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The privatised city: technology and public-private partnerships in the smart city

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ABSTRACT

The ‘smart city’ movement asks new questions about the role of private actors in urban governance. Smart technology providers, because of their unique position, influence policymaking through their products and services. Yet, the effect of this role on public values remains unaddressed. This article considers how the use of public-private partnerships (PPPs) in smart city development challenges public values, particularly accountability and transparency. It shows how both PPPs and smart cities frame for-profit firms as central actors in creating efficient and innovative public services and infrastructure. The risks privatisation poses for public values have to be reassessed, in light of the issue of vendor lock-in and the value-embedding capacity of technology. Furthermore, this article suggests that to mitigate such risks, data protection legislation is insufficient: the wider notion of publicisation, namely the extension of public norms to private actors acting for public purposes, needs to be re-examined in the context of the smart city. Therefore, this article contributes to the literature with a novel discussion of the possibilities and limits of using smart city PPPs as tools to safeguard public values.

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KEYWORDS Smart city; public-private partnerships; privatisation; public values; accountability; transparency

1. Introduction

Over the past twenty years, through the growth of the ‘smart city’ movement, technology companies have been involved in urban governance in unprecedented ways. Although cities worldwide adopt the label of ‘smart city’, the notion itself remains wide and contested. Indeed, this label encompasses a highly heterogeneous field of technological applications, policy goals, and

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stages of implementation.¹ Originally, the term stems from marketing campaigns of multinational companies in the ICT sector that saw urban environments as a strategic interest, a ‘huge, untapped market’² growing rapidly with annual investments of hundreds of billions of dollars.³ For local governments on the other hand, the smart city offers potential solutions in a context of intense urbanisation and economic austerity that puts cities under demographic, ecological, and financial pressure.⁴ However, local governments lack the expertise and funding to carry out smart city ambitions on their own. Thus, mechanisms of urban governance framed by technology, formulated by the private sector, and used by public bodies are being developed across the world.⁵

This article focuses on these two interconnected core components of the smart city: ‘smart’ technologies and partnerships with actors from the private sector. ‘Smart’ technologies refer to technologies that are capable of generating information (by gathering, transferring, storing, and/or analysing data) and, to some extent, reacting to this information (through various degrees of automation).⁶ In smart cities, this can concern a broad set of data (e.g. traffic flows, number of pedestrians, energy consumption, air quality) and different degrees of automation, from largely automated systems (e.g. responsive streetlights) to systems that still require human intervention and decision-making (e.g. facial recognition cameras or emergency services dashboards).⁷ To use these ‘smart’ technologies, local governments enter into relationships with technology companies through different (legal) arrangements. In fact, the rise of a variety of alliances between organisations to

¹For a worldwide overview of the diversity of smart cities, see Ruben Sánchez-Corcuera et al., ‘Smart cities survey: Technologies, application domains and challenges for the cities of the future’ (2019) 15(6) *International Journal of Distributed Sensor Networks* (<https://doi.org/10.1177/1550147719853984>).

²Anthony Townsend, *Smart Cities: Big Data, Civic Hackers, and the Quest for a New Utopia* (W. W. Norton & Company 2013) 64.

³Estimates on the size and growth of the smart city vary – a 2011 Navigant report estimated the global annual spending on smart cities would reach 16 billion dollars; a 2013 report by Pike Research forecast the market at 20 billion dollars in 2020; a 2017 Persistent Market Research report anticipated it to reach 1 trillion dollars in 2019. The divergence of methodology and typology between each report explains different estimates, although all stress how dynamic and promising the smart city market is, see Margarita Angelidou, ‘Smart cities: A conjuncture of four forces’ (2015) 47 *Cities* 95.

⁴By 2050, two thirds of the world population is predicted to live in cities, see United Nations, Department of Economic and Social Affairs, *Revision of World Urbanization Prospects* (2018), for concerns raised by urbanisation, see OECD, *Rethinking Urban Sprawl – Moving Towards Sustainable Cities* (2018).

⁵The use of new technologies in urban governance does not necessarily entail public-private governance, but this is currently the case in a majority of smart city projects. For alternatives, see the movement for urban commons: Vasilis Niaros, ‘Introducing a Taxonomy of the “Smart City”: Towards a Commons-Oriented Approach?’ (2016) 14(1) *tripleC* 51; Paolo Cardullo, ‘Smart approach to the commons? A case for a public Internet infrastructure’ (2018) *The Programmable City Working Paper* 40.

⁶See Mireille Hildebrandt, *Smart Technologies and the End(s) of Law: Novel Entanglements of Law and Technology* (Edward Elgar Publishing, 2015).

⁷For responsive streetlights and energy systems, see Derek Robertson, ‘Inside Copenhagen’s race to be the first carbon-neutral city’ *The Guardian* (11 October 2019) <<https://www.theguardian.com/cities/2019/oct/11/inside-copenhagens-race-to-be-the-first-carbon-neutral-city>> accessed 14 November 2019; for facial recognition cameras, see the case of the Surat Safe City project: <https://www.nec.com/en/global/onlinetv/en/surat.html>.

develop data-driven governance projects is one of the prevalent aspects of the smart city movement.⁸ Both policy and industry documents about smart city strategies stress collaborative relationships and multi-stakeholder governance of projects as crucial to ‘smartness’.⁹ However, even in projects where multi-stakeholderism involves research institutions and (or) citizens, collaboration between public and private sector remains the ‘core engine’ behind smart city development.¹⁰

This important role of for-profit companies in smart city governance has been insufficiently analysed by legal literature.¹¹ Literature from administrative law and public administration has long raised concerns about the erosion and transformation of public values as the delivery of public services and infrastructure shifts towards the private sector.¹² For critics of privatisation, the extension of market values to traditionally public sector activities jeopardises the protection of public values.¹³ Yet, in the context of the smart city, legal scholars have essentially focused on ‘smart technology’, through the field of data protection and privacy.¹⁴ The entanglement of the rise of data-driven technologies with the rise of private involvement in urban governance remains to be addressed.

Thus, this article specifically focuses on the interconnection between the use of smart technology and public-private partnerships. Indeed, ‘smart’ technology has a value-embedding capacity. Generating data and

⁸Taylor Shelton, Matthew Zook and Alan Wiig, ‘The ‘actually existing smart city’’ (2015) 8(1) *Cambridge Journal of Regions, Economy and Society* 16.

⁹Collaboration [between different social partners] is the keystone to success’, concluded the *IESE Cities in Motion Index*, 2019 67 <<https://media.iese.edu/research/pdfs/ST-0509-E.pdf>> accessed 10 July 2019. The Development Bank of Latin America echoes: for intelligent governance, ‘smart environments depend on collaboration’ in Pascual Berrone et al., *Public-Private Partnership in Latin America: A Guide for Regional and Local Governments*, 2018 <<http://scioteca.caf.com/bitstream/handle/123456789/1220/PPP%20Ingles.pdf?sequence=1&isAllowed=y>> accessed 13 July 2019.

¹⁰Smart city literature identifies a dichotomy of smart city models: certain smart cities are built around a double helix (government and industry), other smart city models call for a broader collaboration, namely the triple helix (government, industry, and research bodies) or a quadruple helix (adding civil society and/or citizens). According to studies in European smart cities, triple helix programmes are the basic model of collaboration in the smart city, but industry actors remain the most active organisations by far. See Luca Mora, Mark Deakin and Alasdair Reid, ‘Strategic principles for smart city development: A multiple case study analysis of European best practices’ (2019) 142 *Technological Forecasting and Social Change* 70.

¹¹Smart city literature from other fields has been strongly critical of the ‘corporate smart city’, as labelled by Robert G. Hollands, ‘Critical interventions into the corporate smart city’ (2015) 5(1) *Cambridge Journal of Regions, Economy and Society* 61. See section 2 of the present article.

¹²Jody Freeman, ‘The Contracting State’ (2000) 28(1) *Florida State University Law Review* 155; Ellen Damm, ‘Red Tape or Accountability: Privatisation, Public-ization, and Public Values’ (2005) 15 *Cornell Journal of Law and Public Policy* 111; Peter Vincent-Jones, ‘The New Public Contracting: Public Versus Private Ordering?’ (2007) 14(2) *Indiana Journal of Global Legal Studies* 259.

¹³Matthew Flinders, ‘Splintered logic and political debate’ in Graeme A. Hodge, Carsten Greve and Anthony E. Boardman (eds) *International Handbook on Public-Private Partnerships* (Edward Elgar, 2010).

