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Sofia Ranchordás*

Citizens as Consumers in the Data Economy:

The Case of Smart Cities

This article offers a critical account of the notion of a “citizen-consumer” in the context of smart cities. This hybrid concept emerged in the 1990s with the New Labour Movement in the setting of the liberalization and privatization of public infrastructures to refer to the consumption of public goods and services. The notion of a “citizen-consumer” recently reappeared in the setting of smart cities where public bodies collaborated closely with private actors to offer more responsive, efficient, and data-driven public services to their residents and visitors. In the context of this modern form of privatization, public bodies treat citizens as consumers of data-driven services. In this article, I argue that treating

citizens as consumers can be problematic for four reasons: (i) citizenship and consumer protection have different political and economic foundations; (ii) it relies on heavy collection of personal data by both public bodies and private companies; (iii) it assumes—often incorrectly—that citizen-consumers in cities have choices and can refuse to give their

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consent to the data collection underlying the provision of smart public services; (iv) it excludes citizens who are less tech-savvy, do not fit in the vision of smart cities or wish to remain offline.

Drawing on an interdisciplinary analysis of the literature on the liberalization of public services, smart cities and consumer protection, this article aims to contribute to the legal literature by shedding new light on the concept of a “citizen-consumer” and its implications for the inclusiveness of public services.

1. Introduction

During the course of our lives we find ourselves performing two different roles: that of a *consumer* who purchases goods, accepts or rejects terms and conditions, compares prices and chooses a service provider; and that of a *citizen* who elects her representatives, applies for a permit, and invokes her rights to health or education before a court. With the liberalization of public services in the 1980s and 1990s (e.g., energy, public transportation, postal services), the dividing line between these two roles has become blurred, as citizens appear to remain entitled to certain public services, but also are able to benefit from some aspects of consumer protection.¹ The blurring of these lines explains the emergence of the term ‘citizen-consumer’ not only in the public discourse but also in the literature with the New Labour movement.² Since then, the concept of a ‘citizen-consumer’ has been employed to refer to the increasing demands of the public for higher quality services and enhanced competition, co-production of services and ‘prosumerism’, consumer empowerment, and a more consumerist and active form of citizenship.³ Regulators (e.g., Ofcom) have enshrined the term ‘citizen-consumer’ in their regulations and policy documents in an attempt to convey the vision of a more accurate protection of citizens as consumers of liberalized public services.⁴ Recent literature regards the concept of a ‘citizen-consumer’ as a potential framework for merging policy agendas, as well as fundamental rights protection with consumer protection laws.⁵

Nevertheless, the legal literature has thus far overlooked the meaning, foundations, and core legal implications of adopting the concept of a ‘citizen-consumer’, particularly considering the new challenges of the data economy, where the adoption of this term can result in important trade-offs. The role of consumers does not define individuals in the same way as the role of citizens does. The former is focused on the individual’s trading position and her individual interests; the latter is characterized by a set of rights and obligations that are defined by reference to a community.⁶ Each role determines how individuals define their expectations, form their opinions regarding policy-making, behave, what quality standards they may demand from service providers, and, ultimately, what type of legal protection they can expect (e.g., consumer law rather than constitutional or administrative law).⁷

While this topic has remained under-analysed in the legal literature, there is an ongoing debate, e.g., in food policy and environmental economics, where scholars have argued that individuals tend to pursue their own goals as consumers, but tend to be more conscious about the impact of their choices to the community as citizens.⁸ Also in the field of transportation policy, it has become clear that individuals do not always have the same preferences in their role as citizens and in their role as consumers, e.g., individuals assign more value to

travel safety than travel time in their role of citizens than in their role as consumers.⁹

Although citizens and consumers have been traditionally conceived as two different and separate roles that individuals can fulfil, these roles are being brought together in the data economy as both citizens and consumers have become not only the subjects, but also the objects of the data collection, which underlies smart-city services. In this article, I explore the concept of a ‘citizen-consumer’ and argue that the emergence of this citizen-consumer duality may have important implications for the traditional rights inherent to citizenship. In other words, while in theory the blurring of existing lines and silos could potentially improve the legal protection of individuals as consumers of public services, in practice this might not always happen. Despite the growing erosion of the public-private divide, European legal systems tend to protect individuals either as consumers or as citizens, promoting a ‘siloed’ vision of legal protection.¹⁰

This article addresses the relevance of the concept of a ‘citizen-consumer’ in the context of smart cities, as these urban centres illustrate both the benefits and challenges of employing big data, and predictive analytics for the delivery

- 1 T Vihalemm & M Keller ‘Consumers, Citizens or Citizen-consumers? Domestic Users in the Process of Estonian Electricity Market Liberalization’ (2016) 13 *Energy Research & Social Science* 38.
- 2 See, e.g., C Needham, *Citizen-Consumers: New Labour’s Marketplace Democracy* (Catalyst Forum 2003); J Clarke et al, *Creating Citizen-Consumers: Changing Consumers: Changing Publics and Changing Public Services* (Sage 2007) 1; J Clarke & J Newman, ‘What’s in a Name? New Labour’s Citizen-Consumers and the Remaking of Public Services’ (2007) 21 *Cultural Studies* 738; J Reid, ‘We Can Be Citizens and Consumers’ (13 November 2004) *The Guardian* <<https://www.theguardian.com/politics/2004/nov/13/society.publicservices>> accessed 13 July 2018.
- 3 See, e.g., M A Peters, ‘Citizen-Consumers, Social Markets, and the Reform of Public Services’ (2004) 2(3) *Policy Futures in Education* 621; K J Cseres & A Schrauwen, ‘Empowering Consumer-Citizens: Changing Rights or Merely Discourse’ in D Schiek (ed), *The EU Social and Economic Model after the Global Crisis: Interdisciplinary Perspectives* (Ashgate 2013) 117; M Everson & C Joerges, ‘Consumer Citizenship in Postnational Constellations’ in K Soper & F Trentmann (eds), *Citizenship and Consumption* (Palgrave Macmillan 2007).
- 4 Ofcom, ‘Consultation: Protecting Citizen-Consumers from Misselling of Fixed-Lined Telecoms Services’ (22 November 2004) <<https://www.ofcom.org.uk/consultations-and-statements/category-2/mis-selling>> accessed 13 July 2018.
- 5 H-W Micklitz, ‘The Transformation of Enforcement in European Private Law: Preliminary Considerations’ (2015) 4 *European Review of Private Law* 491, 515; D Clifford, I Graef & P Valcke, ‘Pre-formulated Declarations of Data Subject Consent—Citizen-Consumer Empowerment and the Alignment of Data, Consumer and Competition Law Protections’ (2018) KU Leuven CiTiP Working Paper Series <www.ssrn.com> accessed 27 April 2018.
- 6 See F Vanhonacker et al, ‘Segmentation based on consumers’ perceived importance and attitude toward farm animal welfare’ (2007) 15 *International Journal of Sociology of Agriculture and Food* 91.
- 7 Everson & Joerges (n 3); R Defila, A Di Giulio & C Ruesch Schweizer, ‘Two Souls Are Dwelling in my Breast: Uncovering How Individuals in their Dual Role as Consumer-Citizen Perceive Future Energy Policies’ (2018) 35 *Energy Research & Social Science* 152.
- 8 See, e.g., R Alphonse, F Alfnès & A Sharma, ‘Consumer vs. Citizen Willingness to Pay for Restaurant Food Safety’ (2014) 49 *Food Policy* 160; I Aljzen & T C Rosenthal, ‘Information Bias in Contingent Valuation: Effects of Personal Relevance, Quality of Information, and Motivational Orientation’ (1996) 30 *Journal of Environmental Economics and Management* 43; K Nyborg, ‘Homo Economicus and Homo Politicus: Interpretation and Aggregation of Environmental Values’ (2000) 42 *Journal of Economic Behavior & Organization* 305.
- 9 N Mouter, S van Cranenburgh & B van Wee, ‘Do Individuals Have Different Preferences as Consumer and Citizen? The Trade-off between Travel Time and Safety’ (2017) 106 *Transportation Research Part A* 333; N Mouter & C G Chorus, ‘Value of Time: A citizen perspective’ (2016) 91 *Transportation Research Part A* 317.
- 10 For the broader problem of silos in law, see D Ring, ‘Silos and First Movers in the Sharing Economy Debates’ (forthcoming) <<https://ssrn.com/abstract=3173265>> accessed 13 July 2018.

