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LOCAL GOVERNANCE, NATIONAL AGENDAS, AND TRANSNATIONAL CORPORATIONS: INDIA'S 100 SMART CITIES MISSION

Mariana Valverde

Bethamehi Joy Syiem

Shivangi Mishraand Prasad Khanolkar

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LOCAL GOVERNANCE, NATIONAL AGENDAS, AND TRANSNATIONAL CORPORATIONS: INDIA'S 100 SMART CITIES MISSION

—Mariana Valverde[*], Bethamehi Joy Syiem[**], Shivangi Mishra[***] and Prasad Khanolkar[****]

Abstract — The implementation of the Modi government's '100 Smart Cities Mission' was well behind schedule even before the COVID-19 pandemic hit; so proper evaluation of the actual results awaits future researchers. However, the national plan, as well as the information available about projects that exist, is well worth analysing now, given the ambitious scope of the plan and the dearth of critical smart city governance studies from the global South. The main aim of this paper is to place the Indian experiences within the international context of smart city plans and projects. We do so from a socio-legal perspective, that is, focusing on governance structures and on the use of legal tools. We conclude that the requirements imposed on participating cities draw on global neo-liberal views about local government finance in such a way that runs the risk of undermining local democracy and increasing social inequality, while furthering the dependence of Indian cities on transnational corporations.

[*] Mariana Valverde is an expert on urban law and governance and a Professor Emeritus at the University of Toronto.

[**] Bethamehi Joy Syiem is an Associate at Invest India, a policy initiative of the Government of India. She holds a bachelor's degree in History from St. Stephen's College, Delhi University, and a master's degree in Public Policy from the National Law School of India University, Bangalore.

[***] Shivangi Mishra is an undergraduate law student at the National Law School of India University, Bangalore with a keen interest in socio-legal issues.

[****] Prasad Khanolkar is an Assistant Professor of Geography at the Department of Humanities and Social Sciences, Indian Institute of Technology (IIT), Guwahati, India.

I. INTRODUCTION

What are 'smart cities'? And why did the Government of India make the '100 smart cities mission' ('SCM') an important plan, in 2014-15?

The term 'smart city' has become ubiquitous both within local government circles and in the technology-oriented private sector, internationally. The fuzziness of the term, noted in almost every scholarly study on this subject, has allowed it to be used to refer to a very wide variety of projects and ambitions. Some are quite modest (e.g., traffic sensors that allow city engineers to adjust traffic lights) while others are multi-project plans through which public and private entities hope to use new methods of data collection to make cities more efficient, more user-friendly, and somewhat improbably, simultaneously more equitable and/or more resilient. For instance, the European Parliament commissioned a report in 2014 documenting 'smart city' innovations across the then 28 countries of the European Union ('EU') which found that 248 cities within the EU had smart-city initiatives. 50 of these bundles of innovations, spread out among 37 cities, were said to have a significant scope and did or were predicted to have important impacts, while the rest of the initiatives were much more limited in scope. The report was clearly intended to further EU funding policies by selecting certain innovations and categorising them as 'best practices'.[1]

As is the case with other multi-jurisdictional reviews of smart city projects, the European Parliament's report did not generate a check-list of features that are always or even usually present in existing cities recognised by others as 'smart cities'. In this document, and in similar reviews, one encounters a heterogeneous array of new or not-so-new gadgets, data sets, apps, sensors, and computing technologies – some located within municipal governments proper but many others straddling the public-private divide, e.g., utility companies, gated communities, technological industrial parks, etc. The 'stuff' of smart cities is thus highly variable. This heterogeneity lends support to the governance-oriented 'definition' of a smart city given by Irish big-data and urbanist scholar Rob Kitchin, who states that a smart city is not a city at all, but rather a set of decisions about digitisation and computing in the urban context.[2] Stressing decision-making is well suited to a socio-legal inquiry, as distinct from inquiries focused on technical features, and hence we here adopt Kitchin's formulation.

The general lack of consensus about what features, what 'stuff', makes cities 'smart' arguably facilitates, rather than hinders, the BJP's 100 SCM. The initial call for proposals was neutral as to *content*, leaving a lot of room for

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1 European Parliament (Directorate-General for Internal Policies), *Mapping Smart Cities in the EU* (European Union 2014) IP/A/ITRE/ST/2013-02 (PE 507.480).

