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Zhang, O., Bates, J. orcid.org/0000-0001-7266-8470 and Abbott, P. (2022) State-steered smartmentality in Chinese smart urbanism. *Urban Studies*, 59 (14). pp. 2933-2950. ISSN 0042-0980

<https://doi.org/10.1177/00420980211062888>

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State-steered smartmentality in Chinese smart urbanism

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Abstract

This study explores the socio-political shaping of Chinese smart urbanism by examining the power relations between the government (national and municipal), private firms and citizens embedded in smartmentality. Our exploration begins with teasing out key analytical standpoints of Alberto Vanolo's concept of smartmentality applied in neoliberal practices of smart urbanism. Through this analytical framework, we conceptualise Chinafied smartmentality and illustrate how it is actually playing out in China by undertaking documentary research and in-depth interviews from an inductive case study of the Smart Transportation System (STS) in the city of Shijiazhuang. We observe that the idea of Chinafication extends smartmentality with a focus on the power dynamic. We further argue that this Chinafied smartmentality implies uncritical technological solutionism that is state-steered in nature, and citizen participation in digital platforms that is performed with limited roles and power for inclusion. The article concludes by calling for future research on the critical examination of value co-creation for shaping a truly citizen-centric mode of governance in Chinese smart urbanism.

Keywords

Chinese cities, citizenship, governmentality, smart city, smartmentality, smart urbanism

Urban Studies

1–18

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DOI: 10.1177/00420980211062888

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摘要

本研究通过考察智慧思维 (smartmentality) 中所嵌入的政府 (国家政府和市政府)、私营企业和公民之间的权力关系, 探讨了中国智慧城市化的社会政治塑造。我们探索的出发点是对阿尔贝托·瓦诺洛 (Alberto Vanolo) 的智慧思维概念在智慧城市化的新自由主义实践中应用的关键分析观点进行梳理。凭借这一分析框架, 我们通过对石家庄市智慧交通系统 (STS) 进行归纳案例研究 (包括文献研究和深入访谈), 将中国化智慧思维概念化并说明它是如何在中国实际发挥作用的。我们观察到, 中国化的想法扩展了智慧思维, 重点关注权力动态。我们进一步认为, 这种中国化的智慧思维本质上是一种国家主导的、不加批判的技术解决方案主义, 以及公民在参与数字平台方面的作用与包容性权力的有限性。本文最后呼吁未来的研究对价值共创进行批判性检验, 以在中国智慧城市化过程中塑造真正以公民为中心的治理模式。

关键词

中国城市、公民、政府、智慧城市、智慧思维、智慧城市化

Received October 2020; accepted November 2021

Introduction

The notion of ‘smart urbanism’ has gained traction amongst diverse social actors to refer to the socio-political and political economic dynamics of technology-enabled and networked urbanism (Kitchin, 2014; Luque-Ayala and Marvin, 2019) from which smart cities emerge. This ‘smart urbanism’ label has engendered critical urban research on rethinking forms of city governance and new models of government in the smart city (Vanolo, 2014). The way in which smart cities are governed, that is, what observers such as Giffinger et al. (2007) have labelled smart governance, evolves differently in diverse geographical contexts, including China, the focus of this study. However, smart governance is not merely leveraged by high technology but driven by a set of ‘mentalities of rules’, reflected as governmentality (Foucault, 1991 [1978]). Namely, there are political rationalities shaping the ways in which government programmes are constructed and socio-technical imperatives put these rationalities into effect (O’Malley et al., 1997).

The governing of smart urbanism programmes is often strategised to be the restructuring of the urban regime and has been observed to involve various socio-technical practices, such as ‘governing through code’ (Klauser et al., 2014), visualisation of urban platforms (Young et al., 2021) and implementation of urban operating systems. Extending beyond these practices, Vanolo (2014) argues that a brand-new urban epistemology is emerging – smartmentality. It acts as a discipline system in which new geometries of power are embedded for governing the smart urbanism. Based on his research in Italy, Vanolo observes that the contemporary smart urbanism involves bringing together social positionalities of diverse interest groups, knowledge and rationalities that co-produce and reshape governing strategies. This transformation entails new power relations between the state (government), private firms and citizenry.

However, understanding of smartmentality in smart urbanism varies in different geopolitical contexts. In China, for example, 10 super cities with populations above 10 million were

predicted to exist by 2030 (Chan and Anderson, 2018). Such a rapid transition necessitates significant indigenous social and political commitments, which it has been argued can be achieved by a shift towards technology-mediated and citizen-focused urban restructuring (Li and de Jong, 2017). This objective was incorporated into the 'New-type Urbanization Plan (NUP)' (State Council, 2014) released by the Chinese national government in March 2014. The NUP was explicitly defined as Chinese smart urbanism. However, despite many efforts to explore the design, running and perceived challenges of smart city initiatives under the NUP (Chan and Anderson, 2018; Li and de Jong, 2017), little reflection has taken place on understanding the socio-political rationalities of Chinese smart urbanism through Vanolo's (2014) lens of smartmentality. A deeper exploration of the geometries of power relations enacted by different actors in the creation of the Chinese smart urbanism is imperative.