of public services to both citizens and non-citizens (e.g., commuters or tourists).¹¹ They also embody a novel and less obvious form of privatization: privatization through data-driven technology.¹² Cities often develop smart public services in close collaboration with large technology companies (e.g., Cisco, IBM, Siemens) that specialize in IT-services for government or through outsourcing.¹³ As the private sector and its instruments start permeating the local public sphere, we observe that the role of citizens has become associated with that of a 'client' or a 'consumer of public services'.¹⁴

This article draws upon an extensive review of interdisciplinary literature (law, media and communication sciences, economics, governance, urban studies, anthropology and sociology) on citizen-consumerism, smart cities, data science, and privatization.¹⁵ Based upon this literature review, I have identified two different perspectives of the concept of a "citizen-consumer". First, the media and a part of the social sciences literature has employed the term 'citizen-consumer' to refer to the socially conscious and ethical consumer "who takes into account the public consequences of his or her private consumption".¹⁶ The ethical consumer as a citizen is an individual, who plays two roles simultaneously and makes purchasing choices in respect of the sustainable development.¹⁷ One of the earliest forms of consumer activism dates back to the 1878 Irish boycott of oats, which became a symbol of unionization against low wages and bad working conditions.¹⁸ This concept of the ethical citizen-consumer brings together several dimensions of consumerism and citizenship, and expresses the ideal of socially conscious, and environmental-friendly consumption, as well as the ability of consumers to use their purchasing power to participate in community life.¹⁹ This article does not focus on this interpretation of the citizen-consumer, as this concept is centred on the consumption of private goods and services, and its impact on the environmental sustainability and development.²⁰ Rather, this article addresses a second and different perspective of a 'citizen-consumer', which refers to the position of citizens regarding the consumption of public services.²¹

The hybridity of the concept 'citizen-consumer' has allowed policymakers and regulators to place more emphasis on the role of the individual as a 'consumer' of public services rather than as a citizen entitled to them. In this article, I investigate whether the intersection between consumerism and citizenship in smart cities can also be applied to protect more vulnerable and excluded citizens in a similar way to the existing consumer law protections awarded to 'average' or 'vulnerable consumers'.²² Considering that cities provide public services primarily to residents who could be both national and foreign citizens, this article employs a broad concept of a 'citizen', understood as an individual who is either an end user of smart city services as a registered resident or as a stakeholder (e.g., a commuter, visitor).

This article is organized as follows. First, it describes how the digital solutions implemented by smart cities are reshaping the notion of citizenship. I delve, in particular, into the collection and processing of personal data in public spheres and the growing privatization of cities through the use of private technology. Second, I analyse the meaning of the concept 'citizen-consumer' and explore how and where the notions of citizenship and consumerism intersect. Third, this article discusses the limitations of applying consumer protection rules and principles (e.g., rules on unfair prac-

tices, vulnerable consumer) to 'citizen-consumers'. Section VI concludes with a critical reflection on the reduction of citizens to consumers in the modern data economy and the potential of data-driven solutions to exclude a number of citizens.

2. Smart Cities and Public Services

In the last years, local public bodies, inspired by the infinite possibilities of technology, have started relying on the collection of personal data in order to develop sustainable initiatives, improve the efficiency of public administration, and tailor the delivery of public services to citizens' needs.²³ This phenomenon is particularly salient in the context of smart cities, that is, urban centres that employ different technologies (e.g., big data, Internet of things, artificial intelligence (AI), blockchain) to enhance their innovative potential, improve the liveability and sustainability of cities, by providing smart public services to their citizens, commuters and visi-