¹⁴Lilian Edwards, ‘Privacy, Security and Data Protection in Smart Cities: A Critical EU Law Perspective’ (2016) 2 *European Data Protection Law Review* 28. Maria Helen Murphy, ‘Pseudonymisation and the smart city – Considering the General Data Protection Regulation’ in Claudio Coletta et al. (eds) *Creating Smart Cities* (Routledge, 2018); Liesbet van Zoonen, ‘Privacy concerns in smart cities’ (2016) 33(3) *Government Information Quarterly* 472.

automating infrastructure result from choices in technological design and implementation. These choices enable actions, making them possible or inaccessible.¹⁵ They are informed by values, even when these choices are implicit, such as the use of a technological solution to begin with.¹⁶ When the definition and arbitration of the values embedded in smart city technology occur primarily in a private realm, the political nature of these processes is obscured and citizens' awareness and ability for scrutiny is reduced.¹⁷ As observed by Robert Brauneis and Ellen P. Goodman on the politics of algorithmic governance in smart cities: 'When private vendors control algorithmic governance, the politics of algorithms recede behind private hedges'.¹⁸ Moreover, these companies do not act only as vendors: private actors can influence policy through the data and models they generate; they can equip and orient emergency services and the police force; they can shape and access civic participation channels; they can provide and develop novel local public services; they can measure and parameter energy consumption; and, they can monitor and experiment with public space. Therefore, smart city partnerships should purposefully include the protection of public values. In particular, this article will consider the public values of accountability and transparency, which are essential to scrutinise the public sector.¹⁹

This article first analyses how intertwined the smart city movement is with the use of public-private partnerships (section 2). It defines both these terms and contextualises the smart city movement in relation to the financial crisis of 2008 and to the appearance of PPPs since the 1980s. It draws historic, instrumental, and normative parallels between the two phenomena. Secondly, building on the literature on public values in PPPs, it introduces the notion of 'publicisation' as a way to extend public values to private actors (section 3). Thirdly, it proposes specific risk factors for public values in the smart city, and assesses to which extent data protection and publicisation through contracts can be applied as a solution (section 4). Section 5 concludes.

¹⁵Frank Bannister and Regina Connolly, 'ICT, public values and transformative government: A framework and programme for research' (2014) 31(1) *Government Information Quarterly* 120.

¹⁶For instance, the choice of nudging cyclists with coloured lights instead of employing traffic controllers. The very use of big data and automated-decision making can be analysed as a normative regulatory order, see Emre Bayamlıoğlu and Ronald Leenes, 'The 'rule of law' implications of data-driven decision-making: a techno-regulatory perspective' (2018) 10(2) *Law, Innovation and Technology* 295.

¹⁷Deirdre K. Mulligan and Kenneth A. Bamberger, 'Saving Governance-By-Design' (2019) 107(3) *California Law Review* 697.

¹⁸Robert Brauneis and Ellen P. Goodman, 'Algorithmic Transparency for the Smart City' (2018) 20(1) *Yale Journal of Law and Technology* 119.

¹⁹On accountability, see Mark Bovens, 'Public accountability' in Ewan Ferlie, Laurence E. Lynn Jr., and Christopher Pollitt (eds), *The Oxford Handbook of Public Management* (Oxford University Press, 2005). On transparency, see Albert Meijer, 'Understanding the complex dynamics of transparency' (2013) 73(3) *Public Administration Review* 429.

2. The rise of the smart city: parallels with public-private partnerships

The term ‘smart city’ is multi-faceted, both in its conceptual definition and in its deployment on the ground.²⁰ Indeed, the label is self-proclaimed, and recognised by a multitude of co-existing definitions, measurements and rankings.²¹ Commercially, the term functions as a brand, employed to sustain and expand a lucrative market.²² In practice, the reality of any smart city depends on specific policy goals, local political context, available technologies, and existing partners and networks.²³ If it is impossible to define the ‘real smart city’,²⁴ the term is used in this article to describe and assess the dynamics that are nonetheless unfolding within smart city projects.²⁵

First and foremost, smart city projects are driven by the use of ubiquitous computing technologies to gather, process, and utilise data in order to monitor the city and its users. This data, which concerns individuals (e.g. energy grid user), crowds (e.g. dwellers), or environments (e.g. water pollution), can then be used to automate urban infrastructure or inform public policy and decision-making. In essence, ‘smart’ technology equips urban environments with the capacity to sense.²⁶

By relying on technology to make urban centres more responsive and more adaptive, local governments also rely on tech companies to equip the

²⁰For different typologies and definitions of the smart city, see Vito Albino, Umberto Berardi and Rosa Maria Dangelico, ‘Smart Cities: Definitions, Dimensions, Performance, and Initiatives’ (2015) 22(1) *Journal of Urban Technology* 3; Patrizia Lombardi et al., ‘Modelling the smart city performance’ (2012) 25(2) *Innovation: The European Journal of Social Science Research* 137; Annalisa Cocchia, ‘Smart and Digital City: A Systematic Literature Review’ in Paola Dameri and Camille Rosenthal-Sabroux (eds) *Smart City: How to Create Public and Economic Value with High Technology in Urban Space* (Springer, 2014); Hafedh Hourabi et al., ‘Understanding Smart Cities: An Integrative Framework’ (45th Hawaii International Conference on System Sciences, 2012).

²¹For instance, *Top 50 Smart City Governments*, IESE’s *Cities in Motion Index*, and EasyPark’s *Smart Cities Index*. On the limits of smart city rankings, see Rudolf Giffinger, Gudrun Haindlmaier and Hans Kramar, ‘The role of rankings in growing city competition’ (2010) 3(3) *Urban Research & Practice* 299.

²²On the smart city as a label to increase competitiveness and attractiveness of cities, see Andrea Caragliu, Bo Del Chiara and Peter Nijkamp, ‘Smart Cities In Europe’ (2011) 18(2) *Journal of Urban Technology* 65; Nick Taylor Buck and Aidan While, ‘Competitive urbanism and the limits to smart city innovation: The UK Future Cities initiative’ (2017) 54(2) *Urban Studies* 501; Alan Wiig, ‘Secure the city, revitalise the zone: Smart urbanisation in Camden, New Jersey’ (2018) 36(3) *Environment and Planning C: Politics and Space* 403.

²³See (n 1).

²⁴Robert G. Hollands, ‘Will the real smart city please stand up?’ (2008) 12(3) *City* 303.

²⁵The author recognizes the difficulty of analysing an object of study that takes such varied local forms and such ambiguous definitions. This article follows the efforts of several authors to identify a ‘common set of logics’ and ‘centres of gravity’ of smart city initiatives to contribute to ‘the project of disambiguation’ of the smart city literature, following the observations of Matthew Jewell in ‘Contesting the decision: living in (and living with) the smart city’ (2018) 32(2-3) *International Review of Law, Computers & Technology* 212–214.

²⁶Smart cities couple technologies capable of generating and of using vast amounts of data, see Janine S. Hiller and Jordan M. Blanke, ‘Smart Cities, Big Data, and the Resilience of Privacy’ (2016) 68 *Hastings Law Journal* 309.

smart city. This is the second unfolding dynamic. Despite the variety of smart city definitions, public-private collaboration appears consistently as an essential characteristic of 'smartness'. The transformation of government through this collaboration is often considered as both a condition for and a benefit of smart city development.²⁷ This dynamic fits within a larger shift towards networked, composite collaboration between the public and the private sector in (local) governance.²⁸ Of course, private companies have been entering into legal relationships with (local) public bodies for a long time, both for infrastructure and public service provision.²⁹ More recently, this co-operation has taken the shape of Public-Private Partnerships (PPPs), including the context of smart cities.³⁰

Legally, the term 'public-private partnership' refers to a broad category of public-private arrangements. Although the European framework does not contain a definition of a 'public-private partnership', the European Commission has drawn a distinction between contractual and institutionalised partnerships.³¹ A contractual partnership refers to a contractual agreement, whereas an institutional partnership entails the creation of a distinct entity held by both private and public partners, in which the public body participates as a shareholder within the limits of national administrative law.³² In both cases, in the European Union, the contracting public authority must comply with procurement law if the value of the provided supplies, services or works exceeds set thresholds.³³ The procurement framework sets legal provisions in order to enforce fair, transparent, and non-discriminatory procedures in the selection of the private partner, for both a contractual or an institutionalised PPP.³⁴ Additionally, recent developments in European

²⁷Albert Meijer and Manuel Bolívar, 'Governing the smart city: a review of the literature on smart urban governance' (2016) 82(2) *International Review of Administrative Sciences* 399.

²⁸Carlo Maria Colombo, 'New Forms of Local Governance and the Transformation of Administrative Law' (2018) 24(3) *European Public Law* 573.

²⁹Practices of contracting-out and partnering can be traced back to Imperial China, Rome, and Egypt, see Roger Wettenhall, 'Mixes and partnerships through time' in Graeme A. Hodge, Carsten Greve and Anthony E. Boardman (eds), *International Handbook on Public-Private Partnerships* (Edward Elgar, 2010).

³⁰Joop F. M. Koppenjan and Bert Enserink, 'Public-Private Partnerships in Urban Infrastructures: Reconciling Private Sector Participation and Sustainability' (2009) 69(2) *Public Administration Review* 284.