Of particular interest in the Chinese context is whether the emergence of smart urbanism potentially replicates urban transformation towards a form of neoliberalism as seen in other countries – for instance, beyond Vanolo's work on the Italian context, South Africa promotes its 'One Cape 2040' vision in Cape Town, manifesting a stronger public-private partnership (Odendaal, 2015); Indian's smart urbanism is aimed at constructing entrepreneurial cities (Datta, 2015, 2018); and Singaporean politicians advocate that the Smart Nation initiative is built upon the 'neoliberal-developmental logic' (Ho, 2017). Likewise, Shin (2014) argues that Chinese urbanisation processes in general reflect the construction of capitalism. China has thus been considered by some to be somehow neoliberalised since the embedding of market reforms for opening up the economy from 1978, which it has been argued led to an underlying change of state-capital relations (He and Wu, 2009; Li

and Chan, 2017). His and Wu's (2009) thesis is that China's neoliberal urban transformation manifests a shift from high state expenditure towards a marketised society. Xing and Shaw (2013) claim this as 'state capitalism', so the market economy is established on the state interests, outstripping capital and class interests, forming a unique form of neoliberalism, echoing what Harvey (2007) reflects as 'neoliberalism with Chinese characteristics'.

This uniqueness can be discerned in current reports about replacing the 'growth-at-all-costs' with a 'politics-in-command' economy, and of the endeavour to balance market prosperity and national security (*The Economist*, 2021). For example, the state has devised Data Security Law and Anti-Monopoly Law (Zhang, 2021) to seek to redistribute the market power of domestic tech monopolies like Huawei and Alibaba. In extending smart urbanism, these practices mirror Li et al.'s (2016) observations that the state continues to apply an interventionist approach, meaning that despite the technological dominance enacted by the 'titans' – for example, 5G networks, autonomous vehicles, the City Brain, to name a few – to develop smart city projects, the state itself seems to determine the future orientation of urban development. In other words, China's neoliberal smart urbanism takes place in a context where political intervention is strong, without much space for the autonomy of non-state actors and their activities.

Nevertheless, little research has critically examined the continuation of Chinese state power in extending smart urbanism through the concept of smartmentality, which offers a lens onto issues of governance of the smart city. This study bridges this gap by undertaking a case study of the development of a Smart Transportation System (STS) in Shijiazhuang, a Chinese demonstration smart city of Tier-2 status. Drawing upon work on neoliberal rationalities, this study

aims to explore the socio-political shaping of Chinese smart urbanism by examining the power relations between the government (national and municipal), private firms and citizens embedded in smartmentality. Vanolo's (2014) concept of smartmentality is used as a lens to analyse the case of Shijiazhuang. Our findings lead us to argue that Shijiazhuang's smart urbanism is strategised to be Chinafied – that is, neoliberal practices are replicated in their own way, developing towards being what we call 'state-steered'.

The rest of this article is structured in six sections. The second section introduces the concept of smartmentality in both Chinese and non-Chinese city contexts. The third section focuses on the smartmentality analytical framing of the study based on the neoliberal practices that researchers have observed in governing Chinese smart urbanism. The fourth section introduces our case study and methods. Following are two sections that outline the findings of the research, shaping our key observations around state-steered technological solutionism and state-steered citizenship. The final section discusses our key arguments around the idea of Chinafied smartmentality. It also considers the future research orientations for work in this field.

Smartmentality for contemporary smart urbanism

Vanolo (2014) identifies the governmentality of the contemporary smart urbanism as a discipline mechanism that he defines as smartmentality. Many states and supra-national organisations endorse this form of smartmentality as the path to achieve technologically advanced and sustainable urban transformation. In some cases, the logic of smartmentality is charted into a set of urban benchmarking tools which allow cities to evaluate their smart initiatives by using data-driven ranking systems (Giffinger

et al., 2007). Often, the ranking criteria are created by the private sector and the standard is set in concert with tech giants aiming to enact their vision of a utopian landscape of the urban future (Townsend, 2013). Cities are increasingly moulded into business platforms like Amazon, that is, platform urbanism (Caprotti and Liu, 2020; Graham et al., 2019). It is no coincidence that benchmarking practices within platform urbanism helps to build a strong industrial coalition in which emerging socio-technical assemblages take shape. These practices meanwhile raise controversial debates about the necessity of political interventions, and to what extent they become useful to government and governance. Kitchin (2015) argues that the smart city concept is never apolitical and non-ideological as far as issues around civil rights, social inequality and inclusiveness are concerned. Further, platform-based infrastructural designs from which vested interests benefit might lead to splintering urbanism (Graham and Marvin, 2002), as data-driven benchmarking practices, in particular, would enhance digitally social stratification and marginalisation.