2 Rob Kitchin, 'The real-time city? Big data and smart urbanism' (2014) 79(1) GeoJournal 1.

both local officials – and more likely, technology companies – to propose and pursue all manners of data-based innovations. By contrast, the process to be followed by contending municipalities was highly constrained, which is internationally unusual.[3]

One internationally unusual feature is the requirement that state governments not only support, but actively participate in 'smart city' plans. The State of West Bengal reportedly pulled out of the 100 SCM, and since state endorsement is deemed necessary, this negatively affected a number of cities. Further, the SCM documents do not recognise that state priorities may differ from local priorities. An early report by the Housing and Land Rights Network suggests that many cities would have preferred that the Central Government's funds flow to affordable housing, rather than to technology innovations.[4] By contrast, while in the EU some regional governments have become involved in smart city plans, efforts by national governments in Europe and North America to standardise either the process or the content of smart city plans are rare to non existent.

Some logics evident in international smart city plans are nevertheless visibly present in the Indian context. One is a desire of nations and cities to be recognised as technology sector powerhouses – a goal clearly present in the Modi government's statements around SCM. Interestingly, Ayona Datta has demonstrated that technological sophistication is not regarded by officials as in any way undermining the BJP's traditionalist, Hindu nationalist cultural agenda. She has provided evidence of the compatibility of these apparently opposing agendas in her ethnographic study of smart city pre-consultation processes.[5]

Both our own research and the other analyses show that the Government of India is using the 100 SCM to encourage cities to become more modern, more efficient, and more financially 'innovative' (though the innovation is limited since neo-liberal global inventions – including ones that are legally specific to

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[3] Besides the European Parliament's report (n 1), the Canadian Government's 'Smart Cities Challenge' is more typical of international competitions in naming only general values (e.g., social inclusion, efficiency, etc.) in the initial call. *See*, Jean-Noé Landry, Tracey Lauriault, and Rachel Bloom, 'Open Smart Cities Guide' (*OpenNorth*, 1 April 2018) <https://opennorth.ca/publications/3ptq7i6gvifzbfl2zayons_en> accessed 14 April 2021.

[4] Housing and Land Rights Network, 'India's Smart Cities Mission: Smart for whom? Cities for whom?' (2018).The 2017 version of the report studied the first 60 smart-city proposals. The 2018 version cited here surveyed 39 additional proposals. Information about actual implementation is quite scarce, as will be demonstrated.

[5] Ayona Datta, 'Post-colonial urban futures: Imagining and governing India's smart age' (2018) 37(3) Environment and Planning D: Society and Space 393. For a sophisticated analysis of the technology sector in India generally (not the SCM), *see*, Sandeep Mertia, 'Socio-Technical Imaginaries of a Data-Driven City: Ethnographic Vignettes from Delhi' (2017) 29 The Fibreculture Journal <https://twentynine.fibreculturejournal.org/fcj-217-socio-technical-imaginaries-of-a-data-driven-city-ethnographic-vignettes-from-delhi/>; and Sandeep Mertia (ed), *Lives of Data: Essays on Computational Cultures from India* (Institute of Network Cultures 2021).

the United States, such as tax increment financing – are the only ones mentioned). It is difficult, however, to separate the Government's desire to increase municipal financial autonomy from the international cultural prestige of cities known to be 'smart', such as Barcelona, Amsterdam and Copenhagen.[6] As will be shown below, many of the technical innovations proposed or implemented by participating cities would indeed save municipal resources (money and/or labour costs) and in many cases, the innovations would make it easier for digitally-connected citizens to interact with their local authorities, obtain information quickly, and so on, but clearly there's a race for the prestige that has long attached to performances of modernity as well and that appears to be quite compatible with the preference for Hindu tradition promoted in the BJP agenda.[7]

The pursuit of technological and cultural prestige is common currency in the smart city world. Indeed, international 'smart city' projects feature many of the gadgets, apps, and sensors featured in the Indian SCM proposals; the drawings found in proposals are generic and could have been copied from plans written for far-flung cities in the global North.[8] However, internationally, there is little obvious pressure on cities to use 'innovation' to minimise the dependence on funding from higher levels of government (although that desire could well be present in the background). Internationally unusual features closely scrutinised in what follows include (a) encouraging or even requiring that municipalities forge close links with transnational corporations (consultants as well as technology companies and financing entities); and (b) pushing Indian cities to market municipal bonds in international financial markets.