³¹European Commission, *Green Paper on public-private partnerships and Community law on public contracts and concessions* (2004).

³²See Christina D. Tvarnø, 'Law and regulatory aspects of public-private partnerships: contract law and public procurement' in Graeme A. Hodge, Carsten Greve and Anthony E. Boardman (eds), *International Handbook on Public-Private Partnerships* (Edward Elgar, 2010).

³³The EU procurement framework applies above certain thresholds. These thresholds reflect the estimated monetary value of a tender (works, service, supply contract) over its total duration. For instance, under the Concessions Directive, the value of a concession is calculated based on the total turnover of the concessionaire generated over the duration of the contract (including supplies, revenue from users, financial advantages). See article 8 Directive 2014/23/EU. These thresholds are slightly higher for sub-central contracting authorities such as municipalities, depending on national law, see article 2 Directive 2014/23/EU.

³⁴Directive 2014/24/EU on public procurement, Directive 2014/25/EU on procurement by entities operating in the water, energy, transport and postal services sectors, and Directive 2014/23/EU on the award of concession contracts.

procurement legislation have introduced the Pre-Commercial Procurement (PCP) for R&D services and the Innovation Partnership for new products and services.³⁵ Moreover, whilst procurement law applies to the tendering procedure, PPPs entail a collaboration structure over time; therefore, this article will also consider elements relevant to the public-private relationship over time (e.g. contract management).

The joined dynamics of ‘smart’ technology development and public-private partnering are thus key features of the smart city. To illustrate the deep entanglement of public-private and technological governance at play, this section draws further historic, normative, and instrumental parallels between the smart city movement and the rise of PPPs in the 1990s.

2.1. Historic parallels

Historically, the first generation of smart city initiatives emerged around 2008, in the wake of the financial crisis. Local budget cuts in the public sector and post-recession corporate marketing strategies in the private sector deeply informed the narrative and shape of smart city initiatives.

Indeed, the first wave of smart city initiatives was essentially shaped by multinational technology companies, which positioned themselves as the ‘main providers of solutions to urban problems’.³⁶ IBM is one of the most studied examples in this regard.³⁷ The firm popularised the label ‘smart city’ and used it as a cautious investment to deal with the 2008 recession.³⁸ IBM’s ‘Smarter Cities’³⁹ initiative opened a market for a new wave of technologies and consultancy services specifically aimed at local governments.⁴⁰ In terms of technologies, IBM proposed a software package (the ‘IBM Intelligent Operations Center’) which centralised urban data feeds on an ‘executive dashboard’.⁴¹ The company also invested in software and data analytics,

³⁵PCP is limited to R&D services in order to explore and design solutions without including subsequent commercial activities. The Innovation Partnership was introduced in Directive 2014/24/EU and applies to long-term partnerships to develop goods and services that are not present on the market. See Andrea Castelli, ‘Smart Cities and Innovation Partnership: A New Way of Pursuing Economic Wealth and Social Welfare’ (2018) 13(3) *European Procurement & Public Private Partnership Law Review* 207.

³⁶Andrea Pollio, ‘Technologies of austerity urbanism: the “smart city” agenda in Italy (2011–2013)’ (2016) 37(4) *Urban Geography* 514.

³⁷See Anthony Townsend (n 2) 64. Other examples of firms include Siemens’ ‘City Intelligence Platform’, Nokia’s ‘Future X’, Huawei’s ‘Smart City Solution’, Microsoft’s ‘CityNext’, and Cisco’s ‘Internet of Everything’. See Ruthbea Yesner Clarke, ‘Smart Cities and the Internet of Everything: The Foundation for Delivering Next-Generation Citizen Services’, IDC White Paper sponsored by Cisco (2013).

³⁸From a financial perspective, this strategy played out well: between 2008 and 2012, the Smarter Planet initiative increased IBM’s revenue despite the recession, Sotirios Paroutis, Mark Bennett and Loizos Heracleous, ‘A strategic view on smart city technology: The case of IBM Smarter Cities during a recession’ (2013) 89 *Technological Forecasting and Social Change* 262.

³⁹IBM copyrighted the term ‘smarter cities’ in 2009 (Trademark Serial Number 79077782, filed September 25 2009).

⁴⁰Donald McNeill, ‘Global firms and smart technologies: IBM and the reduction of cities’ (2015) 40(4) *Transactions of the Institute of British Geographers* 566.

⁴¹*Ibid.*

acquired start-ups, and created smart city research and development labs on IBM campuses.⁴² In terms of consultancy, IBM ‘offered’ local governments its services through the ‘Smarter Cities Challenge’, and implemented real-life experimentation through partnerships with large cities.⁴³ As a result, IBM successfully established the smart city as a label that would henceforth regroup its technological expertise with its ongoing transition towards consultancy.⁴⁴

From a strategic point of view, this initiative (as well as similar programmes at Cisco or Siemens) contributed to positioning IBM as a ‘passage point’: by formulating both the problems and the solution of urban environments through their smart city technologies, these technology companies positioned their own activity as vital for the future of cities.⁴⁵

For local governments, the smart city represented a strategy for a post-recession transition as well. It promised to revitalise their economy and to boost their competitiveness.⁴⁶ Cities were (and are) positioned at the heart of a global economic crisis and in the forefront of social and technological innovation at the same time.⁴⁷ The smart city movement represented an economically prosperous, ecologically sustainable, and socially balanced urban future that did not necessarily require massive public investment.⁴⁸ Especially in cities in Southern Europe, where severe austerity policies were implemented, insufficiently funded local governments pursued financial support and partnership opportunities from the private sector.⁴⁹ In these regions, smart city strategies justified a shift in public expenditure towards innovation by representing a ‘technological solution to annihilated fiscal budgets.’⁵⁰ It served as a ‘low-cost, enabling strategy’ where public investments would fund ‘opportunities’ instead of planned-out, large scale solutions.⁵¹

This historic context is similar to the period that saw Public-Private Partnerships popularised, although this depends on national contexts. The

⁴²Ibid.

⁴³Ibid. See also Christopher Gaffney and Cerianne Robertson, ‘Smarter than Smart: Rio de Janeiro’s Flawed Emergence as a Smart City’ (2018) 2(3) *Journal of Urban Technology* 47.

⁴⁴Ibid.

⁴⁵Francisco Klausner, Till Paasche and Ola Söderström, ‘Smart cities as corporate storytelling’ (2014) 18(3) *City* 307. These corporate origins of the smart city and their limits have been criticised in depth by smart city literature, see (ns 11 and 40). For an overview of these criticisms, see Rob Kitchin, ‘Making sense of smart cities: addressing present shortcomings’ (2014) 8(1) *Cambridge Journal of Regions, Economy and Society* 131.

⁴⁶See (n 22).

⁴⁷On the relationship between smart city discourse and crisis (e.g. climate change, financial austerity, mass urbanisation), see James M. White, ‘Anticipatory logics of the smart city’s global imaginary’ (2016) 37(4) *Urban Geography* 572.

⁴⁸Ugo Rossi, ‘The Variegated Economics and the Potential Politics of the Smart City’ (2016) 4(3) *Territory, Politics, Governance* 337.

⁴⁹Ibid.

⁵⁰See (n 36), 519.

⁵¹Ibid.

term and construct of PPP gained in popularity following the creation of the PFI (Private Financing Initiative) in the UK in the 1990s.⁵² The PFI was created against a backdrop of the financial crisis of September 1992, triggered by the speculative bubble of the 1980s.⁵³ PFIs then offered a path to finance services and infrastructure through the private sector instead of through public bodies under budgetary pressure, and it provided opportunities for business and work.⁵⁴ In the wake of the 2008 financial crisis twenty years later, PPPs were used again as a tool for investment and infrastructure development, encouraged by changes in legislation in countries such as France.⁵⁵

Evidently, historic similarities run deeper: the smart city movement appeared in the wake of decades of PPP development, and in the lineage of instrumental and normative arguments that reacted to specific economic and financial contexts. Therefore, the following subsection considers the shared rationale for PPPs and smart cities.

2.2. A shared rationale: instrumental and normative arguments

On an instrumental level, PPPs were put in place as a tool for the public sector under budgetary constraints to access private expertise and innovative solutions. Firstly, partnerships allow public bodies to incentivize private actors to make financial investments. This fits the context of smart cities well: cities have to fulfil a multitude of tasks and public expectations without significant increases in financial means. The ‘asynchronic development’⁵⁶ of urban population and urban infrastructure, coupled with an underfunded budget and the necessary concern of sustainability, make private sector participation an attractive option. Thus, many smart cities rely on PPPs to fund their projects.⁵⁷ The second instrumental argument

⁵²Erik-Hans Klijn, ‘Public-private partnerships: deciphering meaning, message and phenomenon’ in Graeme A. Hodge, Carsten Greve and Anthony E. Boardman (eds), *International Handbook on Public-Private Partnerships* (Edward Elgar, 2010).

