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Exploring citizen participation in smart city development in Mexico City: an institutional logics approach

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Abstract:	We explore smart city development, with a focus on the modalities of citizen participation, using an institutional logics approach. Taking Mexico City as our case study we describe the presence and dynamics of several logics influencing smart city development. At an organisational level we identify the bureaucratic and technocratic logics underpinning the practices of the governmental agency leading smart city development.

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	<p>Characterised by centralisation and the pursuit of efficiency, and framed by a discourse of austerity and financial control, these logics promote a modality of citizen participation that is limited and unidirectional in nature, with citizens positioned largely as users. At a supra-organisational level, we identify a logic of active citizen participation in urban governance that is formalised in city laws. However, this logic is itself entangled in a logic of clientelism and patronage, manifested through networks of power. These logics work synergistically to limit broader, inclusive citizen participation in, and realisation of benefits from, smart city agendas. We conclude that a richer understanding of institutional logics enhances the analysis of the social construction of the smart city in particular, situated contexts.</p>

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4 **Exploring citizen participation in smart city development**
5 **in Mexico City: an institutional logics approach**
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Abstract

We explore smart city development, with a focus on the modalities of citizen participation, using an institutional logics approach. Taking Mexico City as our case study we describe the presence and dynamics of several logics influencing smart city development. At an organisational level we identify the bureaucratic and technocratic logics underpinning the practices of the governmental agency leading smart city development. Characterised by centralisation and the pursuit of efficiency, and framed by a discourse of austerity and financial control, these logics promote a modality of citizen participation that is limited and unidirectional in nature, with citizens positioned largely as users. At a supra-organisational level, we identify a logic of active citizen participation in urban governance that is formalised in city laws. However, this logic is itself entangled in a logic of clientelism and patronage, manifested through networks of power. These logics work synergistically to limit broader, inclusive citizen participation in, and realisation of benefits from, smart city agendas. We conclude that a richer understanding of institutional logics enhances the analysis of the social construction of the smart city in particular, situated contexts.

Keywords

Smart Cities, Mexico City, participation, institutional logics

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Introduction

The smart city is the dominant framing for current debates and practical policy developments concerning the integration and use of cyber-physical, connected technologies in urban environments (Cardullo & Kitchin, 2019a). The concept of the smart city is both plural and contested (Anthopoulos, 2017; Lynch, 2019), being ascribed a range of meanings, both in the

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3 academic literature and in policy and practice debates. The notion of the ‘smart city’ can be
4 considered as an umbrella term for innovative integrated solutions – typically focused on digital
5 infrastructures, software and data – aimed at meeting challenges facing contemporary urban
6 societies. White (2016) argues that this “smart city global imaginary” is a response to resource
7 pressures associated with demographic shifts, global climate change and fiscal austerity. These
8 resource pressures lead to demands for more efficient city management. Smart city innovation has
9 also been framed as a potential driver of local and national economic development and as a means
10 for (re)invigorating local democratic practices and citizen participation in urban governance.
11 While smart city visions and policies are underpinned by these aspirations in varied combinations,
12 reconciling them can be problematic. In particular, there are tensions between smart urbanism,
13 economic growth, inclusion and sustainability (Martin, Evans, & Karvonen, 2018).
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Mora, Deakin and Reid (2019) argue that local approaches to smart city development processes
can be mapped against four dichotomies, relating to strategy, directionality, nature of intervention
and governance: (1) technology-led vs a more holistic strategy; (2) top-down vs bottom-up; (3)
mono-dimensional vs integrated approach to smart city interventions; and (4) double vs quadruple-
helix governance systems. These dichotomies bring into focus issues of governance, participation
and democracy which in turn reflect the centrality of social and political processes to the
construction of the smart city (Cardullo & Kitchin, 2019b; Kitchin, 2019). The role that citizens
play – or should play – in the development and governance of smart cities are contested political
questions at the heart of contemporary debates (Cardullo & Kitchin, 2019b). This is vividly
illustrated by the case of Barcelona where a change in the political complexion of local government
in 2015 led to a complete reorientation of smart city strategy: away from a double-helix, private
sector-oriented approach towards one that placed greater emphasis upon inclusion, citizen needs
and citizen participation (Charnock, March, & Ribera-Fumaz, 2021).

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3 Our aim in this paper is to explore the modalities and dynamics of citizen participation within a
4 contemporary case study of smart city development. We situate our analysis within an institutional
5 logics theoretical framework. Our starting point is that embedded within the imaginaries of and
6 approaches to smart city development are multiple institutional logics i.e. the ‘taken-for-granted
7 rules guiding behaviour of field-level actors’ (Reay & Hinings, 2009, p. 629). These shape and
8 legitimate practices and behaviours relating to the development and operationalisation of the smart
9 city and, within this, the modalities of citizen participation (Shelton & Lodato, 2019). Our central
10 research question is: *How is the role played by citizens within smart city development shaped by*
11 *competing, situated institutional logics?*
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24 Our key contribution is to demonstrate that an institutional logics perspective is both analytically
25 fruitful and practically relevant for advancing the understanding of smart city development and the
26 configuration of citizen participation within this. From a theoretical perspective this research
27 contributes to a body of institutional approaches that have been applied to smart urbanism (Raven
28 et al., 2019) and urban planning and innovation (Berglund-Snodgrass & Mukhtar-Landgren, 2020).
29 Approaching the topic from the perspective of institutional logics allows for a richer and more
30 subtle understanding of the dynamics shaping citizen participation in smart city development.
31 From a practical perspective this paper offers novel insights into the barriers and institutional
32 constraints to implementing effective participatory mechanisms in smart city developments.
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45 Our case study focuses on recent smart city development in Mexico City. We describe the way in
46 which a bureaucratic logic manifested by the public sector organisation leading smart city
47 development serves to limit citizen participation. We analyse how this logic intersects with broader
48 logics at play within the city that shape established processes of democratic citizen participation
49 in urban policy and governance. We show the tensions and outcome of the interplay of these
50 competing logics, which we suggest combine to place significant constraints on meaningful
51 democratic engagement and participation by citizens in smart city development. In doing so, our
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3 work extends earlier work that has examined the way in which the established, incumbent
4 bureaucratic logic of local public sector organisations articulates with a newer logic of
5 collaborative innovation (Agger & Sørensen, 2018).
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10 We take Mexico City as our unit of analysis because, until recently, much of the literature on the
11 social construction of smart cities, and smart city development more generally, has been produced
12 with reference to European and North American contexts. Only latterly has the empirical literature
13 begun to interrogate in detail experiences in the so-called Global South (Datta, 2018), and Latin
14 America more specifically (Gaffney & Robertson, 2018; Irazábal & Jirón, 2021; Jirón, Imilán,
15 Lange, & Mansilla, 2021). As well as reinforcing the situated characteristics of urbanisation
16 (Rossi, 2019), this recent work exemplifies the diverse mix of policy aspirations and socio-political
17 drivers behind the pursuit of the smart city and the diversity of organisational practices that can
18 result. In the next section, we introduce the debate over the nature and development of the smart
19 city and the role and modalities of citizen participation that are evident in this debate. We provide
20 a brief overview of the literature on institutional logics before presenting our analysis of
21 institutional logics in operation in the context of smart city development and citizen participation.
22 Then, we present our methods and data analysis before presenting our results. The subsequent
23 discussion examines the implications of our findings for the analysis of smart city development
24 and for the implementation of more citizen-oriented approaches within this.
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46 **Competing institutional logics and the social construction of the** 47 48 49 **Smart City**