Smartmentality in urban China, however, demonstrates a quite different rationality. In this context, instead of being co-opted by tech giants, data-driven benchmarking practices in Chinese smart urbanism are standardised by the state apparatus (Lin, 2018). Over the last decade, a huge amount of investment has been made by the state into big data solutions – which are harnessed to government efforts at social regulation and coordination – as discipline mechanisms to manage what the state deems to be urban and social pathologies. However, whilst people enjoy using technology, they are meanwhile strait-jacketed by the algorithms and analytics embedded within. Amongst various big data practices, quite a few are designated as smart because they are future-oriented, thereby enabling a speculative

practice of algorithmic smartmentality (Leszczynski, 2016). For urban China, this speculative nature is manifested as ‘state surveillance’, such as the social credit system as a vehicle for enforcing regulations and enhancing social solidarity (Engelmann et al., 2021; Liang et al., 2018). Although critical challenges at the municipal levels – such as low data quality and siloed databases (Ahmed, 2018) and the diversity, flexibility and comprehensiveness of social credits (Engelmann et al., 2021) – are yet to be addressed, the initiation of the social credit system indicates government’s will to govern cities through big data. However, this practice alike may spark off issues relating to cities’ underlying proclivity to *technologically solutionist* approaches – that is, seeing technology as a panacea to urban issues (Morozov, 2013) – on the one hand, and *uninterrupted citizenship* – that is, the ways in which citizens are engaged in producing smart urbanism and are technologically locked in to platform urbanism (Hemment and Townsend, 2013; Kitchin, 2014) – on the other.

With regard to the former, technological solutionism has been critiqued for lacking critical consideration of the social impact of urban technologies manipulated by vested interests such as the private sector and the state. These critics contend that technological regimes ought to supplement people, knowledge and politics, rather than the other way round (Söderström et al., 2014). As for uninterrupted citizenship, in the global reach of platforms, citizens are parsed by real-time data analytics and thus considered as coded subjects (Kitchin and Dodge, 2014). Although platform urbanism enables customisation, there is a lack of civic ability for self-governance (Mann et al., 2020). In China, for instance, the state has promoted open urban data (Liu et al., 2015) for

citizens to better access government services. Instead of stressing that government data is crucial to citizens, however, the state is more interested in capturing personal data derived from state surveillance for effective governance and urban sovereignty (Liang et al., 2018). Whilst citizens in China are empowered to somehow consume services provided by platform vendors, the state, from time to time, intervenes in data collection and the way in which data are used towards political and economic ends. This may undermine the state–citizen relationship (Zhang and Chen, 2015).

Both issues (technological solutionism and uninterrupted citizenship) reflect the underlying power dynamics in enabling a technology-equipped urbanism and citizenry. Although populations in society are freed from physical and geographical restrictions and highly centralised control systems (Foucault et al., 2008), they are, in contemporary urban China, technically involved in digitally networked control systems. Deleuze (1992) refers to this as the ‘society of control’. The more smart technologies are leveraged, the more likely people can be surveilled, sampled and evaluated by the data they generate. Whilst power in a neoliberal society of control is dispersed across various vested interests who use data to make significant decisions, it is in China limited to the state, which constantly intervenes in the market and in civil society in order to orchestrate the distributed social control mechanisms. But questions remain as to how, by state intervention, private firms and citizens are involved in extending smart urbanism. In light of this understanding of the power structure that this article focuses on, we outline in the next section how the neoliberal practices common to understandings of smartmentality might be understood in the context of Chinese smart urbanism.

Chinese smartmentality and neoliberal practices

'Smartness' as a concept has been argued to be a means of conveying neoliberal ideologies that serve the interests of corporations and emphasise less (or lean) government and more governance (Grossi and Pianezzi, 2017; Peck, 2013). Smartmentality is inevitably grounded in the neoliberal logic of governmentality. According to Vanolo (2014), the latter denotes a collective way of thinking of the state–society relationship, which suggests – instead of governance over people – people governing themselves, that is, what Foucault referred to as 'conducting the conduct' of people at a distance (Foucault, 1991 [1978]). However, this relationship is rather complex and needs to be researched in context. For example, in the UK, although the state behind the scene enforces legitimacy over some activities, over recent decades there has been growing advocacy for deregulation, market autonomy and privatisation on the basis of the restructuring of the welfare state (Thomas, 2016). In other words, neoliberal governmentality underlines the so-called 'retreat of the state' (Lemke, 2015) that re-delineates the power relations in society, where operations of government are transferred to non-state actors.

Likewise, many Asian states also embrace neoliberalism as a strategy to revamp urban configurations, socio-material practices and spatial-temporal regimes of the urban. For instance, Ho (2017) argues that neoliberal governmentalities applied in Singapore are aimed at consolidating authoritarian power through privatising infrastructural design. Situating a neoliberalism-as-development strategy into the urban dynamism, Singapore proposed a market-oriented Smart Nation initiative that reconfigures market and institutional forces 'in service to the state' (Ho, 2017). In India, in

her work on India's 100 smart cities programme, Datta elucidates the extent to which Indian governmentality is entrenched in 'home-grown neoliberalism' embedded in strong private sector participation (Datta, 2015, 2018). She observes that in pursuing the entrepreneurial state, unproductive public land resources have been appropriated and thus transformed into business that is run by entrepreneurs while in some way being state led. In China, however, two building blocks make the use of the neoliberal smartmentality framework slightly different from in these other Asian countries.