⁵³Yseult Marique, ‘Introduction’ in Yseult Marique, *Public-Private Partnerships and the Law: Regulation, Institutions and Community* (Edward Elgar, 2010).

⁵⁴Jean Shaoul, ‘Sharing’ political authority with finance capital: The case of Britain’s Public Private Partnerships’ (2011) 30(3) *Policy and Society* 209.

⁵⁵Loi n° 2009-179 du 17 février 2009 pour l’accélération des programmes de construction et d’investissement publics et privés. The encouragement to rely on PPPs in periods of austerity can be found in Greece as well, although it partially failed due to the local market structure, see George Pagoulatos, ‘The Politics of Privatisation: Redrawing the Public-Private Boundary’ (2005) 28(2) *West European Politics* 358.

⁵⁶Joop F. M. Koppenjan and Bert Enserink, ‘Public-Private Partnerships in Urban Infrastructures: Reconciling Private Sector Participation and Sustainability’ (2009) 69(2) *Public Administration Review* 284.

⁵⁷In the USA, for instance, the city of Columbus leveraged 510 million dollars primarily from public-private partnerships to finance its smart transportation hub. In Sacramento, Verizon invested 100 million dollars in building the city’s smart infrastructure, from congestion management to 5G connectivity and digital kiosks. Based on eighty cases, the European Commission found that PPPs also play a central role in funding and financing smart city projects. See *Analysing the potential for wide-scale roll-out of integrated smart cities and communities solutions*, report ordered by the European Commission (2016) 38.

is access to the expertise of private (networks of) actors. In this regard, PPPs are particularly useful in fields where knowledge and capacity highly concentrate in the private sector. Such concentration is particularly strong in ICT – in fact, the growing interest of (local) governments for e-government technologies partly explains the marked growth of PPPs in the past decades.⁵⁸ Smart city technology firms are meant to combine a focus on cost-efficiency (driven by the search for profit), a recognised technological expertise (with historic giants such as IBM), and an innovative outlook on urban governance (provided through consultancy services).

Underlying these instrumental motivations, normative orientations further form the ‘rationales’ of public-private partnerships.⁵⁹ Three central normative arguments are used to explain reliance on a private partner: efficiency, quality, and collaboration.⁶⁰

The first normative assumption is that the private sector inherently deploys more efficient management practices and better problem-solving abilities.⁶¹ In the smart city, this assumption translates to a reliance on technological products and on consultancy services from private companies to make urban infrastructure and public services more efficient, more cost-effective, and better managed.⁶² IBM’s Smarter Cities Challenge, which offered winning cities advice from a visiting team of engineers, can serve as an example in this regard. The strategic recommendations IBM issued moved beyond their technological expertise into non-technological issues such as urban planning, internal administrative organisation, and public policy.⁶³ In addition to relying on expertise from the private sector, the smart city relies on technology as a form of expertise in itself. In fact, technological systems as a method for managing scarcity date back to the first uses of the term ‘intelligent city’.⁶⁴ Technological systems promise the capacity to ‘do more with less’ because they harness citizens’ data to optimise city management and because they delegate problem solving to other parties.

The second normative assumption is that PPPs improve service quality through innovation and competition.⁶⁵ Opening services or products to

⁵⁸Tony Bovaird, ‘Public–private partnerships: from contested concepts to prevalent practice’ (2004) 70(2) *International Review of Administrative Sciences* 201.

⁵⁹Derick Brinkerhoff and Jennifer Brinkerhoff, ‘Public–private partnerships: Perspectives on purposes, publicness, and good governance’ (2011) 31(1) *Public Administration and Development* 5.

⁶⁰On the intellectual history of PPPs, see Tony Bovaird, ‘A brief intellectual history of the public-private partnership movement’ in Graeme A. Hodge, Carsten Greve and Anthony E. Boardman (eds) *International Handbook on Public-Private Partnerships* (Edward Elgar, 2010).

⁶¹Jon D. Michaels, ‘Privatization’s Pretensions’ (2010) 77(2) *University of Chicago Law Review* 717.

⁶²Early smart city discourse is largely inspired by a cybernetic heritage. See a summary of the literature on this heritage, and a critique thereof, in Maroš Krivý, ‘Towards a critique of cybernetic urbanism: The smart city and the society of control’ (2018) 17(1) *Planning Theory* 8.

⁶³The proposed solutions ended up dramatically misjudging the complexity of urban issues and the difficulty of implementing technology-centred measures in complex social settings. See Alan Wiig, ‘IBM’s smart city as a techno-utopian policy mobility’ (2015) 19(2-3) *City* 269.

⁶⁴See (n 36).

market competition is meant to foster diversity, originality, and innovation. The smart city too represents the search for new, ‘disruptive’ solutions to large problems. Moreover, one of the policy goals of smart city initiatives is competitiveness itself, following the strand of ‘entrepreneurial urbanism’.⁶⁶ Local governments launch smart city initiatives to foster economic development, attract capital and multinational corporations, and engage in territorial competitiveness with other cities.⁶⁷ Some partnerships with the private sector even originate from challenges and competitions.⁶⁸

The third normative assumption is that PPPs provide the benefit of involving a variety of non-public actors in open decision-making processes.⁶⁹ Collective problem-solving promises operationally faster services, improved quality of service, and inventive new products.⁷⁰ Within smart city initiatives, partnerships between different parties are also encouraged in order to form an ecosystem of actors.⁷¹ Private partners regularly form consortia and clusters to initiate smart city projects, research, and prototypes.

Thus, the historical context and the normative framework of PPPs and of the smart city movement share commonalities. However, these instrumental and normative arguments have been challenged by the concerns that PPPs raise within legal literature, especially with regards to the protection or erosion of public values.

3. Safeguarding public values in public-private partnerships

The notion of ‘public values’ is contested and defined differently throughout literature on privatisation.⁷² Values can be labelled as ‘public’ because they are protected by public law, in which case their definition and the processes meant to uphold them are set in constitutional provisions or in legislation.⁷³ For instance, transparency can be considered a public value: it grants citizens

⁶⁵Dominique Custos and John Reitz, ‘Public-Private Partnerships’ (2010) 58 *The American Journal of Comparative Law* 555.

⁶⁶David Harvey, ‘From Managerialism to Entrepreneurialism: The Transformation in Urban Governance in Late Capitalism’ (1989) 71(1) *Geografiska Annaler – Series B: Human Geography* 3.

⁶⁷See (n 22).

⁶⁸For instance, The Smart City Challenge (US), City Challenge (India), Amsterdam City Challenge (Netherlands), Intelligent Cities Challenge (European Commission).

⁶⁹See (n 59)..

⁷⁰Annalisa Aschieri, ‘Non-Financial Benefits: Another Reason to Foster the Promotion of PPPs as a Viable Alternative for Public Service Delivery’ (2014) 9(4) *European Procurement & Public Private Partnership Law Review* 240.

⁷¹See (n 10).

⁷²Public administration scholars have studied the broadness and diversity of public values, with one literature survey registering 72 public values in Torben Beck Jørgensen and Barry Bozeman, ‘Public Values: An Inventory’ (2007) 39(3) *Administration & Society* 354. On different sources of public values, see Anne-Marie Reynaers, ‘Public Values in Public-Private Partnerships’ (2014) 74(1) *Public Administration Review* 41.

⁷³On the threats of privatisation to public values in the US Constitution, see Gillian E. Metzger, ‘Privatization as Delegation’ (2003) 103 *Columbia Law Review* 1367.

a right to information they can exercise against public bodies, and is protected in most countries either by constitutional provisions or legislative acts (e.g. the *Wet Openbaar Bestuur* in the Netherlands). Other public values, such as universality, continuity, and quality of service, are implemented in the sector specific legislation that regulates public infrastructure and utilities (e.g. electricity, telecommunications).⁷⁴ Values can also be labelled as ‘public’ because they are supposed to be upheld by public administration and its employees as a working ethos in their daily work, decision-making, and contact with citizens. For instance, values of probity, honesty, or integrity can be associated to a public sector ethos without necessarily having a legal framework.⁷⁵

These different dimensions of public values were challenged by the wave of privatisation of the Western welfare state during the 1980s, followed by the rise of PPPs in the 1990s and 2000s. In response, one strand of legal literature has examined whether legal norms designed for the public sector can and should be expanded to private actors acting for public purposes.⁷⁶ A second strand of literature has studied whether and how the historic division between public and private sector, including with regards to a ‘working ethos’, has become less clear cut in practice.⁷⁷ The following section will briefly consider certain concerns raised by legal scholarship for public values in PPPs.

3.1. Risks for public values in public-private partnerships

Although PPPs do not involve a full transfer of responsibilities from public bodies to the private sector but rather a public-private collaboration with shared responsibilities, they still pose several risks.⁷⁸ The involvement of private actors in public services has led to delayed implementation, and

⁷⁴Hans de Bruijn and Willemijn Dicke, ‘Strategies for safeguarding public values in liberalized utility sectors’ (2006) 84(3) *Public Administration* 717.