50 **Urban governance, smart city development and citizen participation**

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53 Delivering a smart city approach as an innovative governance solution to urban problems is
54 typically seen as requiring the involvement of a range of stakeholders. However, the nature of
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3 smart city development and the modalities of stakeholder and citizen participation implicated
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5 within this can vary considerably. Early initiatives were typically “double helix” approaches:
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7 public bodies building collaborations with private sector organizations which provided the
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9 technical expertise to develop novel digital solutions. This early phase in smart city policy and
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11 practice drew criticism for its techno-utopianism and its over-reliance on the private sector: there
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13 was concern about the implications of the “corporate” smart city (Hollands, 2015). The
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15 development of smart cities was criticised as largely being treated as a technical exercise, despite
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17 smart city technologies raising pressing social and political questions (Marvin, Luque-Ayala, &
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19 McFarlane, 2015).
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24 But not all smart city development occurs in this way. Some takes the form of bottom up,
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26 community self-organisation occurring beyond the direct control of local officials and corporate
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28 interests. However, projects involving significant changes to city infrastructure or flows (e.g., of
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30 traffic or people) will principally be under the control of local politicians. They can have
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32 considerable power to decide the scope of smart city development projects and which actors to
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34 involve. Public servants may hold resources for smart city projects, which they may also sponsor,
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36 manage and lead. They may have considerable influence over how resources held by others (e.g.,
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38 in the corporate sphere) are deployed in the urban realm. Precisely how much autonomy public
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40 servants have to shape such collaborative processes will vary across cases (Mukhtar-Landgren,
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42 2021).
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48 Finally, smart city development is situated in nature and highly context-dependent. While the smart
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50 city policy agenda is global, the smart city experience needs to be provincialized (Burns, Fast,
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52 Levenda, & Miller, 2021). It is particularly under-researched in the context of urban environments
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54 in the Global South. Smart urbanism in the Global South has been reported as being largely driven
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56 by privileged middle-class interests, which in turn create forms of socially and physically
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58 ‘splintered urbanism’, often enabled by market-driven logics (Datta, 2018). Cities in Latin
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America have been relatively slow to embrace the smart city narrative. The academic literature documents a variety of approaches, from elite-driven top-down to mixed bottom-up initiatives (Irazábal & Jirón, 2021; Jirón et al., 2021).

Institutional logics

The social construction of the smart city - and the configuration and behaviours of actors such as city councils, citizens and civil society groups within this - can usefully be understood by analysing the variously competing, synergistic or stratifying institutional logics at play in the situated context within which smart city development occurs. Institutional logics are the organizing principles that sit above and around organisations and individuals and which shape, regulate and legitimate behaviours and practices (Ocasio, Thornton, & Lounsbury, 2017; Reay & Hinings, 2009). Institutional logics operate across the organisational level, field level (here within the field of smart city development) and the level of society more broadly. They refer to belief systems, norms and associated practices that serve to construct identities, meanings and fields of action. Institutional logics are particularly relevant to understanding organizational evolution and change because they provide a link between individual agency, organisational behaviour and change, and the institutions (formal, informal) that influence and legitimate them (Thornton & Ocasio, 2008). Institutional change is usually associated with the emergence or reconfiguration of one or more logics (Dacin & Dacin, 2008; Greenwood, Oliver, Lawrence, & Meyer, 2017; Oliver, 1992; Thornton, Ocasio & Lounsbury, 2015). Institutional change has been explained as a shift from one dominant logic to another (Greenwood, Suddaby & Hinings, 2002), but the situation is often more complex than a binary switch (Dacin & Dacin, 2008), particularly when there are ‘two or more strong, competing or conflicting belief systems’ (Scott, 1995, p. 211). Co-existence of logics can occur: this may be a temporary phenomenon, eventually resolved through competition in which the logic embodied by relatively more powerful actors prevails to the point of becoming hegemonic (Hensmans, 2003; Hoffman, 1999). However, hybrid combinations of competing

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3 logics (Glynn & Lounsbury, 2005; Ocasio et al., 2017) or logics that co-exist as ‘stabilising
4 paradoxes’ (Shields & Watermeyer, 2018), can sometimes persist for extended periods of time
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6 (Reay & Hinings, 2009). Thornton et al. (2015) suggest that the interplay of concurrent
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8 institutional logics can result in three potential outcomes: dominance by replacement of one logic
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10 over another, resistance by incumbents, and co-existence by blending logics to create hybrids.
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12 Organisational decoupling (Bromley & Powell, 2017) has been identified as one strategy to
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14 maintain hybridity, but endogenous organizational dynamics can also set in motion a process of
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16 recoupling (Tilcsik, 2010). Hybridity can be sustained not only at the organisational level but also
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18 through broader field and societal level (supra-organisational) governance mechanisms, for
19
20 example, instruments of collaboration and participatory processes through which seemingly
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22 disparate actors holding quite different interests, values and beliefs come together (Balestrini et
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24 al., 2017; Martin, Evans & Karvonen, 2018). The process of aggregating and managing these
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26 interests can impact on the dynamics of institutional logics and the nature of institutional change
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28 (Labianca, Gray, & Brass, 2000). The nature and modality of collaboration and participation –
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30 how participants are included and the agency they have – is crucial to this.
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38 **Institutional logics and the smart city**

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41 While an institutional logics perspective has yet to be applied in the smart city context, the
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43 literature on smart cities allows us to propose several logics that are directly implicated. In this
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45 section we identify three logics directly bearing on the smart city field. This list should not be
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47 viewed as exhaustive. These logics will be subject to varying levels of competition, tension and
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49 hybridisation in particular contexts.
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54 **The public sector bureaucratic logic**

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56 Public administration is characterised by a bureaucratic logic that emphasizes order, centralised
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58 control, hierarchy, standardisation, rule following, and equality of treatment (Arellano-Gault,
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3 Demortain, Rouillard, & Thoenig, 2013). In addition, in many countries decades of public
4 management reform have overlain established bureaucratic concerns with an emphasis upon
5 systems of performance management which prioritise the delivery of results perceived to
6 maximize short-term value-for-money (Pollitt & Bouckaert, 2017). Decisions made by public
7 servants therefore also reflect a managerial concern for efficiency and effectiveness. This logic –
8 encompassing both the bureaucratic and managerial – embeds tensions and is itself hybrid. When
9 smart city development processes heavily involve, or are led by, public organisations this logic,
10 drawn from the broader field of public administration, is likely to be mobilised significantly. This
11 bureaucratic logic can in turn be reinforced by discourses operating within the broader socio-
12 political environment. The discourse of austerity, for example, can serve to draw decision-making
13 power closer to the organisational or political centre so as to assert greater top-down control
14 (Schmidt & Groeneveld, 2019). These managerial concerns sit within broader political
15 considerations of legitimacy, equity, justice and representation. Bureaucratic actions derive their
16 legitimacy from the mandate of their political masters and from conformity to the precepts of good
17 governance, including those relating to probity and accountability. Bureaucratic actions thus derive
18 their legitimacy, in Haus, Heinelt and Stewart's (2005) terms, primarily through input and
19 throughput, rather than output, legitimation.
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45 **The 'top-down' technocratic logic**

46 A significant group of smart city scholars, companies and consulting groups mobilise a
47 technocratic logic underpinned by techno-optimism. Their primary goal is more effective urban
48 management, achieved by procuring and implementing digital solutions to address urban
49 problems. This is often delivered through a strategy involving close collaboration between the
50 private sector, which offers infrastructure, investment and expertise, and local governments, which
51 act as sponsors and serve as legitimate local institutions of governance and democratic
52 representation. This 'double helix' – and sometimes triple helix in which universities are
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3 additionally implicated – embeds a market-driven logic of efficiency (Mora et al., 2019). Local or
4 regional governments sanction and procure proprietary technologies from the market which are
5 then deployed on behalf of the city over which they have democratic jurisdiction (Grossi &
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additionally implicated – embeds a market-driven logic of efficiency (Mora et al., 2019). Local or regional governments sanction and procure proprietary technologies from the market which are then deployed on behalf of the city over which they have democratic jurisdiction (Grossi & Pianezzi, 2017; Paroutis, Bennett, & Heracleous, 2014; Pollio, 2016; Söderström, Paasche, & Klauser, 2014). Commercial organisations collaborate with the intention of either tailoring existing off-the-shelf solutions to local circumstances or developing solutions that can subsequently be marketed to other cities.