- 11 For an overview of the different ways in which big data and open data are used in the public sector, see R Munné, 'Big Data in the Public Sector' in J M Cavanillas et al (eds), *New Horizons for a Data-driven Economy* (Springer 2016) 195.
- 12 See S Ranchordás, 'Cities as Corporations? The Privatization of Cities and The Automation of Local Law' (18 April 2018) Oxford Business Law Blog <<https://www.law.ox.ac.uk/business-law-blog/blog/2018/04/law-and-autonomous-systems-series-cities-corporations-privatization>> accessed 13 July 2018.
- 13 Outsourcing of IT services by local governments tends to be justified by three main motivations: quality improvement, cost savings and access to expertise, see M Cox, M Roberts & J Walton, 'IT Outsourcing in the Public Sector: Experiences from Local Government' (2011) 14(2) *Electronic Journal of Information Systems Evaluation* 193.
- 14 For a critique of this approach, see G Frug, 'City Services' (1998) 73 *New York University Law Review* 23, 29-30; See also J D Donahue, *The Privatization Decision: Public Ends, Private Means* (1989).
- 15 See, e.g., S Livingstone, P Lunt & L Miller, 'Citizens, Consumers and the Citizen in Media and Communications Regulation' (2007) 1 *Discourse & Communication* 63.
- 16 F E Webster Jr, 'Determining the Characteristics of the Socially Conscious Consumer' (1975) 2 *Journal of Consumer Research* 188.
- 17 C Ricci, N Marinelli & L Puliti, 'The Consumer as Citizen: The Role of Ethics for a Sustainable Consumption' (2016) 8 *Agriculture and Agricultural Science Procedia* 8.
- 18 J Johnston, 'The Citizen-consumer Hybrid: Ideological Tensions and the Case of Whole Foods Market' (2008) 37 *Theoretical Sociology* 229, 236.
- 19 M Scammell, 'The Internet and Civic Engagement: The Age of the Citizen Consumer' (2000) 17 *Political Communication* 351, 352; C J Thompson, 'A New Puritanism?' in J Schor (ed), *Do Americans Shop Too Much* (Beacon Press 2000) 69; H Keum et al, 'The Citizen-Consumer: Media Effects at the Intersection of Consumer and Civic Consumer' (2004) 21 *Political Communication* 369, 370.
- 20 See D Slater, *Consumer Culture and Modernity* (Polity Press 1997); C Barnett et al, 'Consuming Ethics: Articulating the Subjects and Spaces of Ethical Consumption' (2005) 37 *Antipode* 23; H Collins, 'Conformity of Goods, the Network Society, and the Ethical Consumer' (2014) 22 *European Review of Private Law* 619.
- 21 On the specific character of public services, see D Lewinsohn-Zamir, 'Consumer Preferences, Citizen Preferences, and the Provision of Public Goods' (1999) 108 *Yale Law Journal* 377.
- 22 J Luzak, 'Vulnerable Travellers in the Digital Age' (2016) 3 *EuCML* 130; H-W Micklitz, 'The Future of Consumer Law—Plea for a Movable System' (2013) 1 *EuCML* 5; B Duivenvoorde, 'The Protection of Vulnerable Consumers under the Unfair Commercial Practices Directive' (2013) 2 *EuCML* 69; O O Cherednychenko, 'Public Regulation, Contract Law, and the Protection of the Weaker Party: Some Lessons from the Field of Financial Services' (2014) 5 *European Review of Private Law* 663; See also B Keirsbilck, 'Towards A Single Regulatory Framework on Unfair Commercial Practices?' (2009) *European Business Law Review* 507; V Mak, 'Standards of Protection: In Search of the 'Average Consumer' of EU Law in the Proposal for a Consumer Rights Directive' (2011) 1 *European Review of Private Law* 25.
- 23 N Kshetri, 'The Emerging Role of Big Data in Key Development Issues: Opportunities, Challenges, and Concerns' (2014) 1 *Big Data & Society* 1; G Laurie & L Stevens, 'Developing a Public Interest Mandate for the Governance and Use of Administrative Data in the United Kingdom' (2016) 43 *Journal of Law & Society* 360, 361; Munné (n 11).

tors.²⁴ In a smart city, technology is integrated in traditional infrastructures with the aim of improving the quality of life of its citizens and commuters, and stimulates the development of social, economic and ecological areas of urban environment.²⁵

Smart cities collect data about how their residents and visitors live, work, and play in the city.²⁶ Citizens produce this data in both passive and active ways: spatial data that provides information on their location and movements is often produced passively, whilst information on their location, transportation, and road conditions may sometimes be provided by citizens through social media or smartphone applications (e.g., “tag or check in location”).²⁷ The location of individuals can then be mapped and analysed in large big-data sets. This data is controlled for example by crowd management systems and it is gathered by a wide variety of sensors, and devices, such as a smartcard, GPS in our smartphones, CCTV and smartphone applications. The gathered data consists of both confidential and non-confidential information, which is crucial for the optimization of urban resources management and public services. Ubiquitous computing allows city bodies to create real-time and continuous data feeds and have a clear idea of what is happening at that moment in the city.²⁸

Smart cities also collect indirectly personal data to promote sustainable initiatives through the monitoring of energy consumption (e.g., smart grids) or garbage collection.²⁹ In Australia, RFID (Radio Frequency Identification Device) chips placed in rubbish bins detect whether they are full and need to be collected.³⁰ In several Dutch cities, citizens can only deposit their garbage bags after scanning a card registered to their address. While these cards might avoid incorrect and excessive disposal of waste, Dutch courts and the Data Protection Authority have been critical of privacy-intrusive smart cards.³¹

In the smart cities-narrative, citizens are presented as contributors to the development of strong communities, partners in the enforcement of public law and maintenance of public order through the so-called 311 apps (i.e., reporting applications such as MySF), an active participants in democratic initiatives (e.g., digital organization of urban space, consultations).³² However, thus far, citizens have been in practice the objects of data collection rather than the subjects of an active participation in the development of innovative cities. Furthermore, empirical research has showed that the collection of citizens’ data in the context of smart cities is likely to divide rather than unite citizens, profile them according to their personal data, privatize public services, and create a situation, where citizens will have to pay high prices to remain anonymous.³³ In the last years, a critique of the corporatization of cities and the transformation of public services into neoliberal consumer services has emerged.³⁴

The collection of personal data in public spaces did not attract the attention of legal scholars for many years.³⁵ Legal restrictions were deemed unnecessary because data produced in the public sphere would get lost and be short-lived in individual memories. Nowadays, personal data generated in the public sphere can be easily saved and taken out of its context for future consumption.³⁶ This decontextualized consumption of data violates what Helen Nissenbaum calls ‘the contextual integrity’ of privacy.³⁷

As personal data of citizens and city visitors is gathered by a wide variety of public, and private actors, it acquires a seg-

mented character. Data is not collected by the city understood as one single entity, but rather by multiple departments, law enforcement agencies, and local tax authorities. It changes hands multiple times and it is processed by different actors in parallel that collaborate with each other in the context of complex networks.³⁸ In addition, the data is often managed by private sector companies, unless local authorities have the technological capacity to analyse data (e.g., New York City).³⁹ This fact has also become increasingly problematic because smart cities often do not exist as legal entities, but consist of networks of public and private actors.⁴⁰ Furthermore, citizens report to the municipalities where they reside rather than to the places where they work and are likely to also receive public services from. Their ability to participate in decision-making is thus at times limited by

24 There is little consensus regarding the definition of “smart city”. For an overview of the literature, see, e.g., V Albino, U Berardi & R M Dangelico, ‘Smart Cities: Definitions, Dimensions, Performance, and Initiatives’ (2015) 22 *Journal of Urban Technology* 3; A Caragliu, C Del Bo & P Nijkamp, ‘Smart Cities in Europe’ (2014) 18 *Journal of Urban Technology* 65.