⁷⁵Torben Beck Jørgensen and Barry Bozeman, ‘Public Values Lost? Comparing cases on contracting out from Denmark and the United States’ (2002) 4(1) *Public Management Review* 63.

⁷⁶See (n 12).

⁷⁷Empirical studies further attest that many similarities exist between public and private sector values, and that they regularly intermix. See an empirical study of organisations that shows that values such as honesty, serviceability, and reliability were equally ‘core’ values in the public and private sectors: Zeger van der Wal and Leo Huberts, ‘Value Solidity in Government and Business’ (2008) *The American Review of Public Administration* 264. According to Laura A. Dickinson, the very existence of this debate justifies looking at the ‘negotiated contractual relationships’ that are formed between public and private sector, see Laura A. Dickinson, ‘Public Law Values in a Privatized World’ (2006) 31 *Yale Journal of International Law* 401.

⁷⁸Privatisation can be split into total privatisation (i.e. the state transfers risk, ownership and stewardship entirely to a private entity or to the market) and partial privatisation. Terminology can differ and overlap depending on public law traditions and political history of different countries. See Paul Starr, ‘The Meaning of Privatization’ (1988) 6 *Yale Law and Policy Review* 6.

poor design and management choices that failed to deliver public benefits.⁷⁹ Different studies report that PPPs, especially in long-term and complex projects, can lead to increased financial costs, inappropriate risk allocation, misallocation of resources, over-engineered products, and underprovision of citizens' needs.⁸⁰

Three related explanations underlie these risks: the misalignment of public and private values, the shift from public law logic to market logics, and the insufficient range of application of public norms. Indeed, public actors are supposed to act following (local) long-term goals and non-financial outcomes such as accessible, fair, and sustainable public services.⁸¹ Private actors, on the other hand, serve commercial interests focused on short-term outcomes, financial benefits, and profit driven asset management.⁸² Consequently, the involvement of private actors in public services through PPPs represents a shift from public law logic towards market logic.⁸³ Market logic bases its legitimacy on outcomes (e.g. customer satisfaction, saving costs) whilst public law logic bases its legitimacy on legalism (e.g. procedures that uphold the 'rule of law').⁸⁴ Finally, this shift towards market logic risks 'diminishing publicness'⁸⁵ by eroding, marginalising, and replacing certain public values.

As a consequence of this shift, legal scholars have raised warnings about the erosion of public values in PPPs. For instance, existing mechanisms for transparency can be weakened if the activities and performance of the private party cannot be adequately monitored, reviewed, and accounted for by the public party. Public bodies might experience difficulties retaining both access to information and sufficient expertise to monitor private partners in PPPs.⁸⁶ The lack of incentives to disclose commercially valuable information and the high level of technicality of PPP projects also lessens transparency, which leave politicians and the wider public on the sidelines.⁸⁷

⁷⁹Conclusions of a study of EU co-financed PPPs in multiple EU countries in the special report *Public Private Partnerships in the EU: Widespread shortcomings and limited benefits* (European Court of Auditors 2018).

⁸⁰See (ns 56 and 79).

⁸¹Of course, in reality, public actors are also influenced by short term concerns, such as the electoral cycle and changing political agendas. For an overview of the role of electoral cycles and political connections in public sector PPP strategies and (re)negotiations, see Joaquim Miranda Sarmiento and Luc Renneboog, 'Renegotiating public-private partnerships' (2020) *Journal of Multinational Financial Management*.

⁸²Francesco Domenico, Alberto Ferraris and Stefano Bresciani, 'How to select the right public partner in smart city projects' (2017) 47(4) *R&D Management* 609.

⁸³Avishai Benish and Asa Maron, 'Infusing Public Law into Privatized Welfare: Lawyers, Economists, and the Competing Logics of Administrative Reform' (2016) 50(4) *Law & Society Review* 953.

⁸⁴Ibid.

⁸⁵Avishai Benish and David Levi-Faur, 'New Forms of Administrative Law in the Age of Third-Party Government' (2012) 90(4) *Public Administration* 886.

⁸⁶In the Netherlands for instance, local governments have struggled with monitoring PPPs, and formal information pathways such as accounting reports have proved insufficient to exert control over private partners (contrary to informal pathways such as mutual trust), Henk ter Bogt, 'Accountability, Transparency and Control of Outsourced Public Sector Activities' (2017) SOM Research Reports.

However, empirical studies have nuanced the negative impact of PPPs on public values. In particular, some scholars argue that public values can be maintained, transformed or further protected in PPPs.⁸⁸ Studies of the Dutch prison system, for instance, have shown the ambiguous effect of PPPs.⁸⁹ According to these studies, factors such as monitoring reports, output and input specifications, external advice, and long term-commitment can actually increase transparency, responsiveness, responsibility, and quality of service compared to traditionally procured projects.⁹⁰

3.2. Publicisation and the protection of public values by private actors

In response to the concerns about the erosion of public values due to privatisation, American scholar Jody Freeman offered an alternative: ‘publicisation’.⁹¹ She coined this term to refer to the expansion of public law norms to private actors when the latter commit themselves to fulfil traditionally public goals.⁹² Publicisation represents an alternative to an ‘impasse’ between two positions: ‘privatise and hope for the best, or refuse to privatise in fear of the worst’.⁹³ Freeman proposed that the outcomes of privatisation are far from inevitable: it is an artifact, and can therefore also create a space for the extension of important public values beyond the public sector.⁹⁴ The argument she advanced was that if public values are applied to keep public power accountable and avoid abuse, private actors involved in public purposes should see these values extended to them.

In particular, Freeman’s analysis stresses the role of contracts as potential tools to strengthen rather than weaken public values.⁹⁵ She acknowledges

⁸⁷Carsten Greven and Graeme Hodge, ‘Transparency in Public-Private Partnerships: Some Lessons from Scandinavia and Australia’ (The 1st Global Conference on Transparency Research – Newark, United States, 2011).

⁸⁸Anne-Marie Reynaers and Hester Paanakker, ‘To Privatize or Not? Addressing Public Values in a Semi-privatized Prison System’ (2016) 39(1) *International Journal of Public Administration* 6.

⁸⁹It should be noted that the effect of privatization and of PPPs on public values depends mostly on specific local contexts and legal arrangement. See the conclusion of (n 75): ‘The Atlanta and Farum cases seem to tell us more about Atlanta and Denmark than about either public values or privatization’.

⁹⁰See (n 88).

⁹¹Jody Freeman, ‘Extending Public Law Norms Through Privatization’ (2003) 116 *Harvard Law Review* 1285.

⁹²The notion of ‘publicisation’ was developed by Freeman in the context of the United States. However, scholars in Europe have similarly argued that the entanglement of private sector actors in public service provision and in regulatory activities calls for an extension of administrative law principles. See most recently references to publicisation in Javier Barnes, ‘An Expanding Frontier of Administrative Law: The Public Life of Private Actors’ (2018) *European Public Law* 595.

⁹³In short, she assigned these positions to a divide between a pro-privatisation position (which tends to be an economic perspective) and a critical position (generally adopted by public law scholars). Jody Freeman, ‘Extending Public Accountability Through Privatization: From Public Law to Publicization’ in Michael W. Dowdle (ed) *Public Accountability – Designs, Dilemmas and Experiences* (Cambridge University Press, 2006) 90.

⁹⁴See (n 91), 1286.

that public services are increasingly produced by a ‘highly interdependent network of public-private partnerships’ and identifies contracts as the primary ‘metaphor for this configuration of blended power’.⁹⁶ She argues that a careful negotiation process and contract management, combined with strong oversight and external auditing, presents an promising opportunity for publicisation. Additionally, a consultative approach to contractual negotiation, which is promoted in the discourse of PPPs, could strengthen the legitimacy of, and compliance with, the resulting contract.⁹⁷ This way, contracts could serve as what Laura Dickinson describes as ‘vehicles to promote public law values’.⁹⁸

However, this proposition faces criticism. As Freeman points out herself, public actors might lack motivation for publicisation for political reasons (e.g. to escape public scrutiny).⁹⁹ Publicisation might and will sometimes fail to overcome misalignment of interests. Publicisation instruments cannot be enforced properly in practice without sufficient political will, financial capacity, and bindingness.¹⁰⁰ Moreover, the criticism that the motivation of private actors is fundamentally incompatible with public goals remains.¹⁰¹ Besides, from a pro-privatisation perspective, one could argue that publicisation undermines the benefits of privatisation altogether by imposing public sector constraints on private actors.¹⁰²

In the context of the smart city, Freeman’s proposal is nonetheless relevant because of the arguments she considers to make the ‘strongest cases’ for publicisation.¹⁰³ Indeed, she especially encourages publicisation for ‘highly contentious and value-laden services that are hard to specify and over which providers have significant policymaking discretion; that affect vulnerable populations with few exit options and little political clout; and for which the motivation for privatisation is discernibly ideological rather than pragmatic.’¹⁰⁴ As will be developed in the following section, these arguments apply to smart city development.