The first building block is the nature and structure of the dynamics of power transfer from the state to non-state sectors, from the central authorities to local agents and from organisations to individuals. In their study of China's *Emerging Neoliberal Urbanism: Perspectives from Urban Redevelopment*, He and Wu (2009) argue that geopolitical forces may come with convergent practices of neoliberal urbanism in different localities, and sub-national regimes can most effectively enforce neoliberal experiments and manage their territories. Contrary to Jessop's (2013) notion of neoliberalism being a hollowing out of the state, this suggests meaningful decentralisation of state resources and recalibrated functions of municipalities for local and regional innovation and economic competitiveness on the basis of the 'politics of scale' (Li and Chan, 2017). Whilst cities in China are usually the place where neoliberal practices are enacted, political-economic contingencies vary across municipalities. This is to say, rather than simply examining smart urbanism at the state level, it is more crucial to unbox municipal socio-political dynamics that impact on the shaping of power relations.

The second building block is technocracy and tokenistic democracy within the urban political economy. Since neoliberal practices

worldwide often act as the guardian of technocratic and corporate forms of governance (Hollands, 2015; Kitchin, 2015), they are critiqued as undermining democratic accountability. Concerning the smart city in western democracies, this raises concerns as to for whom the city is created, like studies promoting a 'manifesto' of smart citizenship (Hill, 2013). Critical urban scholars argue for ordinary citizens owning the city (De Lange and De Waal, 2017), decentralised and open smart city infrastructural designs (Hemment and Townsend, 2013) and smart citizens remaining active in civic tech and hackathons (Perng et al., 2018) alike. Symbolically, such manifestoes sound to be a remarkable transformation in the existing neoliberal governmentality as they accentuate a certain extent of autonomy. However, in most actual smart cities citizens are still treated as consumers being nudged towards specific conducts and behaviours, suggesting practices of stewardship and civic paternalism (i.e. the state makes decisions on what to offer their citizens) (Cardullo and Kitchin, 2019). To some extent, such a consumerism evaporates an accountable democratic process. This is also the case in China; however, a key distinction is how market and individual freedom are defined. Zhang (2008) argues that in China there is also some emancipation of the economy and citizenship; however, it is deeply circumscribed into the state's regulatory frameworks and legal systems. In a nutshell, Chinese neoliberal governmentalities do not contradict government regulations and national top-level design and strategic planning even if they are market- or citizen-oriented. The state plays a monopolistic role in delimiting the scale and scope of market and individual freedom. Whilst such a politics-driven governmentality is often construed as a contradiction in itself, designated as 'authoritarian capitalism' (Witt and Redding, 2014), 'state neoliberalism' (So and Chu, 2012) or 'market

socialism' (Zheng and Scase, 2013), it is nevertheless rather complex, complicated and heterogeneous, making it difficult to unearth specific power relations between entities.

Drawing on the above building blocks, in this article we report the findings of an empirical study on smart transportation system (STS) development in the Chinese city of Shijiazhuang. The article reports on a sub-section of the study findings, to focus on an examination of the power relations between the national and municipal state, private firms and local citizens through the lens of smartmentality.

Case study: Smart transportation systems in Shijiazhuang

Shijiazhuang is the capital municipality of Hebei Province, and one of the primary transport network hubs in China with rich transportation resources. Not only is Shijiazhuang sophisticated in inter-urban communications, but it is also advanced in intra-urban transportation services. Existing political economic conditions make Shijiazhuang an exemplar, and a leading city, of STS development in extending the new urbanism amongst Chinese cities at the same administrative level. Given its transportation advantage, Shijiazhuang is paid special attention to by the national government as a Smart City demonstration project that reflects and characterises the geopolitical dynamics of the new urbanism.

More specifically, over the past five years, influential STS initiatives in Shijiazhuang have emerged in response to the NUP. Nevertheless, one of the obstacles has been the lack of integration of heterogeneous data sources and the extraction of embedded data value (ChinaIRR, 2018), resulting in data islands and fragmented regulation and administration. Shijiazhuang municipality has made grandiose plans to become the national spearhead for developing data-

integrated transportation systems and a 'one-stop platform' of urban transportation. Over the coming decade, this would mean replicating such a 'Hebei Standard' to elsewhere in China; hence, the Shijiazhuang municipal government set out to promote co-production of STS services with other municipalities (*Hebnews*, 2021). Substantial efforts have been made to promote private sector investment through offering special funds for inward investments, providing entrepreneurial opportunities for local STS start-ups and building high-tech industrial development zones to stimulate economic competitiveness (Zhao, 2011). Specifically, new transportation infrastructures are being developed to embed high capacity for processing a large amount of data sources through the integration of 5G networks, Internet of Things and BeiDou Navigation Satellite System (*Hebnews*, 2021). This study offers empirical insights on the socio-political shaping of these developments in Shijiazhuang in which power relations between different stakeholders (national and municipal state, private sector and citizens) reflect a Chinafied form of smartmentality.