This type of collaborative innovation process is focused more upon creativity, outputs and impacts than a bureaucratic emphasis upon adherence to correct procedure. Tensions between established bureaucratic logics and this more entrepreneurial logic of technocracy and innovation therefore need to be reconciled (Agger & Sørensen, 2018). Double helix models of innovation, to varying degrees, seek to do so. The various further helical modes of collaboration (triple, quadruple), in contrast, include more stakeholder groups and require more ‘horizontal’ ways of engagement. Nonetheless, the double helix approach to smart city development has predominated to date; it is an approach that is top-down in the sense that it relies upon a strategy originating within local political elites in alliance with corporate interests.

The citizen-led, 'bottom up' logic

Critics of the logics described above argue that they result in an approach to smart city development that combines public administration with privatisation and commodification (of data) that limits citizen participation and risks reliance upon, and lock-in to, the proprietary products, motivations and objectives of big tech firms (Datta, 2018). This, they argue, militates against more polycentric, distributed and inclusive approaches to smart city development. The "quadruple helix" model of smart city development - which includes citizens and communities as the fourth strand - can be seen as an attempt to address this issue (Mora et al., 2019). However, critics have contended

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3 that, despite the veneer of democratic legitimacy this provides, it does little to address the issues
4 presented by the combination of bureaucratic and technocratic logics described above, and in fact
5 paradoxically may have the effect of depoliticising urban governance (Hollands, 2015; Mora,
6 Bolici, & Deakin, 2017; Grossi & Pianezzi, 2017; Cugurullo, 2018).
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12 A second (loose) grouping of scholars and advocates adopt instead a more overtly political stance,
13 one that is prevalent in the urban studies literature more generally. These scholars emphasise the
14 need to foreground the social construction and politics of the smart city and advocate, in particular,
15 for more grassroots approaches, citizen participation and agency through more direct, deliberative
16 forms of intervention (March & Ribera-Fumaz, 2016; Joss, Sengers, Schraven, Caprotti, & Dayot,
17 2019). This perspective includes advocacy for open-source data, open science approaches, non-
18 proprietary software, and leverage of collective resources via a 'city commons' (Balestrini et al.,
19 2017). The smart city is recognized as being as much a political project as a technical one. It does
20 not automatically emancipate, increase equitable access to city services or improve quality of life
21 for all citizens. It also has the potential to entrench difference, established power dynamics,
22 inequality and social division (Townsend, 2013; Marvin et al., 2015; Kitchin, Cardullo, & Di
23 Felicianantonio, 2019; Trencher, 2019).
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41 The force of this argument has been widely acknowledged in the rhetoric of smart city
42 development practice. In response the "Smart City 2.0" is one that should be more citizen-focused.
43 The institutional logic embodied in this argument rests on greater substantive citizen participation
44 in the specification, design, development and governance of smart city initiatives. Under this logic,
45 legitimacy does not flow through the institutions of representative democracy but rather rests on
46 more direct forms of deliberative democracy as a basis for interventions, underpinned by principles
47 of equitable development and social justice. It is a logic that is citizen-driven rather than
48 technology-driven and one that is both citizen-oriented and citizen-led (Balestrini et al., 2017). It
49 is a logic that emphasizes, using Haus and colleagues' (2005) terms, input and throughput
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3 legitimisation but, unlike the bureaucratic logic, it demands more active and inclusive mechanisms
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5 of engagement for securing legitimacy.
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9 These three logics, which we have derived from the existing smart city literature, we suggest are
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11 in operation in smart city development but typically remain hidden from view. Making visible for
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13 analysis those logics at play and the dynamics and tensions that exist between them is only possible
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15 through empirical observation (Reay & Hinings, 2009). The value of doing this has been
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17 demonstrated in related fields. Kornberger, Meyer, Brandtner and Höllerer (2017) have for
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19 example explored the field of open government data (see also the discussion of smart urbanism in
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21 Berlin by Raven et al., 2019). They highlight the way in which desirable characteristics of open
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23 government – in particular, crowdsourcing and inputs from outside the public sector – conflict
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25 with the established bureaucratic logic underpinning public administration. The authors argue that
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27 this bureaucratic logic, which emphasises representative government, centralised control,
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29 expertise, secrecy, exclusion, standardisation, equity, and accountability, places limits upon moves
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31 to open government in ways that undermine key benefits claimed for it.
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37 We use the institutional logics described above to orient our analysis of key smart city
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39 developments and modalities of citizen participation in Mexico City (see Figure 1). Our research
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41 explores the extent to which contemporary smart city developments align with the logics
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43 described, or hybrids of them, while leaving open the possibility of other logics emerging
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45 inductively.
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Insert Figure 1 here

Research Design and Methods

Research setting: Mexico City, the City Lab and the Digital Agency for Public Innovation

In order to understand the institutional logics underpinning smart city development and citizen participation in Mexico City we must first contextualise them within the broader socio-political history of the city. This history speaks directly to the question of the extent to which citizens can participate in urban governance. In this regard, Mexico has a long history of political modernization, from the revolution at the beginning of the 20th-century and a one-party regime to a competing democratic alternance by the 21st-century. Yet, at its roots, it has always struggled with authoritarianism as an essential part of the political culture. In Mexico City, the discussion about including direct citizen participation in some of the city's governance processes can be traced back to the 1990s. The 1998 electoral-political reform promoted by a left-wing party, the Partido de la Revolución Democrática, paved the way for a new Citizen Participation Law. The existing citizen councils were replaced by neighbourhood committees elected by universal vote and citizen representation was organized in geographic spaces called "territorial units" (Vargas Solano & Galván Gómez, 2014). However, it was not until 2010 that the Law of Citizen Participation, the Law of Budget and Efficient Expenditure, and the Call for Citizen Consultations on the Participatory Budget were issued. Citizen organizations then became a key instrument of citizen participation.

The same period that witnessed this 'participation trend' in Mexico City also embraced a 'Smart City narrative'. This trend was started in 2012 by the mayor Mancera, who created a City Lab or *Laboratorio de la Ciudad*. The *Laboratorio*'s purpose was to create an experimental space in which citizens, civil society, academia, business, and government could meet to reflect on the problems facing the city, and then take joint actions, including utilizing new technologies for

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3 digital governance. The *Laboratorio* was expected to offer solutions to urban problems in a
4 systematic and cooperative manner, generating co-production processes between the government
5 and the citizenry. The *Laboratorio* therefore mobilised a quadruple helix approach to smart city
6 development that actively included citizens and civil society groups. This transformed the
7 *Laboratorio* into a quasi-experimental, democratic agora. Indeed, at its inception in 2012 the
8 *Laboratorio* was arguably at the forefront of debates over citizen participation in smart city
9 development in CDMX.

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12 Nevertheless, the *Laboratorio*'s initiatives were limited in number and remained isolated
13 experiments. Mancera was replaced in 2018 by the new mayor. The new party in power, known
14 as MORENA (National Regeneration Movement), stands on a left-wing ideology that aims to
15 eradicate widespread acts of corruption that have historically been a feature of Mexico City. Under
16 the banner of the 4th transformation (4T) MORENA gained overwhelming victories and majorities
17 in the federal Congress, the Senate and several states of Mexico.¹

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20 The new government considered the *Laboratorio* to be an expensive experiment with limited
21 impact. In 2018, it was disbanded and replaced by a plan for a new governmental agency for digital
22 transformation of public administration. The idea to develop the *Agencia Digital de Innovación*
23 *Pública* (ADIP) (Digital Agency for Public Innovation) aligned with an austerity and efficiency
24 agenda put in practice under the 4T wave. The overall objective of the ADIP is to “build a
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51 ¹ The first transformation happened during Mexico's independence (1810), the second during the
52 reform period (1857-1861), the third was the Mexican Revolution (1910) and the fourth is
53 supposed to happen during the 2018-2024 presidency of Andrés Manuel López Obrador.
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3 government free of corruption and at the service of the people of Mexico City through openness
4 and digital governance, primarily for those who need it most” (ADIP, 2020). The legal framework
5 that regulates the ADIP is the *La Ley de Ciudadanía Digital* (Digital Citizenry Law) of 2019.
6
7 According to its website (ADIP, 2020) since taking office in December 2018 the ADIP has
8 developed over 65 different projects. The developments range from the new Government of
9 Mexico City website to launching an app called App CDMX, which includes information on public
10 transport, the program of bicycle stations (known as Eco-bici), “my policeman” (to find the nearest
11 policeman available), a Covid19 tracking app, and even a panic button to be pushed in case of
12 emergency.
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24 **Data Collection and Analysis**