⁹⁵Freeman’s analysis includes legislative mechanisms, judicial mechanisms, and private forms of regulation that can extend public values within and outside of the contractual relationship between public and private partners, but this article focuses on contracts and partnerships themselves. Similarly, concepts of Corporate Social Responsibility, socially and environmentally responsible procurement, and soft law instruments could be other paths towards the extension of public law norms to private companies, including in the smart city. Although they fall outside of the scope of this article, this author aims to further research these pathways in the future.

⁹⁶See (n 91), 1288.

⁹⁷See (n 91), 1328.

⁹⁸See (n 77).

⁹⁹See (n 91), 1331.

¹⁰⁰See (n 91), 1335.

¹⁰¹See (n 91), 1337.

¹⁰²See (n 91), 1339.

¹⁰³See (n 91), 1342.

¹⁰⁴See (n 91), 1342.

4. Challenges for the protection of public values in the smart city

The concerns raised by privatisation about the erosion of public values are also at stake in the smart city, although studies on this issue rarely investigate the same set of values.¹⁰⁵ In the Netherlands for example, the Rathenau Institute identified seven ‘public values’ under pressure in smart cities: privacy, security, fairness, autonomy, control over technology, human dignity and balance of power.¹⁰⁶ Another study from the Netherlands Environmental Assessment Agency identifies risks for the values of access, reliability, transparency, open decision-making, and accountability.¹⁰⁷ Other Dutch authors have focused on social cohesion and democratic control as fundamental public values at stake.¹⁰⁸ Since defining and analysing all the public values at stake in the smart city is beyond the scope of one article, this section will underline shared risk factors for all public values before focusing on the protection of transparency and accountability. To this end, it examines the insufficiencies of data protection legislation, and the potential and limits of contracts as a path of publicisation in smart city PPPs.

4.1. Risk factors for public values in smart city technology

Technology-centered smart city initiatives pose a number of risks, echoing those posed by PPPs. Indeed, multiple scholars have pointed out the danger of marketisation of public urban services for the sole profit of technology firms, resulting in over-engineered products that do not serve the needs of citizens.¹⁰⁹ Some early, large scale projects have confirmed these risks, seeing their original ambitions result in over-engineered ghost towns.¹¹⁰ Although such examples are extreme and their representativeness is disputed, scholars

¹⁰⁵This variety and heterogeneity in the definition of public values is reminiscent of that observed in (n 75).

¹⁰⁶Linda Kool et al., *Opwaarderen - Borgen van publieke waarden in de digitale samenleving* (Rathenau Instituut, 2017).

¹⁰⁷Guus de Hollander et al, *Mobiliteit en elektriciteit in het digitale tijdperk. Publieke waarden onder spanning* (PBL, 2017).

¹⁰⁸Liesbet van Zoonen, ‘Publieke waarden of publiek conflict: democratische grondslagen voor de slimme stad’ (2020) 46(3) *Justitiële verkenningen* 51.

¹⁰⁹See, for instance, Rob Kitchin, ‘The real-time city? Big data and smart urbanism’ (2014) 79 *GeoJournal* 10; Patrizia Lombardi and Alberto Vanolo, ‘Smart City as a Mobile Technology: Critical Perspectives on Urban Development Policies’ in Manuel Pedro Rodríguez-Bolívar (ed) *Transforming City Governments for Successful Smart Cities* (Springer, 2015).

¹¹⁰In 2018, Songdo only counted a third of its intended population. Residents complained about the lack of social connection, the omnipresence of offices and large apartment complexes, and the favoured treatment of foreign workers. Linda Poon, ‘Sleepy in Songdo, Korea’s Smartest City’ CityLab (22 June 2018) <<https://www.citylab.com/life/2018/06/sleepy-in-songdo-koreas-smartest-city/561374/>> accessed 12 November 2019. In Masdar, only 5% of its original greenprint was completed. Suzanne Goldenberg, ‘Masdar’s zero-carbon dream could become world’s first green ghost town’ *The Guardian* (16 February 2016) <<https://www.theguardian.com/environment/2016/feb/16/masdars-zero-carbon-dream-could-become-worlds-first-green-ghost-town>> accessed 12 November 2019.

nonetheless warn that without a long-term view of a ‘public’ smart city, urban environments risk being split into privatised neighbourhoods operated by different companies for subsets of ‘customers’ rather than for a political body of citizens.¹¹¹

The first risk factor is the value-embedding nature of smart city technologies. Indeed, the aforementioned considerations identified by Freeman for the strongest cases of publicisation can be applied to the smart city. Smart city services are hard to specify, and they are often designed throughout the partnership rather than before. They grant providers significant policy-making influence by modeling how cities can respond to problems and by sometimes making incursions into policymaking itself.¹¹² They affect vulnerable populations, both by increasing the digital divide in citizen participation in public life and by disproportionately affecting marginalised communities with smart technology aimed at surveillance and policing.¹¹³ Smart city citizens do not have an exit option, given that the city is their living environment. The underlying motivations for smart city services are both pragmatic and ideological, as detailed in previous sections. Most importantly, smart city services can be ‘highly contentious and value-laden’:¹¹⁴ their design is shaped by value choices that impact which and how data is collected and used, as well as how citizens are involved.¹¹⁵

For instance, the level of openness of a technology becomes a central issue for both transparency and accountability. A technology can be closed through closed data formats (data cannot be exchanged with other services), closed interfaces (applications cannot interact with another applications), closed architecture (applications built through proprietary language or

¹¹¹See the concept of ‘Frankenstein urbanism’ used by Federico Cugurullo to describe IBM’s intervention in Hong Kong, where smart sensors and networks were limited to specific buildings and granted ‘their economic, social and environmental benefits (such as savings, safety and clean and healthy environments) (...) only to IBM’s customers’. Federico Cugurullo, ‘Exposing smart cities and eco-cities: Frankenstein urbanism and the sustainability challenges of the experimental city’ (2018) 50(1) *Environment and Planning A: Economy and Space* 84. See further analysis on reframing citizens as consumers in Sofia Ranchordás, ‘Citizens as Consumers in the Data Economy: The Case of Smart Cities’ (2018) 7(4) *Journal of European Consumer and Market Law* 154.

¹¹²See IBM’s challenge discussed in previous sections and (n 63). Another example is the (cancelled) partnership between the City of Toronto and Alphabet’s Sidewalk Labs, in which the initial Request for Proposals invited a future private partner to conceive governance and legal frameworks, see Ellen P. Goodman and Julia Powles, ‘Urbanism Under Google: Lessons from Sidewalk Toronto’ (2019) 88 (2) *Fordham Law Review* 457.

¹¹³On the digital divide in the smart city, see Brandon A. Brooks and Alexis Schrubbe, ‘The Need for a Digitally Inclusive Smart City Governance Framework’ (2017) 85 *UMKC Law Review* 943. On surveillance technologies and discrimination, including in urban contexts, see Andrew Guthrie Ferguson, *The Rise of Big Data Policing* (New York University Press, 2017).

¹¹⁴See (n 91), 1342.

¹¹⁵See (ns 15 to 18). On the politics of the smart city, see Igor Calzada, ‘The Techno-Politics of Data and Smart Devolution in City-Regions: Comparing Glasgow, Bristol, Barcelona, and Bilbao’ (2017) 5(1) *Systems* 18. On the way data shapes citizens as data points under corporate control or participants to a political process, see Matthew Tenney and Renee Sieber, ‘Data-Driven Participation: Algorithms, Cities, Citizens, and Corporate Control’ (2016) 1(2) *Urban Planning* 109.

libraries), or closed source code (code cannot be accessed by other parties nor used by another vendor).¹¹⁶ The openness of a technology determines the ability of public partners (and, by extension, citizens) to know which data is collected, how decisions or models are generated, or which biases are at play. The use of proprietary algorithms protected by trade secrets strongly hampers transparency, and thus the ability to hold private partners accountable for their technology.¹¹⁷

A second risk factor is the pressure exercised by vendor lock-in on the relationship between local government and smart city technology providers. Vendor lock-in occurs when it is very difficult for a contracting authority to change vendors due to high transition costs from one vendor to the other, for instance due to legal or technological constraints.¹¹⁸ The risk of vendor lock-in can occur in any public-private collaboration, yet ICT products trigger particularly strong lock-in effects as a vendor can create a monopoly position by closing its technologies. According to data from the European Commission, 40% of public authorities in Europe find changing their ICT too costly because it would require changing too many other systems as well, and 25% have a prohibitive fear that their information would not be transferable.¹¹⁹ As smart city technologies can create strong path dependencies, local governments open themselves up to a heightened risk of 'contractual capture'.¹²⁰

Due to these factors, smart city PPPs require careful attention for the protection of public values in technological design. European data protection legislation could provide a stepping stone for such a public values framework. However, public-private collaboration in smart city deployment needs to be sufficiently taken into account, as it challenges the pathways to accountability and transparency provided by data protection legislation.