We carried out a review of NUP and Chinese smart city policies alongside 20 semi-structured interviews as empirical data. Amongst them, 15 participants from three local STS firms in Shijiazhuang were interviewed, including three *project managers* who had gained strong experience in managing and supervising STS projects on a macro scale and were knowledgeable in both the technical and social aspects of developing STS applications, especially those in relation to their own organisational context; three *strategic directors* who were specialised in the top-level design and overall planning of STS project implementation and usually had strong connections with government officials and policy-makers; and nine *data scientists*. Another five interviews were undertaken to consult municipal government officials in

different positions from the *Shijiazhuang Transportation Bureau* (STB hereafter) and *Shijiazhuang Traffic Management Bureau in Department of Public Security of Hebei Province* (STMB hereafter). The arguments made in the following sections are built upon the narrative from the synthesis of policies, literature and excerpts from our empirical study.

State-steered technological solutionism

This findings section discusses the Shijiazhuang case of the power relationship between the national government, municipal government and private firms in the new urbanism; the first building block of Chinese smartmentality identified above is reflected by our observations of the Shijiazhuang municipal government adopting a technologically solutionist vision for local STS developments. This vision emphasises the favouring of technocratic decision-making, leading to the Shijiazhuang municipal government positioning itself as a smart government in an effort to engage local private firms in extending the smart urbanism. In the following paragraphs, we develop two anchor points from the findings to demonstrate the form of technological solutionism playing out in Shijiazhuang's STS developments.

Firstly, we observe that despite various marketised and privatised STS solutions in Shijiazhuang, Chinafied neoliberal smartmentality reveals a top-down power structure of the state and its subordinate institutions, for instance in the extent to which municipal governments have autonomy in administration. While the NUP claims to deliver more autonomy from national government to municipalities and private sector, evidence from Shijiazhuang suggests that the NUP does not fully achieve this. This is due to the lack of effective

political devolution, that is, a lack of empowering subordinate levels of government. As one participant observed:

We know what we need [to do] – deploying reversible lanes on the main road, for example – but we are not fully empowered to make critical decisions of doing so. Our execution of duty must correspond to the legitimacy of decision-making from the top [government]. We do what we have been informed to do within the jurisdictional remit. (Interview: Government agency, STMB)

The Shijiazhuang municipal government has insufficient resources distributed from the national government and limited power to put decision-making into effect. As a consequence, transportation departments like STB and STMB have no alternative but to conform to what they are mandated to do, even if it is very likely that they are more familiar with local issues in practice.

There have been a few times over the past several decades where the Chinese state has advocated a more transparent, dynamic and decentralised form of governance since the Reform and Opening Up in 1978. However, the findings of our research in Shijiazhuang suggest that the idea of ‘decentralisation’ expressed in the NUP is superficial. Despite market-oriented smart city delivery and provisioning, examination of the NUP’s proposed political devolution in practice raises critical concerns regarding the extent to which authorities that are subordinate to the national government are empowered with the right of decision-making.

He and Wu (2009) argue that two tasks are crucial to urban redevelopment projects – creating incentives at the local level and transferring responsibility from the centre to the local. Extending from this, we observed in our study that the municipal government was mandated to implement smart urbanism agendas enacted by the national government.

The implementation of particular technologies has been considered imperative, in a technically solutionist way, by the national state. The national government works on top-level design and decision-making, whereas the municipal level is more active in operation and implementation with symbolic compliance. However, Shijiazhuang’s local and district variations of social, political, cultural and technical dynamics were often neglected. Whilst local intricacies may vary from place to place, the municipal government of Shijiazhuang is observed to follow the national agenda regardless. This pattern of power relations between the national and municipal government contributes to shaping the technological solutionism evident in the city’s smart urbanism.

Secondly, we observe that the NUP as implemented in Shijiazhuang’s STS developments demonstrates a pro-government mode of smart urbanism enabled by industry alliances and state–private partnerships. In the case of Shijiazhuang’s STS, whilst the municipal government owns comprehensive transportation data sources (e.g. road networks, infrastructure data), in order to advance the STS initiative they need complementary data that are heterogeneous and citizen-oriented in nature from private firms. These data from private firms are considered rich and timely and are perceived to contain value that can be harnessed by government for effective urban control and governance. For example, vehicle density data owned by car-sharing firms would be of value for managing traffic flows. Under national regulations, municipal governments have legal rights to access private firms’ data; for instance, GPS data concerning real-time bike distribution from bike-sharing firms. This legal right of access is referred to as ‘data handover’ by those working in government.