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27 The ADIP is a focal point for current smart city development in Mexico City and leads on behalf
28 of the local government. Our project aimed to examine the early operation of the agency, how it
29 configures citizen participation and how this sits within the broader dynamics of citizen
30 participation in Mexico City, as discussed in the previous section. The main source of data
31 comprised 30 audio-recorded semi-structured interviews collected in the field between September
32 2019 and January 2020, resulting in about 40 hours of interview data. The interviewees comprised
33 public/private actors directly and indirectly involved in developing a smart city agenda in Mexico
34 City (see Table 1). The data were analysed with the aid of NVivo 11 software, which is widely
35 used to analyse heterogeneous, qualitative datasets (Miles & Huberman, 2003), through a process
36 of deductive/inductive iteration, contextualised within an emerging structure of theoretical
37 reasoning (Gioia, Corley, & Hamilton, 2012). We employed pre-selected constructs to direct our
38 coding (i.e., deduction): these constructs described institutional factors that influence participation
39 in Smart City projects e.g. barriers to citizen involvement, formal/informal rules,
40 inclusion/exclusion dynamics. The coding itself employed an inductive logic based on: (i) initial
41 open data coding, maintaining the integrity of 1st-order (informant-centric) terms (210 codes); (ii)
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3 organisation of 1st-order codes into 2nd-order (theory-centric) constructs; (iii) distillation of 2nd-
4 order constructs into overarching aggregate dimensions; (iv) presentation of the data in a narrative
5 fashion. The results of this analysis are shown in Table 2, where we report the 3 main theoretical
6 aggregates, and their underlying 2nd-order themes onto which we map the institutional logics
7 identified in the previous section. We illustrate these with representative quotes from the
8 interviews. The full, coded quotes are available in the supplementary material.
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32 **Research Results**

33 **Centralisation, efficiency and control (Bureaucratic and technocratic logics)**

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36 The first theoretical aggregate emerging from our data focuses on the logics to smart city
37 development mobilised by the ADIP, which can be summarised as *control* (over data and software
38 development) through *a top - down strategy* underpinned by a combination of strong *public sector*
39 *bureaucratic and technocratic logics*. These are, at least in part, legitimated by a *public discourse*
40 *of austerity and efficiency* and are enacted by *acquiring, co-locating and centralising resources*
41 *and expertise*. Compared to its predecessor the *Laboratorio*, which pursued diverse small-scale
42 and short-lived projects funded by private companies, the ADIP's approach has been to exert
43 considerable direct control, to the point where the smart city agenda is becoming monopolised by
44 the government agency. One of our respondents highlighted this control by drawing attention to
45 the way the agency cancelled a 10 million MXN contract overnight, securing instead a new
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3 contract for the installation of 13,600 free Wi-Fi posts across the city, as well as increasing the
4 speed of the internet service offered to the city government: transforming it into ‘the free Wi-Fi
5 capital of the world [by] renegotiating one contract’ (ADIP employee interview November 2019).
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10 Most of our interviewees suggested this control was accompanied by a clear strategy to internalise
11 and centralise previously externalised services, such as software development, data management,
12 and sensor infrastructures. From the outset the ADIP attempted to gain control over those diverse
13 sources of data produced within the city. The agency is attempting to introduce a narrative based
14 on the ‘objectivity of data’: working within a technocratic logic, it argues that centralising data as
15 the basis for city-wide applications could be a mechanism of standardisation that could
16 ‘depoliticise’ issues and resource allocations that had previously been subject to high levels of
17 contestation and spatial inequality. In parallel, thanks to the creation of an internal group of
18 developers and software engineers, the ADIP has created a monopoly over digitalised public
19 services offered by the city government, including the development of new software.
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34 Yet, as more than one civic activist noted, this monopoly risks hampering the creation of start-ups
35 with the potential to offer innovative services and risks curtailing bottom-up initiatives promoted
36 by activist-citizens. The curtailing of several citizen-driven initiatives was highlighted. This
37 included a citizen collective-led initiative funded by the local participatory budget mechanism that
38 was stopped - according to a respondent - by the intervention of the ADIP. The project, promoted
39 by a local collective of neighbours of the Colonia Juarez, consisted of an interactive app to improve
40 neighbourhood security. Despite having received the majority of votes in the participatory
41 budgeting process, it was alleged that the project had been cancelled and the budget re-assigned to
42 another initiative. The local authority justified this substitution by claiming that the ADIP was
43 developing a similar project: that is, by appealing to efficiency through avoiding duplication.
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3 the participatory budget itself, the diversion of funds is achieved by exerting pressure on the
4 municipality. The collective took the matter to the Mexico City Electoral Tribunal.
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8 An overarching public and political discourse of austerity, pursuit of efficiency, and a drive against
9 wastage and corruption serve as an important source of legitimation for these logics. Many
10 contracts signed by the previous administration were perceived to have been overly beneficial to
11 the private sector. The new government halted the hiring of expensive consultancies for smart city
12 development. Instead, smart city solutions would be developed by a centralised, internal team: this
13 was argued to be more cost-effective and reduced the potential for corruption whilst increasing the
14 efficiency of the e-solution. The Agency assembled a team of 40 software developers. ADIP
15 respondents claimed that applications developed internally were between 200 and 500 percent less
16 expensive than similar applications available commercially. Claims of efficiency, improved
17 quality and scalability made by agency respondents were, however, contested by interviewees
18 outside government: several raised concerns relating to the lack of open-source code for smart city
19 applications or an absence of mechanisms to provide feedback about improvements to them.
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36 The strategy of centralisation and internal delivery of smart city solutions, however, encountered
37 a key issue: limited pre-existing technical and organizational capabilities. The ADIP sought to
38 draw in relevant technical (digital) capabilities from civil society groups. Respondents highlighted
39 the lack of formal institutional (including legal) mechanisms to attract and retain highly qualified
40 people in government with the necessary skills. Attracting talent into the ADIP was also hampered,
41 it was claimed, by unattractive salaries and uncertainty about career stability. To compensate for
42 this, the ADIP had recruited young, enthusiastic individuals from a number of civil society
43 organizations.
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3 **The dynamics of participation and engagement (Bureaucratic logic in tension with**
4 **city-wide, citizen-led, bottom-up logic)**
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9 The second theoretical aggregate emerging from the data relates directly to participation, urban
10 governance and the distribution of power in Mexico City. Respondents suggested that the current
11 approach to smart city development was creating invisible but tangible barriers to citizen
12 participation. This operated at two levels: one organisational, at the level of the ADIP, and one
13 supra-organisational, at the level of the city.
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20 First, our respondents highlighted that the citizen engagement being undertaken by the ADIP was
21 *limited in nature, unidirectional and instrumental in motivation*. Rather than engagement being
22 meaningful, it was presented as a ‘simulation of participation’. Respondents from the ADIP
23 exemplified a bureaucratic logic when they mobilised a narrative of efficiency and performance to
24 justify their limited approach, citing a lack of time and the need to speed up the building of a robust
25 and functioning infrastructure as pre-requisites for more participatory forms of engagement. The
26 agency was, according to one respondent, anxious to deliver ‘smart’ applications. The perceived
27 imperative to deliver outputs quickly and efficiently was used to legitimate the Agency’s limited
28 participation approach, while this imperative in turn reflected the influence of the public discourse
29 of austerity and fiduciary integrity discussed in the previous section. Our data suggests that this
30 approach to participation by the ADIP might at face value be in tension with city-wide, formal
31 processes of citizen participation and urban governance that are underpinned by a more bottom-
32 up, citizen - led logic (see Research Setting above). Our respondents noted the great emphasis
33 placed on participation in Mexico City’s laws and in mechanisms such as the participatory budget.
34 However, our respondents also suggested that despite the existence of these laws, *in practice* these
35 created similar barriers to meaningful participation at a city-wide level as those manifested by the
36 ADIP, with constraints on citizen agency and limits to the redistribution and exercise of power
37 (Arnstein, 1969).
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3 Respondents in this sense drew attention to the legal framework for participation in Mexico City
4 as being both an important influence and, paradoxically, a simultaneous constraint on citizen
5 agency and power. The roots to this paradox can be found in the history of urban governance in
6 Mexico City, which has been dominated by factions, citizen groups (e.g. *colectivos*) and corporatist
7 forms of participation based on patronage networks (De Alba-Ulloa & Arellanes-Arellanes, 2017)
8 (see section below). These, our respondents suggested, serve to limit, and even hijack, more
9 meaningful and inclusive forms of democratic agency by citizens. One interviewee for example
10 suggested that the Citizen Participation Law was written more to legitimise the public
11 administration than to create meaningfully engagement mechanisms. The management of
12 participatory budgets was also felt by some to favour projects supported by politicians, whilst
13 leaving out viable projects proposed by citizens.
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29 In this respect the limited approach to citizen participation mobilised by the ADIP serves to limit
30 the potential disruption to these engrained networks of patronage and clientelism that could be
31 caused by more meaningful forms of participation. The modality of engagement and participation
32 exercised by the ADIP de-risks this by limiting engagement to surveys and formal/informal
33 meetings with the *colectivos*. In this model, citizens are positioned largely as *users* of smart city
34 solutions. Overall, while the ADIP's limited approach to engagement appears at first to be in
35 tension with the logic of bottom -up citizen participation that frames laws underpinning urban
36 governance, it reinforces how these laws are enacted in practice through networks of power,
37 clientelism and patronage. This privileges the *concentration of power, control and decision*
38 *making*, whilst leaving little room for more meaningful and inclusive citizen agency in shaping the
39 direction of smart city activities.
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54 **Representation, power, social justice and the logic of clientelism**