4.2. Limits of data protection legislation in protecting public values

Data protection could serve as a gateway to safeguard certain public values, and smart city developments have been analysed by legal scholars in light of the GDPR.¹²¹ Yet the smart city's public-private nature adds an unaddressed layer of complexity. The intersection between technology and public-private cooperation makes it more difficult to uphold transparency towards both

¹¹⁶For further discussion of openness in smart city technologies, see Bengt Ahlgren, Markus Hidell, and Edith Ngai, 'Internet of Things for Smart Cities: Interoperability and Open Data' (2016) 20(6) *IEEE Internet Computing* 52.

¹¹⁷A detailed account of algorithmic transparency can be found in (n 18).

¹¹⁸Justice Opara-Martins, Reza Sahandi and Feng Tian, 'Critical analysis of vendor lock-in and its impact on cloud computing migration: a business perspective' (2016) 5 *Journal of Cloud Computing* (article no 4).

¹¹⁹*Against lock-in: building open ICT systems by making better use of standards in public procurement* (COM (2013) 455 final).

¹²⁰See (n 40), 572.

¹²¹See (n 14).

citizens (data subjects) and representative bodies (controllers) and to assign accountability for the lawful processing of data.

The first problem arises with the attribution of controllership, which is fundamental to both accountability and transparency. The GDPR provides rights for data subjects based on duties of data controllers and processors.¹²² The data controller is accountable for compliance with the requirements of the GDPR. They carry out a Data Protection Assessment (DPIA) when required, and are responsible for verifying that processors provide sufficient guarantees to meet GDPR requirements.¹²³ The processor on the other hand can only process data within the framework set by a contract or a legal act that binds the processor to the controller.¹²⁴

Unfortunately, defining controllership and thus assigning accountability remains a recurring problem in smart city practice.¹²⁵ Different scenarios of controllership are possible. If the municipality (or public partner) fully defines the purposes and means of processing, it becomes controller. The private partner (processor) is likely to outsource part of its work to suppliers, especially in projects involving big data analysis.¹²⁶ A long processing chain makes it more complicated to respect the processor's obligation, in particular in providing necessary, accurate, and complete information back to the public party, diminishing transparency.¹²⁷ If, on the other hand, the vendor defines the purpose and means of processing, the private partner will be controller. However, vendors tend to deny responsibilities as controller. Companies seeking profits experience the responsibilities of controllership – in particular costly DPIAs – as a legal and financial burden.¹²⁸ Vendors with a dominant position on a market might also impose their own data processing agreements.¹²⁹ Attributing the controller role to a vendor is therefore criticised for weakening the rights of data subjects and negatively affecting accountability channels.¹³⁰

The more common scenario is that smart city projects involve multiple parties in defining the purpose and the means of processing.¹³¹ In this

¹²²Article 4(7) and (8) GDPR. The controller is the natural or legal person (whether it is the public or the private partner) that determines the purposes and means of the processing. If multiple parties define these purposes and means together, they are joint controllers. The processor is a natural or legal person that processes personal data on behalf of the controller.

¹²³Respectively, Article 5, article 35, and article 24 and 25 GDPR.

¹²⁴Article 28 GDPR.

¹²⁵Laurens Vandercruysse and Caroline Buts and Michael Dooms, 'Data Control in Smart City Services: Pitfalls and How to Resolve Them' (2019) *European Data Protection Law Review* 554.

¹²⁶Ibrahim Hashem and others, 'The Role of Big Data in Smart City' (2016) 36 *International Journal of Information Management* 748.

¹²⁷For instance, the processor has to obtain written authorization from the controller in order to engage another processor. Article 28 GDPR.

¹²⁸Laurens Vandercruysse, Caroline Buts and Michaël Dooms, *Economic costs of the DPIA* (Spectre Vandercruysse (SPECTRE Deliverable D.3.1.)

¹²⁹See (n 125).

¹³⁰Dorine Johanna Van Zeeland et al., Personal data protection in smart cities: Roundtable report for Chair 'Data Protection on the Ground' (Vrije Universiteit Brussel 2019).

case, these parties become joint controllers. Joint controllers need to clearly determine their respective responsibilities, especially when it comes to the rights of the data subject, such as providing information and answering requests.¹³² Otherwise, joint controllership can lead to a ‘negative conflict of competence’ which would hamper the exercise of the data subject’s rights and dilute accountability.¹³³ Unless these responsibilities are defined by law, joint controllers need to come to an arrangement in a transparent manner, available to data subjects so the latter can hold the former accountable.¹³⁴ Additionally, joint controllers need to carry out a joint DPIA.¹³⁵ If the public and private parties were to also use data for their own purposes, they would be required to do two separate additional DPIAs.¹³⁶

The second issue concerns accountability in relation to the legal processing ground. The controller has to justify a lawful processing ground under article 6 of the GDPR, and public and private controllers cannot always rely on the same grounds. The ground of consent becomes invalid in case of clear power imbalance, which is the case when a public authority acts as controller. Additionally, consent is considered particularly problematic since city dwellers will not have the possibility to be informed, the option of opting out, or the choice to use another service.¹³⁷ Public partners have to base processing on other grounds: compliance with a legal obligation, or performance of a task in the public interest or in exercise of official authority, provided that these grounds are recognised by Union or Member state law.¹³⁸ Private parties involved in smart city projects could also use these two grounds if Union law or Member State law imposes legal obligations on them or determines that a private law entity is in charge of performing public tasks.¹³⁹ More importantly, private parties can rely on processing for the purposes of the legitimate interests of the controller, whereas public authorities cannot rely on this ground ‘in the performance of their task’.¹⁴⁰ This leads to a paradox: in a smart city project where a public party is (joint) controller, processing will likely need to be based on legislation, which is not the case of a private controller. Involvement of private actors for public purposes

¹³¹This can be multiple private parties (for instance, a consortium with companies from different sectors) or/and different public parties (for instance, multiple municipalities contracting with one vendor, or regional and local government partnering in one project).

¹³²Article 26 GDPR.

¹³³Guidelines 07/2020 on the concepts of controller and processor in the GDPR (EDPS 2020) 41.

¹³⁴Article 26 GDPR.

¹³⁵Shakila Bu-Pasha, ‘The controller’s role in determining ‘high risk’ and data protection impact assessment (DPIA) in developing digital smart city’ (2020) 29(3) *Information & Communications Technology Law* 391.

¹³⁶See (n 125).

¹³⁷See (n 14).

¹³⁸Article 6(3) GDPR.

¹³⁹Recital 45 GDPR.

¹⁴⁰Recital 47 GDPR.

Table 1. Accountability issues linked to controllership.

Controller	Processor	Problems for accountability
Municipality	Smart city technology companies and suppliers	Unreliable or incomplete information in the processing chain
Joint controllership (municipality and smart city technology company)	Suppliers	Unreliable or incomplete information in the processing chain Necessary to come to an agreement on respective responsibilities Risk of loopholes, non-compliance with obligations, denying data subject's rights because of unclear allocation of responsibilities Additional DPIAs if additional processing
Smart city technology company	Suppliers	Unreliable or incomplete information in the processing chain Legal and financial burden for companies leading to avoiding responsibilities

might therefore undermine the 'democratic oversight and transparency' provided by article 6.¹⁴¹

The collaboration between public and private partners in smart city projects thus poses specific challenges to accountability and transparency. It is more difficult to enforce transparency regarding data processing due to chains of delegation, and accountability regarding lawful processing escapes democratic oversight when transferred to private bodies. Therefore, the final part of this section will consider whether publicisation can help strengthen public values in the smart city.

4.3. Publicisation in smart city contracts

Given the insufficiencies of the data protection framework, the potential benefits of 'publicisation' through contracts offers another path for the extension of the public values of transparency and accountability to technology firms.

With regards to transparency, the closed or open nature of a given technology has to be explicitly recognised and discussed in the contract negotiation. Local governments need to be keenly aware of their (in)ability to scrutinise a software's performance and of the restrictions created by intellectual property rights.¹⁴² Then, transparency can be enabled through a number of clauses. Indeed, disclosure clauses can require certain information

¹⁴¹Oliver Butler, 'Obligations Imposed on Private Parties by the GDPR and UK Data Protection Law: Blurring the Public-Private Divide' (2018) 24(3) *European Public Law* 555.