Behind this right of ‘data handover’ is a future possibility for Shijiazhuang’s STS

development. First, more centralised traffic control, mass surveillance and coordination could be strengthened if the municipal government were to back up all data sources in one place. Second, they could more effectively exert regulatory oversight through comprehensive data analysis over market activities and information dissemination. Participants noted that the Shijiazhuang municipal government was making an effort to establish 'coordination mechanisms' for the purpose of managing STS stakeholder relations with value co-creation goals concerning data, application and service integration, reciprocal accountability and reliability, resource management and leadership. These potentialities align with government visions for an integrated social credit system (Liang et al., 2018). The coordination mechanism comprised private actors, scholars and government officials.

Extending from Vanolo's (2014) discipline mechanisms of smartmentality that empower private actors through partnerships and alliances, we observe that initiatives like the emergent coordination mechanisms in Shijiazhuang's NUP transition were steered by the municipal government. For example, on 11 October 2019, the Second China International Digital Economy Expo was held in Shijiazhuang (*Xinhua*, 2019). One of the sessions that the expo participants noted as fascinating was the Shijiazhuang Smart City Summit Forum, which convened renowned entrepreneurs from tech giants such as Alibaba and Huawei, academic scholars from Beihang University, political elites from the State Information Centre and technocrats from the Central Government. The Shijiazhuang New-Type Smart City Master Planning (SNSC) agenda was officially released as a response to the NUP. The SNSC highlighted 46 major projects, including a cloud-based and networked smart transportation service platform. One

year before these projects were launched, the Shijiazhuang municipal government constituted Special Purpose Vehicles (SPVs) to undertake the preliminary work underlying the projects. An SPV is a policy mechanism officially administered by the municipal government and aggregates some government assets such as traffic data to undertake special tasks involving protocol-based data input and output and data transactions between the public and private sector. Shijiazhuang Big Data Centre was considered by participants as a representative SPV, jointly founded by the municipal government and state enterprises, with the aim to effectively manage and coordinate diverse data resources for distinct purposes (*Hebei News*, 2020). In short, the aim of building SPVs was to unify data resources and integrate independent systems.

The building of SPVs with an ultimate goal of integrating data requires the municipal government to mobilise heterogeneous data sources based on the national government's master planning and system integration, but participants report that various challenges exist. Firstly, geo-political contingencies vary between cities at different administrative scales. Because of uneven distribution of transportation resources, innovations that are well developed in cities on a different administrative level may not be adaptable to Shijiazhuang and vice versa. Secondly, a national standard system has not yet been established. Despite many efforts to build data infrastructures for effective integration, a plethora of big data in Chinese smart cities still remain in silos (An et al., 2016; Li et al., 2019). Our research in Shijiazhuang indicated that failures to create a national standard are not because of technology only but are also due to the symbiotic relationship between government and vested interests. Government and public and private firms reciprocally benefit from the

interests of each other, namely win-win ends that reflect the prioritisation of state interests in fostering an economic competitiveness that rests on innovations developed by these firms. For example, many Chinese smart city initiatives, such as built data infrastructures (Ming and Wang, 2013), open government data practices (Gao, 2016; Liu et al., 2015) and big data-led sharing economy (An, 2015), are steered by the state whilst technically being underpinned by technology firms. Standardising smart city resources was therefore considered by participants to threaten competing vested interests on a larger scale. The national government would not embark on this without deliberation on the profound impact such a move might have on overall urban innovation capacity and market dynamics from which citizens can benefit. These observations demonstrate some of the power relations playing out between the municipal state and private firms which in concert co-shape technologically solutionist interventions. Yet, despite the echoes with neoliberal market-orientation, the state steers the coordination and partnerships.

To sum up, reflecting He and Wu's (2009) observations of the neoliberal characteristics of Chinese contemporary urbanism, we observed that Shijiazhuang's technological solutionism appeared to be constrained by unique Chinese political and legal systems. This is to say, despite adaptations and repliations of technical solutions from other countries, we contend that the technologically solutionist form of smartmentality that we observed in Shijiazhuang was national government- rather than private sector-steered in nature. For the purpose of (re)distributing and coordinating resources, the national state was observed to orientate the coalition between the national and municipal state and private sectors towards national state interests. In so doing, it enacted a smart discipline mechanism for standardising

smart city practices. Under such a state-steered mechanism, citywide industry alliances and state-private partnerships based on the NUP, we observed, suggest a form of smartmentality that is Chinafied.

State-steered citizen participation through digital platforms

The second section of findings – reflecting the second building block established in literature – analyses Shijiazhuang's case in relation to technocracy and tokenistic forms of democratic citizenship. Shijiazhuang's STS development not only has implications for state-private power relations, but also transforms the means by which services are delivered for civic ends. While the neoliberal rationality of the NUP claims to be 'citizen-centric' and foster democratic accountability, in the context of Shijiazhuang many participants alluded to 'state manipulation' (Interview: STS firms). The proliferation of platform-based STS initiatives in Shijiazhuang reshapes civic mobility patterns and the mode of citizen participation in creating smarter urban transportation. On the one hand, citizens become 'smarter' (as in more informed) in their daily interaction with digital arrangements; on the other, smart urbanism on a broader level is being extended by the growth of this platform urbanism.