55 The final theoretical aggregate emerging from our data problematises these incumbent *institutions*
56 *of representation, clientelism and patronage* within the city, institutions that have implications for
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3 *social justice* and *equality of opportunity* for citizens to engage with, and benefit from, the smart
4 city agenda. Respondents drew attention to the important role of *social collectives* (Harguindeguy
5 & Molina, 2009) and how these link to *institutions of citizen representation*. Social collectives are
6 crucial to understanding the organization of social life in Mexico. Collectives, local assemblies
7 and a variety of informal forms of aggregation and association have been central to political life
8 in the country for two centuries. Over time these have been institutionalised and integrated into
9 public administration and laws. Local citizen assemblies have traditionally been used to raise new
10 generations of politicians, which in turn reproduce local patronage networks. The functional
11 complement of this system has been the logic of *clientelism*: a logic that emphasises loyalty from
12 people toward the leader that in turn creates an informal system of power and dependency due to
13 the vertical control of public funds. Our respondents suggested these mechanisms inhibit broader
14 citizen voice, participation and agency. This system has led to *informal networks of power*, which
15 allow access to public funds in exchange for political-electoral support, a practice deeply ingrained
16 in Mexican political culture.

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36 As many interviewees revealed, it is hard to find projects in Mexico City that are not, in some
37 way, a reflection of a patronage network or lie at the intersection of multiple interests backed by
38 multiple networks of power. Some *colectivos* – such as the collective of street sellers – are
39 powerful and influential in local urban policies. This complex network of patronage, our
40 respondents argued, also infuses the digital agenda of the city. They suggested that, despite a
41 narrative of standardisation and equity, the Agency’s digital agenda, as with that of the
42 predecessor *Laboratorio*, is a result of a patronage network favoured by the cosmopolitan and
43 richer areas, whilst largely ignoring the city’s peripheral and more disadvantaged
44 neighbourhoods. This issue of *social justice* and inequity of opportunity was visible in the
45 metaphor of the ‘two velo-cities’ (the *two-speed city*) used by some interviewees. One city is
46 characterised as cosmopolitan, respectful of human rights, with an approach to urban
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3 development that draws on a knowledge economy, with access to services and jobs. The other
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5 city was a 'slow' one, abandoned and left behind, where services are scarce and basic human
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7 rights are uncertain.
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10 Our interviewees also drew on a narrative of *techno-optimism* regarding the capability of smart
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12 city technologies to address and resolve the 'two velo-cities' by creating a neutral, apolitical space
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14 in which the power games played within patronage networks might be overcome. This aligns to
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16 some extent with the technocratic logic mobilised by the ADIP. But whilst the approach
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18 promulgated by the ADIP might, at face value, offer such a neutral, apolitical space, our
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20 respondents suggested that this has not so far been able to engage with or address issues of equality
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22 of opportunity or benefits associated with smart city development. Indeed some suggested that it
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24 might reinforce such inequalities by favouring wealthy residential neighbourhoods and spaces for
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26 the new economy which becomes 'smart,' whilst much of the remaining city is left behind
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28 (Masucci, Pearsall, & Wiig, 2019).
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34 **Discussion**

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38 In this study we set out to understand how different institutional logics are influencing smart city
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40 development, and within this, the nature and modalities of citizen participation in the context of
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42 Mexico City. Our results suggest the interplay of several logics that exhibit a complex pattern of
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44 co-existence, tension, and synergistic, mutual reinforcement. We discuss these further here with a
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46 focus upon the ways in which the key organisational actor in the field (the ADIP) has reconciled
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48 these logics during the early months of its existence.
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52 **From the *Laboratorio* to the ADIP**

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55 The abolition of the *Laboratorio* and the creation of the ADIP was accompanied by a significant
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57 shift in logic mobilised by the organisation leading smart city development in Mexico City. The
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59 creation of the ADIP represents a reassertion of the bureaucratic and top-down, technocratic logics
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3 with emphasis placed upon probity, accountability, public management and anti-corruption as well
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5 as the benefits of standardisation of data and centralisation of decision-making. These logics were
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7 strongly present in the early months of the ADIP's existence, the timeframe during which we
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9 collected our data. The *Laboratorio* had been abolished by the local government for perceived
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11 performance deficiencies: the creation of the ADIP and the logics that underpin it was a response
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13 to such perceived deficiencies.
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17 Echoing observations by León and Rosen (2019), our results illustrate the way in which a
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19 technocratic logic of smart city development can be used to try to depoliticise urban governance.
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21 A concern about the smart city is that social and political issues are treated as largely technical
22
23 ones amenable to technical solutions which are uncontentious. By adopting bureaucratic and
24
25 technocratic logics, the ADIP, we suggest, emblemises this concern. It has adopted an
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27 organisational strategy that serves to squeeze politics out of smart city development in the city as,
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29 seemingly, a political strategy in itself.
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34 The implications for the modalities of citizen participation in smart city development are
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36 significant. The quadruple helix model previously mobilised by the *Laboratorio* engaged citizens,
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38 at least to some degree, as active stakeholders in smart city development processes. In contrast,
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40 the dominant bureaucratic and technocratic logics of the ADIP lever a model of representative
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42 democracy in which citizens are positioned as 'users' with little direct involvement or meaningful
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44 agency. This reflects the fact that the ADIP understands itself as a government agency whose
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46 agenda is set by elected politicians, who in turn receive their mandate from the electorate. 'Input
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48 legitimisation' flows from electoral politics and that is the arena in which citizens shape the smart
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50 city agenda. Direct participation in development processes is largely limited to user feedback and
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52 testing. This pushes against the citizen-led bottom-up logic (which, in the smart city literature, is
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54 viewed in the main as being normatively desirable) and towards the bureaucratic and technocratic
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56 logics. The ADIP does not seek to internally balance or hybridise the bureaucratic and citizen-led
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3 logics, nor does it exhibit any noticeable forms of organisational decoupling in the face of the
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5 latter. Figure 2 summarizes our argument and highlights the way informal institutional logics
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7 permeate the field.
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22 **Rejection of helical models of smart city development**