25 In the context of smart cities, a distinction is often made between residents (“the city citizens”) and non-residents (visitors and commuters). In this article, I use the term citizens in the context of smart cities to refer to the subjects of public services delivered by smart cities. In some cases, these subjects will be citizens, in others, they will be non-residents. For a thorough analysis of the definition of smart city, see Albino, Berardi & Dangelico (n 24), 3.

26 J Whittington et al, ‘Push, Pull, and Spill: A Transdisciplinary Case Study in Municipal Open Government’ (2015) 30 *Berkeley Technology Law Journal* 1900, 1902.

27 See P A Johnson, ‘Models of Direct Editing of Government Spatial Data: Challenges and Constraints to the Acceptance of Contributed Data’ (2017) 44(2) *Cartography and Geographic Information Science* 128.

28 Whittington et al (n 26), 1900, 1904.

29 See A Kyliyi & P Fokaides, ‘European Smart Cities: The Role of Zero Energy Buildings’ (2015) 15 *Sustainable Cities and Society* 86.

30 R Kitchin, ‘The Real-time City? Big Data and Smart Urbanism’ (2014) 79 *GeoJournal* 1, 5.

31 This issue was particularly problematic in the case of the smart cards used by the municipality of Arnhem where local public bodies could have access to personal data of citizens depositing their garbage. In August 2017 and following a judicial decision, the Dutch Data Protection Authority ordered the municipality to stop collecting personal data and modify its smart garbage collection policy, see Dutch Data Protection Authority, ‘AP legt gemeente Arnhem last onder dwangsom op voor gebruik afvalpas’ (2 augustus 2017) <<https://autoriteitpersoonsgegevens.nl/nl/nieuws/ap-legt-gemeente-arnhem-last-onder-dwangsom-op-voor-gebruik-afvalpas>> accessed 27 April 2018. See also L van Zoonen, ‘Privacy Concerns in Smart Cities’ (2016) 33(3) *Government Information Quarterly* 472.

32 E Paulos, R J Honicky & B Hooker, ‘Citizen Science: Enabling participatory urbanism’ in M Foth (ed), *Handbook of research on urban informatics: The practice and promise of the real-time city* (Information Science Reference 2009) <<http://dx.doi.org/10.4018/978-1-60566-152-0.ch028>> accessed 27 April 2018; M de Lange & M de Waal, ‘Owning the City: New Media and Citizen Engagement in Urban Design’ (2013) 18(11) *First Monday*.

33 L Taylor et al, ‘Customers, Users or Citizens? Inclusion, Spatial Data and Governance in the Smart City’ (2016) *Maps4Society* <www.ssrn.com> accessed 13 July 2018.

34 A Greenfield, *Against the Smart City* (Do 2013); O Söderström, T Paasche & F Klausner, ‘Smart Cities as Corporate Storytelling’ (2014) 18 *City* 307; S Joss, M Cook & Y Dayot, ‘Smart Cities: Towards a New Citizenship Regime? A Discourse Analysis of the British Smart City Standard’ (2017) 24 *Journal of Urban Technology* 29.

35 H Nissenbaum, ‘Protecting Privacy in an Information Age: The Problem of Privacy in Public’ (1998) 17 *Law & Philosophy* 559.

36 J B Rules, ‘Toward Strong Privacy: Values, Markets, Mechanisms, and Institutions’ (2004) 54 *University of Toronto Law Journal* 183, 193.

37 H Nissenbaum, ‘Privacy as Contextual Integrity’ (2004) 79 *Washington Law Review* 119; H Nissenbaum, *Privacy in Context: Technology, Policy, and the Integrity of Social Life* (Stanford University Press 2009).

38 Whittington et al (n 26), 1948; S Ranchordás & A Klop, ‘Data-Driven Regulation and Governance in Smart Cities’ in A Berlee, V Mak & E Tjong Tjin Tai (eds), *Research Handbook on Data Science and Law* (Edward Elgar 2018 forthcoming).

39 Taylor et al (n 33).

40 G E Frug, ‘The City as Legal Concept’ (1980) 93 *Harvard Law Review* 1059.

traditional legal boundaries, even though they consume services from different municipalities.⁴¹

Local public bodies offer digital platforms for public services that can be consumed like private platforms and which can capture data, and its economic value, in a similar fashion.⁴² Nevertheless, as smart cities resort to technology and private actors personalize and optimize public services, collective and political views of citizens tend to get lost or entrusted to the market.⁴³ The decision on what and how to optimize services is delegated to algorithms and loses its political character.⁴⁴ In the context of this novel form of privatization through technology, citizens are converted into citizen-consumers, who are expected to provide their informed consent to data collection, demand efficient and well-functioning services, and ‘exit’ when they are dissatisfied. Nevertheless, the reality is that not all citizens can ‘voice’ their concerns and ‘exit’, opting for competing services.⁴⁵ As the following section explains, the denomination of a citizen-consumer is problematic for several reasons and raises questions regarding the ability of traditional legal concepts to adapt to smart cities, and address the challenges of this modern form of privatization.⁴⁶ Recent literature has, in particular, criticized the way in which smart cities are redefining citizenship by integrating obscure technologies, monetizing on citizen data, and creating a ‘Big Brother-effect’ of permanent surveillance.⁴⁷

3. Citizen-Consumers in the Public Sector

The discourse of consumerism and the concept of a ‘citizen-consumer’ were developed around specific perceptions of services and choice in the context of the liberalization of public services.⁴⁸

The concept of a ‘citizen-consumer’ emerged in the literature on privatization, the deregulation of public services, New Public Management, and New Labour policies.⁴⁹ The idea of merging two distinct concepts (citizenship and consumerism) was developed by neoliberal theorists and politicians, who argued that individuals and institutions perform better in a free-market economy, where they are not entitled to services provided by a sole public provider.⁵⁰

