostensibly public streets or gathering freely in what are supposed to be public spaces.

But beyond seeking to manage individuals as consumer-citizens and requiring their participation, the smart city also seeks to manage individuals as workers. Levy and Barocas write about "reflexive surveillance", whereby customers and their behaviours are surveilled in order to manage workers, particularly those in lower-wage retail labour markets.\(^{51}\) Dynamic labour scheduling and new forms of performance evaluation facilitated by this surveillance allow employers to exert greater control over workers. And the emergence of various new forms of business broadly grouped under the term "gig economy" is inextricably tied to the logic of the modern, tech-enabled, “smart” urban lifestyle. Whether it is in food delivered to your door from an app, through app-driven taxi services, or otherwise, the rise of the gig economy promises tech-driven, reactive, responsive, on-demand services, but it is also grounded in the surveillance-based management of workers. Where collective bargaining and union activity is problematic.

Surveillance, has of course, long been used to manage workforces. However, in the contemporary neo-liberal paradigm the smart city potentially amplifies well-attested problems of precarity and exploitation.\(^{52}\) More precise knowledge of customers’ behaviours allows retail stores to dynamically and algorithmically schedule workers at the employers’ rather than the employees’ convenience, with the cost in terms of precarity and insecurity of workers’ lives cloaked in the language of flexibility.\(^{53}\) Schedules become irregular, leading to unpredictable working patterns and variable weekly incomes, raising problems with arranging childcare (thus disproportionately affecting women and single-parent families), and potentially preventing low-paid workers from seeking secondary employment or education.\(^{54}\) Surveillance of customer behaviour as they move through stores also allows retailers to more closely track the movements of workers and through “fine-grained, particularized, persistent scrutiny” gauge their perceived performance by reference to various metrics determined by the employer and of sometimes questionable value.\(^{55}\)

Workers in the gig economy face being held to a similar array of performance metrics.\(^{56}\) These workers engage with their employer primarily through mobile apps, which track and transmit to the employer an array of information about the worker and their activities as they are going about their job. Customers too are brought into the surveillance regime as active participants, often being asked to rate the service

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55 Levy and Barocas p. 10-11.
that they have received, often without clear criteria. Surveillance in the gig economy of the smart city allows corporations to demand particular standards of speed, efficiency, and quality from workers without leaving space for any critical examination of the ideologies, assumptions, and subjective understandings which underpin these concepts. Much of this is difficult to resist through traditional trade union activity or collective bargaining.

All of this coincides with the neo-liberal drive to quantify all aspects of life so as to render them thinkable, knowable, and therefore, ultimately, governable. While all of these various worker surveillance activities are, as with many others in the smart city, justified by uncritical reference to the rationalities of efficiency, sustainability, and better service – all within the logic of dataism – they are, of course, undertaken with the primary goal of increasing corporate profitability. The multinational corporations involved in developing the smart city are primarily those surveillance corporations identified earlier. Constructing an extensive surveillance architecture by instrumentalising the urban environment allows these corporations, most of which are located in Silicon Valley, one of the wealthiest parts of the world, to extract profit from cities across the globe. This profit extraction is therefore cross-border, multinational, and generally involves transfers of value-laden data to the already globally-wealthy and powerful.

Conclusion

While proposed as a solution to the problematised traditional cities, the asymmetries of information, capital, and power in the smart city – arising from the development of new forms of governmentality as sketched out here – throw down a huge challenge to lawyers and others interested in good governance, democracy, personal freedom and accountability. The smart city is not simply a place where technology is concentrated to deal with the range of problems presented in traditional cities. It is, as Michel Foucault might put it, a “way of seeing”, and to understand this it is necessary to develop an approach that involves “grasping the movement by which a field of truth with objects of knowledge was constituted” by means of all of these technologies of government which together have manufactured this way of seeing and dealing with an area.

The issues raised cannot be resolved only by lawyers alone. Lawyers must engage fully with other experts and wider actors – technologists and programmers, planners and local government officials, workers and citizens - in an effort to gain a holistic sense of the challenges offered. Lawyers must also move beyond their disciplinary constraints through which the field of law is divided neatly, if not realistically, into sub-disciplines of public law, private law, criminal law, tort etc.. Even the notion of “tech law” – whether this is defined narrowly to include the traditional topics of media law, intellectual property, the General Data Protection Regulation and privacy, or more widely to encompass information management - may not be sufficient. As the above account has attempted to sketch out there are issues in the smart city that must


engage lawyers of almost every stripe in their most imaginative roles. The smart city raises concerns about wider technology developments in society and concentrates them into a space that challenge existing ideas of public law, regulation and governance that should trouble not only public lawyers but, more widely, those interested in planning law and public space, company law and anti-trust, surveillance and criminal law, employment law and inequality, and much more. This is something that J-B Auby recognised some time ago. The pace of continuing developments in the technology of the smart city make such an approach more urgent.