This article is divided into four sections: after this introduction (part I), part II examines the smart-city project in the city of Bhubaneswar. We use this preliminary case study to highlight certain logics that characterise the broader 100 SCM, at the same time drawing comparisons and contrasts with smart-city projects outside of India.

In part III, we zoom out to the scale of India as a whole to analyse governance frameworks and legal tools on a pan-India basis. Personal privacy and data mining, the issues most frequently raised by civil society actors as well as legal writers, are very important issues; but other legal and governance issues have the potential to affect municipal jurisdiction and municipal governance in areas well outside of the digital, and deserve attention. Drawing on existing

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6 Clara Irazabal and Paola Jiron, 'Latin American smart cities: Between worlding infatuation and crawling provincialising' (2021) 58(3) Urban Studies 507.

7 Datta (n 5).

8 Scholars engaged in cultural studies could profitably examine the stark contrast between the drawings, which are highly generic, and the photos provided in updates and news reports; the photos are very recognizably 'Indian' while the drawings are place-less.

work on smart cities, local law, and infrastructure governance,[9] we offer an original analysis of a legal move that is essential to the Indian Government's plan but breaks with both global trends: the Indian Government's desire to use an existing legal form, the Special Purpose Vehicle ('SPV'), for novel purposes that erase the line between public and private law.

This leads to the fourth and final part, which briefly highlights some social and political risks that localities could try to address before it is too late. Although no firm conclusions can be drawn at this point given the delays in implementation, COVID-related and otherwise, we raise the question – brought to light by smart city researchers elsewhere[10] – of whether the prestige attached to collecting data and building apps, that is visible in the Central Government's initial plan and in the proposals submitted for each locality, might have the effect of increasing the already great gap between well-off and highly connected middle and upper-class folks, on the one hand, and marginalised individuals, communities and neighbourhoods on the other. As researchers in Latin America have shown, in countries where levels of inequality are particularly high, some information technology innovations that may appear 'cool' and politically neutral may have the effect of increasing inequality. This compounding of existing inequity is corroborated by Ayona Datta's study of the process behind four Indian smart city plans, where 'fast-tracked citizens' are poised to be empowered by smart city plans that neglect the majority of the population.[11] And worse: as we shall see from Chandigarh's 'smart street cleaning' app, some already disadvantaged groups can become subject to additional surveillance and private policing by the digitally empowered 'fast-tracked citizens'.

The concluding section also discusses two other well-documented features of global smart city projects that negatively impact citizenship and democracy and are found in the SCM plan. One is the inherent preference of digital innovations for short-term 'solutions' that use 'real-time' data to mitigate immediate risks or problems (such as landslide prevention or traffic-jam alerts) to the neglect of problems that cannot be readily quantified and/or for which

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[9] Mariana Valverde, *Everyday Law on the Street: City Governance in an Age of Diversity* (University of Chicago Press 2012); Mariana Valverde, Fleur Johns, and Jennifer Raso, 'Governing Infrastructure in the Age of the "Art of the Deal": Logics of Governance and Scales of Visibility' (2018) 41(1) PoLAR 118; Mariana Valverde and Aaron Moore, 'The performance of transparency in public-private infrastructure project governance: The politics of documentary practices' (2019) 56(4) Urban Studies 689; Rob Kitchin, *The Data Revolution: Big Data, Open Data, Data Infrastructures and Their Consequences* (SAGE 2014); Steven Graham and Simon Marvin, *Splintering Urbanism: Networked Infrastructures, Technological Mobilities and the Urban Condition* (Routledge 2001).

[10] Giuseppe Grossi and Daniela Pianezzi, 'Smart cities: Utopia or neoliberal ideology?' (2017) 69 Cities 79.

[11] Ayona Datta, 'The digital turn in post colonial urbanism: Smart citizenship in the making of India's 100 smart cities' (2018) 43(3) Transactions of the Institute of British Geographers 405.

'real-time' information is not necessarily helpful.[12] The final concern, with regard to citizen empowerment, is the limited style of civic agency that is conferred by or created by apps, urban 'dashboards' and 'crowd sourcing'. To convert the citizens of a democracy into mere individual users of apps and 'smart' devices breaks up civil society's self-organisation and turns citizens into mere consumers.