The New Public Management movement was particularly instrumental in merging the traditional concept of citizenship with that of the consumer: as a result of liberalization of public services, the citizen-consumer emerged as an individual who could enjoy greater choice at a lower price.⁵¹ This individual—particularly in the context of cities—was not necessarily a citizen *stricto sensu* but it could also be a resident with voting rights. Consumer sovereignty was achieved through the privatization and the modernization of public services.⁵² According to this perspective, public services provided by cities have been understood as consumer goods that could be provided more efficiently in a competitive and deregulated market.⁵³ Citizen-consumers would be provided with different options they could choose from and dissatisfied citizens would be expected to “vote with their feet”, and move to cities providing better services.⁵⁴ More recent empirical research has demonstrated that, despite the liberalisation of markets and the creation of choice, vulnerable citizens often remained locked in poorly performing public services, and did not profit from the theoretical benefits of enhanced competition.⁵⁵

The concept of a citizen-consumer has been increasingly employed in the last decades in different countries. To illustrate, the United Kingdom’s communications regulator (Ofcom) has stated that its mission is to “further the interest of

citizen-consumers through a regulatory regime which, where appropriate, encourages competition. Effective competition delivers choice and lower prices to consumers as well as opportunities for new services and providers. However, consumers may need protection from adverse consequences of competition if they arise.”⁵⁶ According to the literature, the use of the concept of citizen-consumers suggests that this regulator has sought to protect primarily the interests of consumers and only secondarily the interests of citizens associated with secondary responsibilities (e.g., the protection of community standards).⁵⁷ Catherine Needham has posited that consumers can be distinguished from other actors in the way in which they choose, receive products, and exercise power in their consumption relationships.⁵⁸ Moreover, the relationship between the citizen and the state is not the same as that of a service provider and a consumer: the latter is characterized by choice and not by a core of human equality, and dignity.⁵⁹

Although the concept of a citizen-consumer is far from being new, its meaning and the downsides of viewing citizens as “typical consumers” in the public sector have remained overlooked or have not been the focus of a systematic analysis.⁶⁰

- 41 C Kelleher & D Lowery, ‘Political participation and metropolitan institutional contexts’ (2004) 39(6) *Urban Affairs Review* 720; A Lidström, ‘Citizens in the City-Regions: Political Orientations across Municipal Order’ (2013) 49(1) *Urban Affairs Review* 282.
- 42 H Isaac, ‘La donnée numérique, bien public ou instrument de profit’ (2018) 164 *Pouvoirs* 75.
- 43 M de Waal & M Dignum, ‘The Citizen in the Smart City: How the Smart City Could Transform Citizenship’ (2017) 59(6) *Information Technology* 263, 266; see also D Cardon, ‘Le pouvoir des algorithmes’ (2018) 164 *Pouvoirs* 63.
- 44 de Waal & Dignum (n 43), 263, 267.
- 45 See A O Hirschmann, *Exit, Voice, and Loyalty: Responses to Decline in Firms, Organizations, and States* (Harvard University Press 1970).
- 46 See Joss, Cook & Dayot (n 34), 29.
- 47 See, e.g., A M Townsend, *Smart Cities: Big Data, Civic Hackers, and the Quest for a New Utopia* (W W Norton & Company 2013); Söderström, Paasche & Klausner (n 34), 307; R Kitchin, ‘Making Sense of Smart Cities: Addressing Present Shortcomings’ (2015) 8(1) *Cambridge Journal of Regions, Economy and Society* 131; S Graham, ‘Digital Medieval’ (2012) 9:3 *Surveillance and Society* 321, 327.
- 48 E Vidler & J Clarke, ‘Creating Citizen-Consumers: New Labour and The Remaking of Public Services’ (2005) 20 *Public Policy and Administration* 19, 22.
- 49 Clarke & Newman (n 2), 738; Needham (n 2); Clarke et al (n 2), 1.
- 50 A Brooks & L Wee, *Comparing Singapore with Asian and Western Cities* (Anthem Press 2015) 107.
- 51 M E Warner & J Clifton, ‘Marketisation, Public Services and The City: The Potential for Polanyian Counter Movements’ (2014) 7(1) *Cambridge Journal of Regions, Economy and Society* 45, 49; J Bogumil & L Kißler, ‘Der Bürger als Kunde? Zur Problematik von “Kundenorientierung” in kommunalen Gestaltungsvorhaben, in W Hellmut & C Reichard (eds), *Kommunalverwaltungen im Modernisierungsschub* (Birkhäuser 1996).
- 52 J Bogumil, ‘Auf dem Weg zur Bürgerkommune? Der Bürger als Auftraggeber, Mitgestalter und Kunde’ in H Kubicek et al (ed), 1999: *Multi-media@Verwaltung. Jahrbuch Telekommunikation und Gesellschaft* (Hüthig 1999) 51.
- 53 For an early analysis of the efficient allocation of public goods, see C M Tiebout, ‘A Pure Theory of Local Expenditures’ (1956) 64 *Journal of Political Economy* 416; S Hall, ‘The Neoliberal Revolution’ (2011) 25 *Cultural Studies* 705.
- 54 Frug (n 14), 23, 24.
- 55 M Fernández-Gutiérrez, O James & S Jilke, ‘Competition and Switching in Public Service Markets: Can They Reduce Inequalities’ (2017) 11(1) *Regulation & Governance* 41.
- 56 Ofcom (n 4).
- 57 Livingstone, Lunt & Miller (n 15), 613.
- 58 Needham (n 2).
- 59 See T H Marshall, *Citizenship and Social Class* (Cambridge University Press 1992).
- 60 See, e.g., C Crouch, *Commercialisation or Citizenship: Education Policy and the Future of Public Services* (Fabian Society 2003); Clarke et al (n 2); R Simmons, M Powell & I Greener (eds), *The Consumer in Public Services* (Policy Press 2009).

4. Citizenship and Consumerism: Points of Dissonance

The citizen-consumer of a smart city is an individual at cross-roads, who might not feel entitled to the same services as a regular citizen, have the same choice as a consumer, but who might still require additional protection, at the resemblance of the vulnerable consumer.⁶¹ In this section, I argue that this difficulty is explained by the existence of multiple dissonances between the legal foundations of citizenship and the concept of a consumer.