However, we note that Chinese platform urbanism overemphasises commodification and political legitimacy with respect to national strategy, and often leaves citizens' will aside. For example, an echo prevails amongst scholars that platform urbanism is crucial in building urban ecosystems and governing Chinese cities (Caprotti and Liu, 2020; Chen and Qiu, 2019). Our findings in Shijiazhuang echo neoliberal practices in many western countries in that this platformisation is largely led by private firms, who

are perceived as ‘more qualified and trustworthy by the state’ than government departments (Interview: government, STB). The municipal government fully encourages citizens’ digital participation by giving way to private firms for civic innovations, for example the Shijiazhuang Smart Public Transport App. However, the way in which innovations are developed is manoeuvred by the government. An underlying issue of building platform urbanism herein would need to be reflected upon: is the wide civic public satisfied with those designated ‘citizen-centric’ solutions? Certainly, this is not merely a problem with analytics, algorithms and automation, etc., but about deeply entrenched civic issues with respect to what we note are two interrelated factors: ownership of platform urbanism and civic control.

Our empirical research responded to the longstanding debate in smart city discourse in regard to who are included in the digital society within the new urbanism. First of all, inclusiveness indicates the use of the ‘hukou’ system (i.e. local household registration). Over a long time, people without the ‘urban hukou’ have been excluded from urban citizenship (Zhang, 2012), meaning that they were not qualified for many public services. In the case of Shijiazhuang’s public transportation becoming ‘smart’, participants involved in the development noted that everyone would be able to use digital platforms, and that all state administrative procedures would be open to citizens via the internet without ‘hukou’ constraints, such as applying for driving licences, assessing legal counselling and accessing policy change. From this point of view, the emerging platform urbanism functions to redefine citizenship for those ‘actually existing smart citizens’ (Shelton and Lodato, 2019), so that the everyday mobility of everybody is platform mediated. However, these smart initiatives indicate utopian ownership of platform urbanism. Quite the opposite is the issue of

digital inclusion; not all citizens are digitally included, such as those marginalised as urban poor whose voice represents basic social demand.

The Shijiazhuang municipal government follows the NUP to embrace the sustainability vision – whether or not it is a good solution with long-term effects – and, therefore, takes a majority principle into account (variegated in circumstances). The intention of this principle is not really to decide whether or not to include the marginalised, but to make apparently rational decisions in building sustainable living environments and in pursuing the long-term interests of the vast majority.

Citizens are the end-users ... Although their voice is important and smart technologies are pushed to better serve their life, we have to be critical in hearing what they say. Not all citizen demands are realistic; they are only a sort of expression for the ideal form of urban life. ... Transport decision-makers would need to be critical in grasping critical success factors and have foresight of sustainable development. (Interview: STS firms)

When it comes to specific actions and modalities of citizen participation in the implementation of Shijiazhuang’s STS, we observe that citizens are active in implementation and post-event feedback loops. That is, their input is more as a consumer of STS products. However, citizens have no role in the decision-making and design of STS systems, for example in terms of the types of service delivery, the deployment of transportation facilities and the trajectories of data transmission. Instead, the municipal government following the strategy of the national government is assumed to know what a ‘citizen-centric’ design as mandated by the NUP should look like. A technocratic and commodified form of governance mediated by platforms has, we argue, led to a ‘taken-for-granted’ view of citizenship, namely that

the state's (both national and municipal) decision-making has always been true in terms of what is good for citizens.

Limited citizen roles in turn are an advantage for the state to exert civic control through surveillance systems because citizens do little to change anything in relation to data and their mobility patterns. Thus, citizens fear to be unique, that is, being what Pierce (2017) calls 'otherised'. Surveillance centralises the state power and strengthens its political legitimacy in defining the hierarchical power relationship between the surveilled and surveillers. For example, in the context of Shijiazhuang's STS, STMB provides a Hawkeye-enabled panoptic surveillance system displayed in the traffic control room. It targets not only criminals but also citizens who break traffic rules, or those who exploit legal traffic loopholes (e.g. speeding on roads without clearly stipulated speed limits). In a nutshell, surveillance-based digital platforms are, though innovated by corporations, harnessed by the state to exert civic control for strengthening technological sovereignty.

Discussion and conclusion

This study examined the power dynamic embedded in the Chinese new urbanism – based on an analysis of Shijiazhuang's STS development – through the lens of Vanolo's (2014) smartmentality. We argue that the smartmentality in this study is a manifestation of Chinafication. The term Chinafication rejects a one-size-fits-all form of neoliberal practices because of the indigenous intricacies of its urban political economy, which shapes 'neoliberalism with Chinese characteristics' (Harvey, 2007) that, in the case of this study, go much deeper in terms of power. The findings from Shijiazhuang indicate a more complex relationality of, and a multi-level perspective on, the power relations between stakeholders.