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25 Our review of the smart city literature suggested a progressive desire to move from double helix
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27 models towards triple and quadruple helices that involve the engagement of ever wider groups of
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29 stakeholders and citizens. Our findings suggest the exact opposite: the move from the *Laboratorio*
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31 to the ADIP is moving *not* from a double towards a quadruple helix model, but from a double to a
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33 single helix model in which the state is the lead and sole actor. In other words, it rejects helical
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35 models entirely. It does so by mobilising a hybrid of institutional logics (technocratic,
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37 bureaucratic) within a newly formed public sector organisation, rather than reaching out to develop
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39 cross-sectorial collaboration. Here it is challenging, on grounds of efficiency, effectiveness and
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41 fiscal probity, the rationale that such direct forms of engagement are an effective or desirable
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43 governance mechanism. This, in turn, reflects the recent history of Mexico City, where much of
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45 the focus has been on corruption and poor value for money. The approach taken by the
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47 *Laboratorio*, which drew in multinational commercial vendors, was perceived as inefficient and
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49 not operating to the advantage of citizens. The reassertion of the bureaucratic logic, emphasizing
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51 rules, fiscal probity and value for money, seeks to address this and places greater emphasis upon
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53 throughput legitimacy.
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3 The success of this strategy, and the logics that underpin it, are yet to be decided, noting our
4 interview data only encompasses the first year of the ADIP's existence. Although the agency
5 appears to have stabilised a hybridisation of the bureaucratic and the technocratic logics during
6 that period, there were expressions of discontent from stakeholders. For this reason, it is too early
7 to say whether this is a sustainable and durable coupling.
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14 15 **Participation in institutional context** 16

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18 While the move from the *Laboratorio* to the ADIP was an attempt by politicians to shift the balance
19 of institutional logics shaping smart city development, the move also highlights significant
20 continuities. These continuities can be seen when we consider how the organisational logics
21 manifested by the ADIP work with and reinforce broader and more deeply embedded institutional
22 logics sustained at a city-wide level. These in total, we argue, have important implications for
23 citizen participation in smart city development, and serve to mutually-reinforce the logics
24 mobilised by the ADIP itself.
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35 In this respect we can locate the logics of the ADIP approach to smart city development - and
36 citizen participation within it - within an understanding of powerful, established norms and
37 institutions of (urban) governance in Mexico City. These are more complex than at first appears.
38 The formal governance structures of Mexico City at face value invoke a logic of bottom-up citizen
39 led participation and place considerable weight upon direct citizen participation in policy decision-
40 making. However, these institutions are themselves located within a broader, engrained logic of
41 *clientelism* supported by informal networks of patronage and power. The result is a form of
42 cognitive dissonance: practices on the ground are rather less citizen-led in practice than those
43 inculcated within formal structures of urban policy. What emerges from our data is the powerful
44 influence of the logic of clientelism across the city, one which serves to configure and limit citizen
45 participation in smart city development.
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3 The quadruple-helix model of the *Laboratorio* can, we suggest, be seen as an attempt to break
4 from the logic of clientelism by seeking to foster forms of direct citizen participation in smart city
5 development, increasing throughput legitimation. Despite this, our interviewees reported that the
6 projects conducted by the *Laboratorio* did little to change the familiar logic of clientelism. The
7 creation of the ADIP and its logic of centralised, top – down bureaucracy could, we suggest, be
8 seen as another attempt to break with this city-wide clientelist logic in order to deliver an approach
9 that is more representative of the entire electorate’s needs, albeit deploying a very different set of
10 logics to that of the *Laboratorio*. However, our interviewees reported scepticism regarding the
11 success of the ADIP’s approach in terms of addressing this influential logic of clientelism, at least
12 in its first year of operation. Some saw the approach of the ADIP not only as not disrupting the
13 incumbent logic of clientelism but in practice reinforcing it.

29 **Implications for citizen participation in smart city development**

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31 Kornberger et al. (2017) have demonstrated that a dominant bureaucratic logic places constraints
32 on the extent to which public services can embrace the bottom-up logic of open government. The
33 two are fundamentally in tension. Their findings resonate with the experience in Mexico City in
34 terms of the tension between the logics of bureaucracy, technocracy and bottom-up citizen
35 participation. These three field level logics are certainly visible in our case study. However, our
36 findings indicate that restricting analysis to the interplay of these field-level logics risks missing
37 those further logics (in our case study the logic of clientelism) that might exist above and around
38 the field level logics and which may in turn significantly influence them (Greenwood, Magán Díaz,
39 Xiao Li, & Céspedes Lorente, 2010). The implication is that to fully understand smart city
40 development processes it is certainly necessary to analyse those field-level logics that are present,
41 but is important also to locate these *within a broader analysis of those situated, societal level logics*
42 *at play within the particular city under consideration.*

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3 At a field level within the smart city community there has been increasing momentum to recognise
4 the politics of the smart city and its implication for citizen participation (Kitchin et al., 2019), often
5 with an explicit concern about the undue influence of ‘big tech’ over the agency of citizens
6 (Hollands, 2015). However, our study suggests this underplays the importance of other locally-
7 situated social and political dynamics that extend beyond the influence of ‘big tech’. In the Mexico
8 City case, we observe a regional government that has turned decisively away from big tech, but,
9 unlike the equivalent political change in Barcelona (Charnock et al., 2021), this did not bring
10 citizens closer to the centre of the process. Rather, the move to dominance for a bureaucratic logic
11 has seen citizens further distanced from the process of smart city development.
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24 Above we noted that in its first year the ADIP stabilized a hybrid of the bureaucratic and
25 technocratic logics geared towards delivering outputs. We now consider whether this position is
26 sustainable and where drivers of change might lie. A key determinant of the sustainability of the
27 current approach by the ADIP is whether local government is satisfied with the ADIP’s delivery
28 and performance. What emerges from our data is that the agency adopted a managerialist attitude
29 that prioritised the delivery of apps over citizen participation and inclusion. Our interviewees
30 suggested these apps did not have the anticipated reach in terms of numbers of users and there was
31 room for improvement in design and functionality. We cannot anticipate whether the ADIP’s
32 delivery and performance will be deemed satisfactory over the longer term. If organisational
33 motivations at senior level are managerialist, then it will require internal or external pressure to
34 induce more inclusive, equitable and citizen-led smart city development. External pressure within
35 the smart city field – a global discourse on the desirability of citizen-led smart city development –
36 already exists but is insufficient to act as a counterweight to the ADIP’s current dominant logics.
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3 the needs of citizens: a significant shift in political philosophy will be needed to revise the
4 understanding of input legitimation. Even were that to occur, the embeddedness of the clientelist
5 societal logic suggests limited progress will be possible without much more far-reaching social
6 change. Overall, therefore, it appears the scope for external pressure to shift the balance of
7 dominant logics towards more meaningful citizen participation is limited.
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12 We might however look to endogenous change in the balance of logics within the ADIP itself, as
13 a mechanism for recoupling to the bottom-up citizen participation practices that are normatively
14 preferred in much of the smart city literature (Tilsik, 2010). The ADIP's strategy of recruiting
15 staff with the relevant expertise from civil society organisations suggests many of these staff bring
16 with them experience of working with communities in more participative ways. This could set up
17 an internal dynamic with the potential to destabilise the incumbent logics of the ADIP. Whether it
18 will do so will depend in part on the resilience of the currently dominant bureaucratic
19 organisational logic and the resilience of the deeply embedded societal-level logic of clientelism,
20 both of which configure and limit citizen participation. Moreover, we cannot exclude the potential
21 role of the ADIP itself in shaping and influencing those logics, which might include the possibility
22 of creating new forms of patronage and networks of power built around the ADIP and the
23 considerable resources at its disposal. These are questions that can only be addressed in future
24 work.
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46 **Conclusions**