A citizenship regime is a three-dimensional system which encompasses a distribution of responsibility between the individual, the community, the market, and the state; rights and obligations, which design the boundaries of a political community; and governing practices such as citizen participation.⁶² In a smart city, services are provided to different categories of citizens (e. g., EU citizen and local voter) and non-citizens (e. g., non-EU or third-country visitor). Despite their differences, these categories are united by their relationship to the community. Consumers are nonetheless defined by reference to the economic transactions they engage in and the contracts they celebrate. The enhanced protection awarded to this role is justified by the existence of information asymmetries, economic dependence, and the lack of bargaining power, which puts this category at a risk vis-à-vis that of professionals or large corporations. A 'consumer' is hence an economic concept which has been analysed from different perspectives, including as the highly vulnerable and susceptible consumer in need of regulatory protection against manipulative advertisement, unfair information, and obscure consumer contracts.⁶³ The central pillars of citizenship tend to be, on the contrary, primarily non-economic and focused on the concepts of identity, belonging, freedom, political participation, and equal status of its members.⁶⁴ Citizenship is nowadays a political, economic, and social concept that has been theorized for centuries and which touches upon the essence of human dignity.⁶⁵

Citizenship is an ancient concept that dates back to Ancient Greece and which has been used throughout the times to distinguish between the individuals that belong to a certain human community (citizens), and those who do not and are thus deprived of rights (e. g., slaves). To be a citizen has meant in different cultures to enjoy civil rights, be imposed civic duties and to be able to participate in a political community in various ways.⁶⁶

The position of a "consumer" is, nonetheless, "a role" that is played by an individual when engaging with professional service providers, it does not necessarily determine who she is from a political perspective and what she is entitled to beyond an existing or future commercial transaction.⁶⁷ In modern times, consumers do not need to be citizens of a state to have rights as such. "Consumers," however, often have nothing in common with each other except similar rights to be informed and treated fairly, the fact that they are defined by contrast to professionals, and that they have in theory the freedom to choose their service providers.

Another difference in the traditional foundations of the concepts of a citizen and a consumer refers to the fact that citizenship conveys the idea of universal equality, solidarity between citizens, and community-based values.⁶⁸ Citizenship tends to be presented in normative terms as a counterpoint of marketization and commercialism.⁶⁹ Access to public services reinforces equality of status among citizens and their identity, allowing citizens to participate actively in public life, regardless of their educational background or economic power.⁷⁰

On the contrary, the position of citizens tends to be more market-oriented. Consumerism links consumption to individual social status, well-being and upward mobility.⁷¹

One of the defining features of the 'ideal consumer' is her ability to choose.⁷² While economic consumers might usually be able to choose between different products in most sectors, citizens often only have one single provider of public services: the city or the providers that have gained monopoly positions through public bids. Moreover, the choice of services will be constrained in a way unknown to many commercial areas: the system of public services is defined beforehand and tinkered with parameters.⁷³ Citizen-consumers also do not have the freedom to actively participate in the definition of these standards. Citizens are therefore often not voluntary consumers with choice, but coerced consumers.⁷⁴ Even when citizens have multiple options to choose from in liberalised sectors, it is important to underline that choice is not an end in itself. Rather, it is a mechanism that ensures that consumers pay the best price for a product, are given more information, and have access to innovative products.

Bringing together the concepts of a citizen and a consumer can be challenging as it contests the traditional foundations of citizenship and consumer protection. A citizen-consumer is in itself a contradictory figure.⁷⁵ Despite the differences between individuals and lack of perfect information, citizens were traditionally entitled to a set of rights and du-

61 On consumer vulnerability, see, e.g., S de Vries, 'Consumer Protection and the EU Single Market Rules – the Search for the Paradigm Consumer' (2012) 4 EuCML 228; I Domurath, 'The Case for Vulnerability as the Normative Standard in European Consumer Credit and Mortgage Law – An Inquiry into the Paradigms of Consumer Law' (2013) 3 EuCML 124.

62 Joss, Cook & Dayot (n 34), 29, 32.

63 N Olsen, 'From Choice to Welfare: The Concept of the Consumer in the Chicago School of Economics' (2017) 14 (2) Modern Intellectual History 507, 518 (referring to the New Deal approach to the concept of consumers). See A Kuenzler, *Restoring Consumer Sovereignty: How Markets Manipulate Us and What the Law Can do about it* (Oxford University Press 2017).

64 P Magnette, *Citizenship: The History of an Idea* (ECPR Monographs 2005) 49-50. In Ancient Athens, the concept of citizenship dominated every area of human interaction, including the economic one. Being a citizen also meant that an individual could acquire property and trade freely on the market.

65 See, e.g., R Beiner (ed), *Theorizing Citizenship* (SUNY Press 1995); Magnette (n 64); P Reisenberg, *Citizenship in the Western Tradition: Plato to Rousseau* (University of North Carolina Press 1992); see also on citizenship and emancipation, K Marx, 'On the Jewish Question' (1844) *Deutsch-Französische Jahrbücher* <<https://www.marxists.org/archive/marx/works/1844/jewish-question>> accessed 13 July 2018.

66 P Kivistö & T Faist, *Citizenship: Discourse, Theory, and Transnational Prospects* (Blackwell 2007) 3.

67 Everson & Joerges (n 3).

68 See D Heater, *What is Citizenship?* (Polity Press 1999).

69 T Flew, 'The Citizen's Voice: Albert Hirschman's Exit, Voice and Loyalty and its Contribution to Media Citizenship Debates' (2009) 31(6) *Media, Culture & Society* 977, 983.

70 C Needham, 'Citizens, Consumers and Co-producers' (2008) 2 *Kurswechsel* 7, 8.

71 Johnston (n 18), 229, 247; see also D Holt, 'Why do Brands Matter? A Dialectic Theory of Consumer Culture and Branding' (2002) 29 (1) *Journal of Consumer Research* 70; J Schor, 'In Defense of Consumer Critique: Revisiting the Consumption Debates of the 20th Century' (2007) 611(1) *The Annals of the American Academy of Political and Social Science* 16.

72 Nowadays we know that economic actors are not always rational and are not always able to choose to maximize their welfare. See H-W Micklitz, L A Reisch & K Hagen, 'An Introduction to the Special Issue on 'Behavioral Economics'' (2011) 34 *Journal of Consumer Policy* 271.

73 P Cardullo & R Kitchin, 'Being a 'Citizen' in the Smart City: Up and Down the Scaffold of Smart Citizen Participation' (2017) *The Programmable City Working Paper* 30.