¹⁴²To this effect, see the recommendations of the UK government's Data Ethics framework for public procurement in AI, *Data Ethics Workbook: working with suppliers* (13 June 2018) available at <<https://www.gov.uk/government/publications/data-ethics-workbook/data-ethics-workbook-working-with-suppliers>> accessed 13 November 2019.

to be shared, either with limited third parties or with the public. Disclosure may concern access to source code, access to the success rates of the software, access to an explanation of a given algorithm, access to the hardware specifications, and so on.¹⁴³ When a high level of transparency is ensured, for instance by disclosing source code to the public partner or to the public at large, it enables a higher level of scrutiny on the implementation and consequences of a given technology.¹⁴⁴ Especially when policy decisions are implemented through or shaped by code, local governments should aim to develop ‘public software’.¹⁴⁵ However, local governments have to be ready to compensate the commercial loss that this may represent for a company, as disclosure clauses clash with intellectual property rights and trade secrets.¹⁴⁶ Limiting disclosure clauses to only third-party auditing and review can be a compromise in this regard.¹⁴⁷

Moreover, open data clauses are also essential for private partners to share data with the public (and thus potential competitors). These clauses can be added to the local procurement policy.¹⁴⁸

Finally, clauses on interoperability and on technical specifications can lessen the risk of vendor lock-in and encourage the use of open standards.¹⁴⁹ However, to arrive at an intentional policy of data sharing and subsequent legal arrangements within the partnership, competing interests need to be accommodated. The design of a data governance framework should reconcile the diverging interests of the private sector, public sector, and individual data subjects.¹⁵⁰ New forms of data sharing, such as ‘data trusts’, emerge to do so.¹⁵¹

¹⁴³For instance, a value judgement is made in tuning the value of false positives and false negatives in a classification algorithm. Therefore, both access and understanding of this parameter needs to be guaranteed. See an examination of false positives and negatives in criminal justice algorithms (n 18).

¹⁴⁴For an example of incorrect code implementation leading to hundreds of thousands of errors in the public benefits system, see Danielle Keats Citron, ‘Technological due Process’ (2008) 85 *Washington University Law Review* 1249.

¹⁴⁵See the collaborative project between the City of Amsterdam, the Amsterdam University of Applied Sciences and Vurb.Agency to support a transition towards open software for smart city policy processes under the motto ‘Public money, public code’ < <https://smarcities.publiccode.net/> > accessed 26 August 2019. For more about ‘Public money, public code’, see the open letter < <https://publiccode.eu/openletter/> > accessed 20 December 2019.

¹⁴⁶Joseph Lorenzo Hall, ‘Contractual Barriers to Transparency in Electronic Voting’ (2007) Proceedings of the 2007 USENIX/ACCURATE Electronic Voting Technology Workshop.

¹⁴⁷For instance, the municipality of Amsterdam recently hired KPMG to audit the algorithms used by the municipalities and its commercial partners to monitor their functioning and their discriminatory effects. See ‘Amsterdam schakelt KPMG in voor screening algoritmes’ (accountant 4 March 2019) < <https://www.accountant.nl/nieuws/2019/3/amsterdam-schakelt-kpmg-in-voor-screening-algoritmes/> > accessed 14 November 2019.

¹⁴⁸This is the case in the city of Paris since 2014 ‘Paris ouvre ses données publiques’ < <https://opendata.paris.fr/pages/lademarche/> > accessed 02 February 2021.

¹⁴⁹For examples of standards around interoperability and open data platforms, see José L. Hernández et al., ‘Interoperable Open Specifications Framework for the Implementation of Standardized Urban Platforms’ (2020) 20(8) *Sensors*.

¹⁵⁰For a complete analysis of this issue in the case of Toronto, see Terese Scassa, ‘Designing Data Governance for Data Sharing: Lessons from Sidewalk Toronto’ (2020) *Technology and Regulation* 44.

¹⁵¹*Ibid.*

With regards to accountability, the previous section mapped different challenges. To address these, joint control agreements (JCAs) between public and private partners are an especially useful and important tool. JCAs should assign responsibilities to each party with regards to data processing.¹⁵² A clear distribution of responsibilities in data processing could also be formally integrated into the partnering process by establishing processing agreements and clear information duties in the chain of responsibilities in the procurement process.¹⁵³ Another contractual tool to hold private partners accountable is the use of key performance indicators (KPIs).¹⁵⁴ KPIs could play an important role in developing a larger monitoring protocol of smart city projects.¹⁵⁵ Ideally, KPIs translate the goals of local governments in clear, measurable outputs, allowing for third party oversight.¹⁵⁶ Yet measuring the performance of a technology according to a policy goal is a complicated task that requires technical knowledge, whilst local governments may lack expertise. To this end, public bodies can involve third parties such as universities and research centres to benchmark smart city solutions and draft performance indicators.

Smart city partnerships can thus address certain concerns in terms of accountability and transparency, if these steps are followed beyond contractual design in both contract management and in the non-formal aspects of the public-private relationships. Moreover, certain characteristics of the smart city limit these pathways of publicisation.

In particular, the smart city increasingly develops informal, experimental, and horizontal forms of collaboration. Indeed, smart city initiatives take place through a diversity of forms of partnering, including informal and non-contractual forms. Many smart city projects concern new services or goods developed in collaboration with changing teams of partners in workshops, hackathons, and challenges.¹⁵⁷ Consequently, smart city projects are very often open-ended in nature. The partnership itself often aims to develop a goal together, making it difficult to formulate an end product in

¹⁵²See (n 125).

¹⁵³For ongoing studies on the legal, practical, and financial aspects of data processing agreements and DPIAs in the smart city, see the interdisciplinary research project SPECTRE ('Smart city Privacy: Enhancing Collaborative Transparency in the Regulatory Ecosystem') <<https://spectreproject.be/>> accessed 02 February 2021.

¹⁵⁴See Judith Borsboom-van Beurden et al., Smart City Guidance Package for Integrated Planning and Management (EIP-SCC 2017) <<https://eu-smartcities.eu/sites/default/files/2017-09/SCGP%20Intermediate%20version%20June%202017.pdf>> accessed 13 September 2019.

¹⁵⁵Jorge Nunez Ferrer et al., *The making of a smart city: policy recommendations* (European Commission 2017).

¹⁵⁶For instance, the OnDijon contract in France laid down performance goals in terms of energy savings, intervention time, and availability of digital systems. See Carine Strapoli and Benoit Thirion, *Smart city: Quelles relations public-privé pour rendre la ville plus intelligente?* (Terra Nova 2018).

¹⁵⁷Freeman developed the notion of publicisation in a more traditional vendor/customer setting of governmental outsourcing, where previously public services were well-known when outsourced contractually to specific partners.

the initial stages of procurement. This experimental nature also leads to short-lived projects, contrary to usual PPPs which concern long term infrastructural projects. Smaller pilot projects are the norm, and contracts or agreements are intentionally left vague or renegotiated. This makes it more difficult to implement a tool such as KPIs. Smart city technology vendors could be discouraged from partnering if the specifications are too rigid or the consequences of non-performance too important. Overly rigid specifications can block the necessary leeway for the changing and evolving development of a smart city technology. Finally, smart city initiatives are built through more horizontal forms of collaboration. Therefore, contractual forms of accountability and oversight can clash with the aim of being governed by stakeholders as 'equal' partners.

5. Conclusion

Technology companies play an increasingly important role in the public sphere, and smart cities are one example of this phenomenon. Historic, instrumental, and normative parallels between smart city development and the rise of public-private partnerships show how intertwined digitalisation and privatisation are in the smart city. Both components are rationalised as tools for local governments to 'do more with less' in a context of austerity and financial recession coupled with a broader shift towards integrating market logics in the public sector. The danger of erosion of public values present in PPPs can therefore be extended to the smart city context. In particular, the risk of vendor lock-in and the value-embedding capacity of technology make it important to examine this danger. This article considered how, despite the GDPR's extensive framework, it is still difficult to assign responsibilities and guarantee information flow between parties, which hampers accountability and transparency.

The article therefore explored the alternative of 'publicisation' as a way to extend public values to private partners. In the smart city, this could be done by implementing contractual clauses that facilitate the openness of technologies and by setting processing agreements to ensure that responsibilities are assigned within the partnership. Other contractual tools, such as KPIs, can serve to strengthen accountability and transparency as well by defining a shared framework of reference and auditing the performance of private partners. However, these findings were nuanced by the informal, experimental, and horizontal aspects of smart city collaboration. Given that public-private collaboration in the smart city is still evolving at the moment of writing, further research is needed, especially with empirical attention for PPPs in practice.

As a conclusion, this article considers Fenner Stewart's criticism of Freeman's notion of publicisation: the normative strength of corporate

governance in resisting it. He argues that at their core, technocratic narratives challenge the very notion of publicisation. These technocratic narratives are particularly strong and deep-rooted in the technology-centered nature of the smart city.¹⁵⁸ To counter such narratives in order to uphold public law norms, further legal analysis of the smart city needs to develop a stronger framework for how accountability and transparency should function in this new urban age.

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¹⁵⁸Fenner Stewart, 'The Corporation, New Governance, and the power of the Publicization Narrative' (2014) 21(2) *Indiana Journal of Global Legal Studies* 513.