Particularly, we argue that the state (both municipal and national) plays a steering role in the development of a smart urbanism that sits comfortably within Chinafied neoliberal practices common in many urban areas.

Firstly, whether at a national or municipal level, the state steers the governance of smart urbanism. More specifically, the national government steers the top-level design of the landscape, and both national and municipal governments steer the management and implementation processes. The municipal government, in particular, enacts a follow-up agenda in consolidating the national regime. This reflects an important aspect of Chinafied smartmentality, which is different from the Indian smart urbanism where the national, state and municipal governments focus on management, deployment and implementation, respectively (Ahluwalia, 2019; Prasad et al., 2021). The lack of political devolution in decision-making handicaps the flexibility of pragmatic and substantial decision-making on the city's STS efforts and often results in the overlooking of local contingencies and uncertainties, hence leading to low applicability and a low uptake rate of existing STS applications in the city.

Secondly, the leading position of municipal governments vis-à-vis local private firms creates a state-based vantage point for effective urban governance that is technology enabled. While neoliberalism advocates free markets, privatisation and profitable capital accumulation (Harvey, 2007), in China municipal governments, rather than privatising public services, are keen to build coordination mechanisms to mobilise different agents across the private and public sectors. The creation of SPVs is an effective state-steered mechanism to formulate policies, make rules and regulations and integrate urban resources into one place. Distinct from the regulatory role of the state in the contemporary smart city in the neoliberal

west, the Chinese state at both municipal and national levels centralises its power in a more delicate manner – one that constantly exercises market intervention via regulatory oversight and setting rules and tactics for tasks required to proceed. The fact that the state suspended the initial public offering (IPO) of Alibaba's Ant Group, for instance, is a manifestation of the state leveraging regulatory and political influence on tech giants in terms of data ownership, inasmuch as troves of data generated from therein are considered crucial for governance (*The Economist*, 2021). In the context of Shijiazhuang's STS, state intervention is observed in the fact that the municipal government has a legal right to access firms' databases. This is a practice that, on the one hand, demonstrates how these partnership arrangements can be win-win for both firms and government; the firm gets the contract and the government gets the data. On the other hand, data-driven technologies help to extend further smart innovations. Whilst the NUP extols the virtue of technology, it is moulded as a technologically solutionist vision by the national and municipal government.

This leads to our third observation. Our empirical study of Shijiazhuang's STS initiative reveals contradictions between STS deployment and citizenship. The emerging platform urbanism in Chinese cities also suggests a crucial aspect of Chinafied smartmentality. It transforms governance from 'subjectification' (restricting individual or group actions) (Krivý, 2018) towards Deleuze's (1992) 'society of control'. In the case of this study, this control is enabled by deterministic technologies which the state believes crucial for regulation of social order. Despite a certain extent of distributed power and citizen participation in the design of platform urbanism, the state determines

how the algorithms and urban informatics behind the scenes serve the purpose of inclusion/exclusion, rather than these being citizen-deterministic, manifesting technocracy and tokenistic democracy.

In urban China, we argue that *all* citizens are included in the smart city only when they are being watched through surveillance systems; this is the moment when the state aims to exert political control for building rigid social order and mitigating social unrest. However, beyond the purpose of surveillance, citizens have no opportunity to be included, especially in the design and decision-making process, where they play little role. Within the neoliberal city context, histories of tokenistic and consumerist modes of citizen participation (Cardullo and Kitchin, 2019) have led to calls for the right to the smart city (Kitchin et al., 2019), technological sovereignty against anxieties of control (Mann et al., 2020) and inclusive smart urbanism (Lee et al., 2020; Swilling, 2014). However, in China, local citizen inclusion in the design of smart cities is not often charted into the agenda; citizens are only engaged as end-user consumers giving feedback on smart applications. Moreover, 'the non-included' does not necessarily refer only to the marginalised groups but also to those whose desires and proposed will of participation are not deemed realistic to the state. Decisions on whether they are realistic are made through negotiations between key state and corporate players, such as those involved in the coordination mechanisms. Citizen or community representatives never appear at such events. It just seems to be two bodies sitting together proposing a citizen-centric landscape of the new urbanism, without really acknowledging what kind of solutions would deliver best value for their citizens – despite claiming they do otherwise.

Rather than intending herein to critique any element of the ‘steering’ notion, we instead call for further polemics against the extent to which such state-steered rationalities would avoid Chinese new urbanism being uncritically technologically solutionist. This would also engender critical examination of value co-creation for shaping a truly citizen-centric mode of governance. Power relations between the government at different levels, firms and citizens have been unravelled in this article; however, the focus on Chinafied smartmentality of the new urbanism shows the importance of deeper exploration of effective value co-creation strategies in this context.

Declaration of conflicting interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

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