74 Vidler & Clarke (n 48), 27.

75 J Clarke, 'Consumers, Clients or Citizens? Politics, Policy and Practice in the Reform of Social Care' (2006) 8 *European Societies* 438.

ties.⁷⁶ Data-driven technologies employed by smart cities ask citizens directly or indirectly to think of themselves as customers or consumers of public services. In this context, citizens are free to refuse digitalization but this refusal will come at a high price. The individual in the role of a citizen is defined by her membership and responsibility towards a community, her collective obligations, and her social, economic and political rights. The individual in the role of a consumer is defined by her economic transactions, her access to information, individual preferences, and ability to choose freely. She will be protected accordingly because she is an economic actor and not because she is an individual with rights, and obligations. In a smart city, citizens and consumers might cross paths on a daily basis but, as the following section explains, merging the two realities may mean that their respective layers of legal protection might not always overlap, and public bodies might have to choose between one legal regime or the other.

5. Digital Exclusion and the Vulnerable Citizen-Consumer

Converting citizens into consumers would not need to be problematic if consumer law could help consolidate the legal protection of a citizen-consumer and would provide individuals with additional protection, and rights. Citizenship and consumerism address different challenges but share one central feature: they seek to address the vulnerability of individuals and diminish information asymmetries. In this section, I address briefly this point of intersection, exploring the possibility to protect excluded citizens in smart cities under the consumer law umbrella of ‘vulnerable consumers’.

Smart cities are imbued with technological enthusiasm, the idea of active participation, connectivity, and inclusion. Nevertheless, smart cities appear to be more empowering for some citizens rather than others, namely the young, well-educated, mid-range or high-income, native-born, tech-savvy individuals.⁷⁷ The marketization of public services has become particularly worrisome in developing countries (e.g., in India), where smart cities monetize on the commons and exclude a number of citizens, who do not fit in their vision of what a smart city should look like.⁷⁸ This number often amounts to about 7 to 19 % of the population in French cities but it could be much larger in other parts of the world.⁷⁹ Smart cities have been thus criticized in the literature for disregarding local customs and needs, and creating social enclaves.⁸⁰ In a large city there will always be citizens who are not able to understand how information sensors work, the type of consent forms for data collection they are asked to fill in, or they are just afraid of being excluded from certain public services.⁸¹

Even though the proponents of participatory democracy initiatives often regard citizen data and other data-driven initiatives as ways of empowering citizens, and advancing civic, and political participation, citizens often participate involuntarily.⁸² The wealthy citizens can afford anonymity and refuse to consume digital public services. The less privileged, nevertheless, pay for services with their data. This brings us to the need to protect vulnerable and excluded citizen-consumers, and to the question, whether consumer law can shed light on their rights.

In the case of liberalised public services (e.g., energy), consumer law will be applicable to commercial transactions between individuals and service providers. The literature and case law typically refers to the benchmark of the average consumer to judge on the amount of information individuals are entitled to.⁸³ Existing consumer law scholarship distinguishes vulnerable consumers from the ‘average consumer’

on the grounds of certain additional characteristics that may hinder their ability to absorb and process information (e.g., age, digital literacy, language barriers) or that make individuals more susceptible to unfair commercial practices (e.g., limited financial solvency).⁸⁴ Vulnerable consumers are also those consumers who might suffer greater loss than others, when making inappropriate purchasing decisions because of their scarce resources (e.g., time, financial limitations).⁸⁵ Vulnerable consumers benefit from additional legal protection in case of unfair commercial practices and in the form of enhanced informational rights.

In EU energy markets, consumer vulnerability has been defined as a multi-dimensional reality, which results from an individual’s personal circumstances and needs, which can vary over time.⁸⁶ In this context Member States have been requested to take these needs into account and ensure that vulnerable consumers would be adequately protected through social policies, and sector-specific measures.⁸⁷

In the context of smart cities, it is more difficult to imagine how consumer benchmarking could help the position of citizen-consumers, as there is usually not a clear contractual relationship between individuals and local governments, particularly in non-liberalised markets. When we discuss the provision of services, which have been partially outsourced to private actors and then used to support administrative decisions (e.g., social welfare), then the application of consumer law might become far-fetched. Nevertheless, information asymmetries, supply vulnerability and pressure vulnerability also exist in this context, particularly when citizen-consumers have no choice but to consent to data collection.⁸⁸

76 For a critical perspective on citizenship duties, see D Kochenov, ‘EU Citizenship without Duties’ (2014) 20 *European Law Journal* 482.

77 Taylor et al (n 33).

78 A Datta, ‘Will India’s Experiment with Smart Cities Tackle Poverty—or Make it Worse?’ (27 January 2016) The Conversation <<https://theconversation.com/will-indias-experiment-with-smart-cities-tackle-poverty-or-make-it-worse-53678>> accessed 13 July 2018.

79 J Deydier, ‘Les exclus de la datacratie’ (2018) 164 *Pouvoirs* 137, 139. According to this study, about 14 % of the population has basic digital skills but is only able to use for leisure, 19 % of the population does not have access to the Internet and 7 % is not able to use digital resources autonomously because of a handicap, illness or language barrier.

80 K Harrison, ‘Who is the Assumed User in the Smart City?’ in V Angelakis et al (eds), *Designing, Developing, and Facilitating Smart Cities: Urban Design to IoT Solutions* (Springer 2017) 17.

81 Taylor et al (n 33).

82 B S Noveck, *Smart Citizens, Smarter State: The Technologies of Expertise and the Future of Governing* (Harvard University Press 2015); B C Weitzman, D Silver & C Brazill, ‘Efforts to Improve Public Policy and Programs through Data Practice: Experiences in 15 Distressed American Cities’ (2006) *Public Administration Review* 386, 387. See also S Noveck, ‘Peer to Patent: Collective Intelligence, Open Review, and Patent Reform’ (2006) 20 *Harvard Journal of Law & Technology* 123. See also, from a broader perspective, Scammell (n 19), 351.

83 See, e.g., Case C-26/13 *Kásler* ECLI:EU:C:2014:282 (“it is for the referring court to determine whether, having regard to all the relevant information, including the promotional material and information provided by the lender in the negotiation of the loan agreement, the average consumer, who is reasonably well informed and reasonably observant and circumspect, would not only be aware of the existence of the difference”).

84 Luzak (n 22), 130.

85 R Burden, ‘Vulnerable Consumer Groups: Quantification and Analysis’ (2018) The Office for National Statistics, London.

86 Vulnerable Consumer Working Group, ‘Guidance Document on Vulnerable Consumers’ (November 2013) <https://ec.europa.eu/energy/sites/ener/files/documents/20140106_vulnerable_consumer_report_0.pdf> accessed 13 July 2018.

87 Ibid.

88 P Hohnen & T Hjort, ‘Citizens as Consumers: A Discussion of New Emergent Forms of Marginalisation in the Nordic Welfare States’ (2009) 11 *European Journal of Social Security* 271; M Fotaki, ‘Towards Developing New Partnerships in Public Services: Users as Consumers, Citizens and/or Co-Producers in Health and Social Care in England and Sweden’ (2011) 89(3) *Public Administration* 933.