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49 This paper describes the existence of and dynamics between institutional logics that influence
50 smart city development and, within this, citizen participation. We analysed the tensions that exist
51 between a public sector bureaucratic logic; a technocratic logic; and one that emphasises bottom-
52 up citizen participation and agency. We see elements of these first two logics within current smart
53 city development in Mexico City but show that these in turn refract a broader logic which
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3 configures participation through a logic of clientelism and patronage. *These logics, whilst different,*
4 *work synergistically.* Broader political discourses serve to hybridise, legitimate and bind these
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6 logics of bureaucracy, technocracy and clientelism together, in total configuring and limiting
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8 citizen participation. The outcome is centralisation of decision making and control over the
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10 objectives for and opportunities afforded by smart city development. While the concern about
11
12 smart cities is typically that the embrace of a technocratic logic might inadvertently result in
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14 political issues being treated as technical and uncontentious, our study shows that the situation can
15
16 be more nuanced. However, the end result is the same: limits to citizen participation, largely
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18 benefiting those who live in more affluent, ‘connected’ areas at the expense of those in less affluent
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20 neighbourhoods. While similar findings have been reported elsewhere in the Global South, the
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22 example of Mexico City offers insights into the substantial barriers to equitable and inclusive smart
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24 city development created by embedded socio-political institutions that shape local, situated
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26 institutional logics. A discourse portraying smart city development as undertaken in citizens’
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28 interests is almost universal. But the devil is always in the detail, and the detail we suggest is
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30 hidden within the logics underpinning smart city development, and how these interact. These
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32 logics, and how they influence the nature and modalities of participation, need to be made visible
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34 in particular situated contexts. Without doing so, tokenism and the unequal distribution of the
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36 benefits of smart city development are, we suggest, inevitable outcomes.

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38 We close by stressing the situatedness of our case study. As an exploratory, critical case,
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40 (Flyvbjerg, 2006) our study is informative, but we caution against making generalisations from
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42 our data concerning those logics that might be mobilised within smart city development in other
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44 geographically or temporally situated contexts. These we argue must be opened up to empirical
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46 study themselves. However, if we consider the ADIP example as a critical case in Flyvbjerg’s
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48 (2006) sense then our work can offer a tentative general claim. A shift of political power from a
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50 conservative to a more progressive government can be necessary but not sufficient to achieve
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3 functioning and meaningful citizen participation in Smart City projects. If in a case in which a left-
4 wing movement backed by civil society is returned to power, participation is not fully achieved
5 because the dynamics of deeply engrained institutional logics are overpowering then we should
6 expect that genuinely transformative change is not possible through institutionalised forms of
7 participation.
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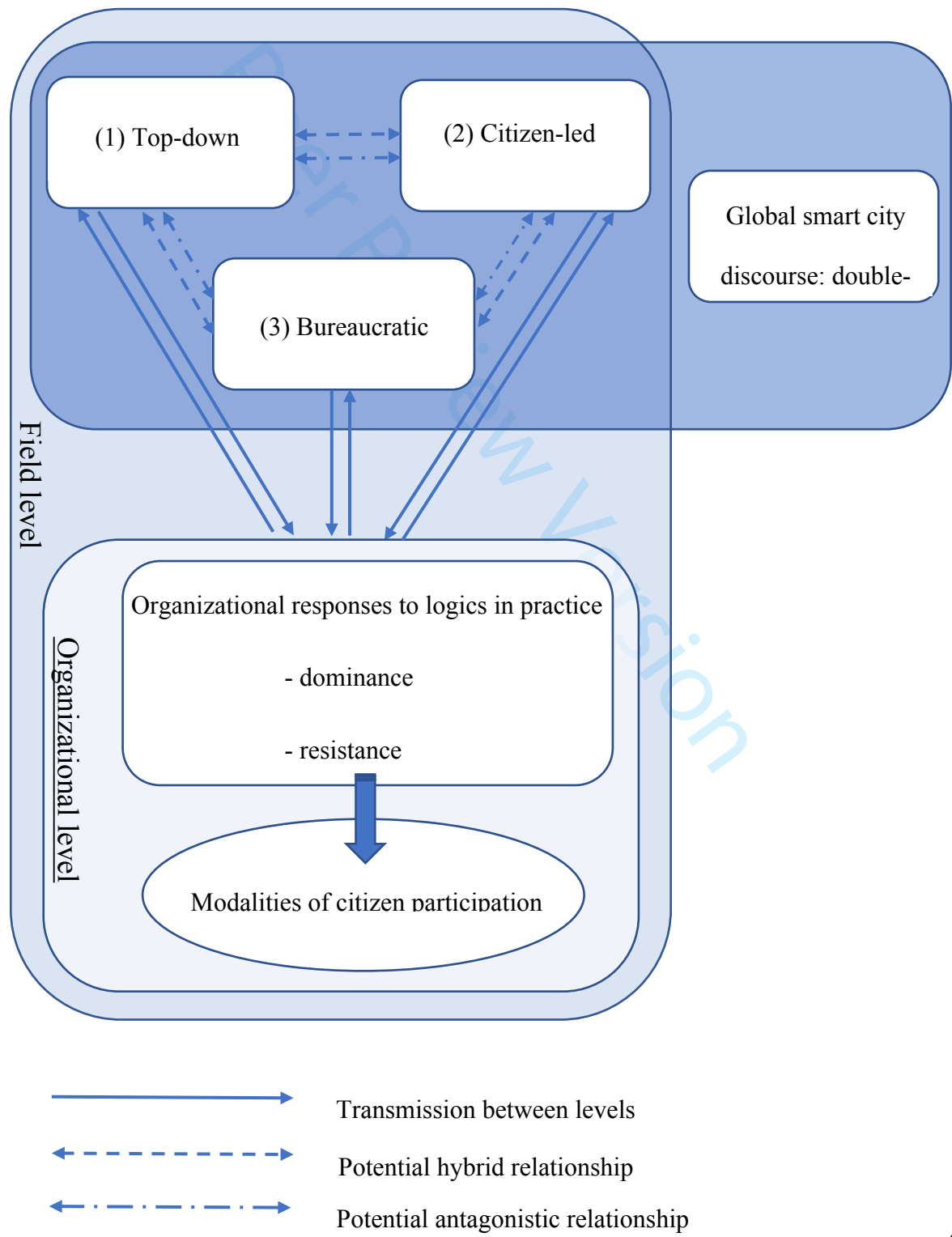
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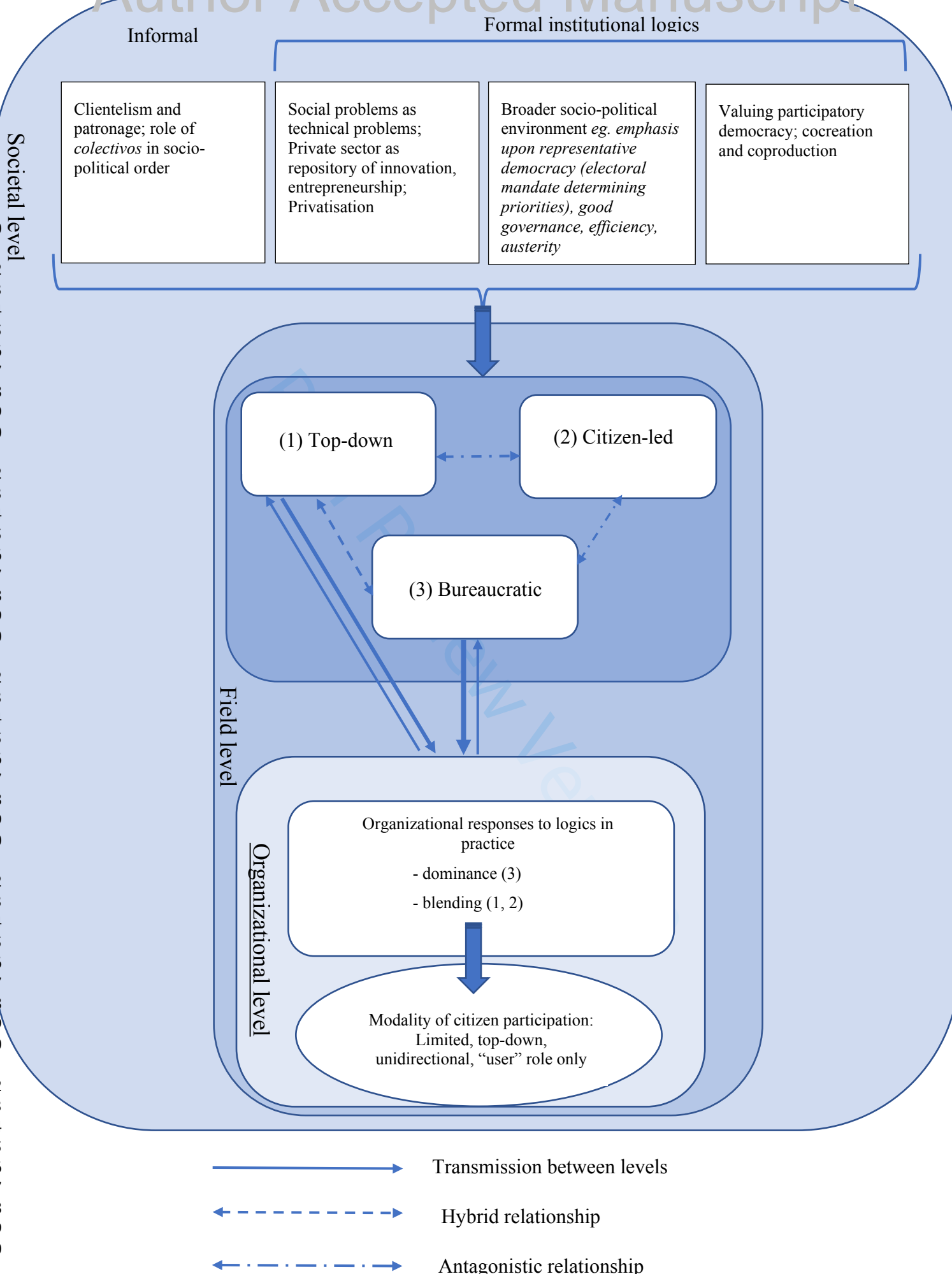
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Figure 1 Institutional Logics at play in Smart City development