This quasi-obligation to consent, the lack of choice, and the growing disappearance of offline public services due to digitalization is currently converting citizens into vulnerable citizen-consumers. Excluded citizen-consumers are also comparable to the vulnerable consumers, who due to their limited digital skills or literacy might not be able to fully enjoy a smart public service. The hybridity of the concept of a citizen-consumer does not leave these individuals in a better position, as they are often not consumers subject to consumer law protection, but they are also not assisted by traditional citizenship regimes. The intersection between these two regimes could help shift the attention of policymakers to digital literacy and the inclusiveness of smart public services in order to guarantee that through social policies, citizen-consumers could obtain the information they need to understand what each smart service entails.

6. Conclusion

Law has traditionally defined the legal protection of citizens in silos: individuals are protected as citizens when exercising their voting rights; as workers when they are in an employment relationship; as entrepreneurs when they start a company; and as consumers when they engage in commercial transactions with professionals. Nevertheless, this ‘siloed vision’ of law does not fit the modern reality where public and private bodies have data about what individuals do in their different roles, and can use it beyond the boundaries of each role. In the data economy, public and private law should take into account the fact that we now have “new subjects/persons/individuals”, who can be citizen-consumers, citizen-workers and citizen-entrepreneurs.⁸⁹ As this article demonstrated, this intersection is particularly salient in the context of smart cities, where individuals perform both roles.

The hybrid notion of ‘citizen-consumers’ embodies the symbiosis of two different realities that are now brought together by smart urban services: the passive citizen that receives public services from public authorities and the consumer who actively participates in the economy, and can choose between different products. This can be problematic for both legal and non-legal reasons: first, citizens and consumers do not receive the same legal protection, and there is little dialogue between the applicable legal frameworks. The fusion of these two roles is particularly challenging in the context of the data-driven public services provided by smart cities, as these entities tend to convert citizens into objects of data collection and can potentially favour the average tech-savvy citizen in detriment of more vulnerable individuals.⁹⁰

As this article explained, smart cities and their public bodies are not ordinary service providers or traders.⁹¹ Despite the erosion of the distinction between public and private law, public bodies remain in several situations in a privileged and monopolistic position in relation to citizens.⁹² Furthermore, citizens are not comparable to conventional consumers that can potentially make more rational market choices if provided with better information. In theory, citizens could also rely on this element of choice to refuse their consent to data collection in smart cities, opt for another service provider, and benefit from informational duties imposed on providers.⁹³ They could find solace, for example, in the new data-subject rights introduced by the General Data Protection Regulation⁹⁴ (e.g., the right to correct their data, the right to access to information, data portability) and the sanctions imposed on data controllers in case of infringements. However, in practice, citizens have little to no choice regarding providers of public services (e.g., welfare services in some municipalities, garbage collection, local transportation in others) and are not able to bear

the costs of remaining offline.⁹⁵ In a context in which citizens are confronted with a “take-it-or-leave-it” offer, it is difficult to guarantee that their consent to data collection and use of data-driven services is “freely given.”⁹⁶

The concept of citizen-consumers was originally meant to convey choice, consumer empowerment and participation, responsiveness to the demands of the public, and prompt innovation in public services.⁹⁷ Nevertheless, as Rob Kitchin has explained, the consumption of smart public services often translates itself in non-participation: citizens are passive objects of data collection and passive recipients of smart cities initiatives, and their private partners.⁹⁸ As the privatization of traditional urban services advances, “citizens are recast from citizens with rights and entitlements, who receive a service in return for taxation, to consumers who select from a marketplace of options.”⁹⁹

Moreover, although big data and predictive analytics can in theory tailor services to individuals’ needs and thus empower them in the future, the question is whether this will indeed be done in practice or whether the marketization of services might develop into ‘one-size-fits-all-approaches’.¹⁰⁰ In practice, we observe that the “datacracy” already excludes a number of citizens and that the traditional paradigm of citizenship can do little to promote further inclusiveness.¹⁰¹ The concept of a “citizen-consumer” shows that the ancient idea of citizenship appears to be suffering profound mutations, as it is currently being reshaped by the use of big data and predictive analytics.¹⁰² When citizens become consumers and producers of digital data, then the core of citizenship becomes diluted in a discourse of consumerism, consent, and informational duties. The issues of democracy, identity, and public good become peripheral for public bodies, much in the same way as they have always been to private actors: if one cannot make profit out of data, then no service will be provided.¹⁰³ The addition of a consumer dimension to local citizenship could nonetheless assist some citizen-consumers in the future, who are now being excluded in the data economy: future research might be able to explore how vulnerable citizen-consumers can be given access to better information and be reconciled with their core citizen rights as members of a *polis*. ■

89 Micklitz (n 5), 491, 515.

90 Cardullo & Kitchin (n 73), 30.

91 On the provision of local public services, see, e.g., C P Gillette & L Baker, *Local Government Law: Cases and Materials* (Foundation Press 1994); Taylor et al (n 33).

92 See C P Gillette, ‘Equality and Variety in the Delivery of Municipal Services’ (1987) 100 *Harvard Law Review* 946; C P Gillette, ‘Opting Out of Public Provision’ (1996) 73 *Denver University Law Review* 1185. See also A Ottow & Y Svetiev, ‘Settling or Learning: Commitment Decisions as a Competition Enforcement Paradigm’ (2015) 34 *Yearbook of European Law* 466.

93 S Whittaker, ‘Distinctive Features of the New Consumer Contract Law’ (2017) 133 *Law Quarterly Review* 47, 49; G Howells, H-W Micklitz & T Wilhelmsson, ‘Towards a Better Understanding of Unfair Commercial Practices’ (2009) 51 *International Journal of Law & Management* 69.

94 Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data (GDPR).

95 This article does not delve into the question of whether the GDPR improves the position of citizens who are object of data collection in smart cities.

96 Clifford, Graef & Valcke (n 5).

97 Clarke (n 75), 423.

98 Cardullo & Kitchin (n 73), 30.

99 Ibid.

100 Vidler & Clarke (n 48), 19, 22.

101 Deydier (n 79), 137.

102 M Tenney & R Sieber, ‘Data-driven Participation: Algorithms, Cities, Citizens, and Corporate Control’ (2016) 1(2) *Urban Planning* 101.

103 Needham (n 70).