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Figure 2 Institutional Logics at play in the ADIP and the resulting modalities of citizen participation

Peer Review Version

Table 1 Data Collected

Groups	Data collected	Concepts studied and induced
Public Servants	9 Semi-structured interviews	Organizational strategy for the implementation of digital governance, data management, barriers and enablers
Civil Society members / activists	15 Semi-structured interviews	Organizational interaction, barriers and enablers for citizen participation
Academia	2 Semi-structured interviews	Narratives and discourses about smart city projects,
Politicians	2 Semi-structured interviews	Evolution and approval of the laws of citizenry participation, political barriers and enablers
Private Sector	2 Semi-structured interviews	Institutional interaction, barriers and enablers for private sector participation
Govt	laws, public documents, websites	Institutional communication, legislative frameworks

Table 2 Data Structure

Theoretical aggregates & Logics in Operation	2nd order themes	Representative quotes supporting 2nd order themes
Centralisation, efficiency & control	Control over data and software development	<p>“I also think that they are limiting many Start-ups [...] We proposed them [a new app], but they had to request permission from the Digital Agency and we know that the Digital Agency said “no, if you want an application, we will do it” (private sector manager)</p> <p>“They are literally monopolizing software development within the government of Mexico City to such an extent that even if a [...] city council wants to develop an application or a website, it must have the approval of the Digital Agency for Public Innovation” (social enterprise employee)</p>
Bureaucratic and Technocratic logics	Public discourse of austerity and efficiency as legitimising force	<p>“We had always outsourced the acquisition of software, [...]. Our product costs are between, between 100 and 500 percent cheaper than a company, [...] I have a team of 40 people who are software developers, I think it is the government factory, the factory of largest software in government across the country” (ADIP employee)</p> <p>“In past administrations used contractors and paid, I think, 10 million pesos a year for commercial supplier licenses to record citizen reports in Mexico City, [...] the transition came and this government, [...] contracts with commercial suppliers disappeared” (Govt employee)</p>
	Acquisition, centralisation and co-location of expertise for smart city development	<p>“Hiring [...] talents is complicated, finding the right talent has been difficult.” (ADIP employee)</p> <p>“The majority of executives [working] for the Digital Agency, come from Civil Society, which is hopeful, and you can have conversations, whether formal or informal, because they continue to participate in traditional spaces of civil society” (Social Activist)</p>

The dynamics of participation and engagement	Invisible barriers to participation	“[...] authority is afraid of participation because they don’t know it, they don’t control it, the authority encourages corporate clientele participation and that has been in Mexico since the post revolution. The entire post-revolutionary regime was based on a corporate and clientele structure, and now [the new govt] simply reproduces and adapts that system, but they do not transform it” (Govt employee)
Bureaucratic logic in tension with city-wide, citizen-led, bottom-up logic	Hijacked participation mechanisms	<p>“[...] the citizen participation laws are written for the authorities to use, not the citizenship, and that is to have the cart in front of the oxen, it is the other way around, they should think about those laws for the people.” (Social Activist)</p> <p>“It gives it a status, it opens doors for you, politicians believe that leaders are leaders, and the truth is that it’s not so, and it is seen in the percentage of participation, participation is very low, and if they really were leaders in their community, where is the participation? where is their leadership? (Social Activist)</p> <p>“Citizen committees in which they have been politically co-opted and citizens, eh, seeing that a certain group continues to participate, they say “why should I participate, if I already know who is going to win, right?” (Social Activist)</p>
Representation, clientelism and social justice	Role of collectives and clientelism	“...the neighbourhood assemblies historically were training tables [guidelines] of the PRI [Institutional Revolutionary Party] and it was one of the doors of, in some cases of the entry of leaders and in other cases of clientele relations, so all this of the neighbourhood assembly is actually very flawed, very flawed very controlled” (Social Activist)
Clientelist logic (see text for description)		“the social analysis of Mexico has always been linked to collectives, [...] And also inherited from the revolution, which was historically an analysis of the Soviets that Mexico inherits. So, with 70 years of Institutional Revolutionary Party, thus all these forms were institutionalized” (Academic)

**meets
technocratic
logics**

Urban inequality
and social
justice

“The city has two speeds; there is a cosmopolitan city, there is a city of knowledge, access, law, opportunities, work, services, and there is a great city that is not that. So the probability of it being a smart city is high for this city that is already encrypted, that has services, that has traffic lights, to call it that stupidly, smart or self-regulated, that an ambulance has a route with a GPS phone to take, here depending on where you live the emergency services, that help you or not, to die or live; it’s that simple” (Social Activist)

“Where I live is second in Human Development. Period. Well, I go to an ice cream shop and that person takes 2 hours 40 minutes to get to work there. I tell him “Hey, but this is tough, why don’t you find a job closer? Because there isn’t. Second, why don’t you move closer? No, because where I live, I pay less than \$ 100 a month-rent, and then the effect, mobility spending, land rental value, are crossed, and this makes the city work at two speeds.” (Govt employee)

Techno-
optimism

“To depoliticize also, but as a synonym of neutral cleansing because it would be one thing to depoliticize in terms of entering into political analysis to see who wins and loses and another thing will be is to depoliticize saying no, I don’t get involved in the political analysis, I am neutral and there goes the instrument, and the instrument will decide.” (Academic)

“Technology arrives, and technology in a more or less clean way, neutral without big fuss and cheap, I imagine, cheap and simple to do, with this cost zero, zero cost I do not know what, I do not remember the word, then reduces costs, they are simple, quick, cheap solutions, that can be used” (Social Activist)