II. THE MODEL OF A MODERN SMART CITY

The City of Bhubaneswar is known for many things: ancient Hindu temples, computing and technology, higher education, public administration (it is a state capital), and lastly, frequent flooding during the monsoons, a serious problem that 'smart' innovations could potentially help to address but that is barely mentioned in the smart city plan submitted to the national competition. The 'old town' features many famous temples, while a modern part of the city was planned by a German architect and built on European principles at the time of Independence.[13] It is thus a very spatially uneven urban space. It is not a 'global' city, as Mumbai arguably is, but it does exhibit many of the signs of 'modernity' that the Government of India looked for when initiating the SCM in 2015.[14]

Bhubaneswar's plan[15] – or rather the plan submitted on its behalf by a combination of state and local government officials, but prepared by a Toronto-based urban design consulting firm, IBI – was ranked #1 on the Government of India's list of the first 20 smart city projects chosen in February, 2016. Perhaps more importantly, in 2017, Bhubaneswar's 'smart city' proposal won the top prize for smart city plans from the American Planning Association ('APA'). Other international prizes predictably followed. It is too soon to know exactly what will be implemented and how, although some parts of the plan have been implemented and are discussed in this paper. But whatever happens, there seems to be agreement nationally and internationally that Bhubaneswar's proposal is indeed, to paraphrase English operetta authors Gilbert and Sullivan, the very model of a modern smart city model.

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[12] Andérs Luque-Ayala and Simon Marvin, *Urban Operating Systems: Producing the Computational City* (MIT Press 2020) 143-44.

[13] Ashok Pradhan, 'Journey from architect's pen to India's smartest city' *The Times of India* (Bhubaneswar, 31 January 2016) <https://timesofindia.indiatimes.com/city/bhubaneswar/Journey-from-architects-pen-to-Indias-smartest-city/articleshow/50791143.cms> accessed 12 April 2021.

[14] The idea of the SCM was first mentioned in India in the Bhartiya Janata Party's 2014 parliamentary election manifesto which promised to "initiate building one hundred new cities enabled with the latest in technology and infrastructure - adhering to concepts like sustainability, walk to work, etc. and focused on specialized domains." <https://www.bjp.org/en/manifesto?archives=1> accessed 12 April 2021.

[15] IBI Group, 'Bhubaneswar Smart City Strategy and Implementation' (2015) <https://www.ibigroup.com/ibi-projects/bhubaneswar-smart-city-strategy-and-implementation/> accessed 12 April 2021.

Practices of competitively ranking both mini-projects and more complex city-wide 'smart' plans in order to give awards are long-established in international circles. The unwary consumer of news about which city won what prize might not realise that often prizes are given to *proposals*, as opposed to realities. Some organisations, such as the practitioner-oriented, smaller-city focused, United States ('US') based organisation 'Smart Cities Connect', do give out awards to projects that exist. But many other organisations rank and reward plans that may never reach fruition, or may be greatly modified along the way. Accordingly, Indian media reports and documents routinely state that Bhubaneswar won the APA prize and/or another prize – as if the city itself had been inspected, evaluated, and ranked, not the consultants' document.[16]

The Indian Government used the word 'mission' rather than the more internationally common term 'challenge'. Perhaps the intention was to avoid the perception of cities competing as people do in 'survivor' reality-TV programmes. But be that as it may, the Government insisted on choosing 100 cities and proceeded to rank the proposals that came in. Thus, the 'mission' was in fact a competition. This format for allocating government funding operationalises an underlying logic of governance: whereas many non-technological social and economic programs are provided, at least in theory, for the whole population of India, the SCM was designed from the start as both selective and internally competitive.

The 'challenge' format – which one could interpret as the targeted funding neoliberal opposite of the welfare-state ideal of universal programmes and services – was no doubt familiar to the international consultants hired to prepare the proposals. 'Smart Cities Connect' for instance, constantly gives out such awards (though, no doubt to avoid upsetting local leaders, they do not rank participating cities). On its part, IBM, which not coincidentally produces complex smart city operating systems, and which tried to seize control by patenting the term 'smarter cities' in 2011, has also promoted competitions among cities (that is, among its customers). However, its 'smarter cities' program appears to have ended in 2017.[17]

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[16] The Bhubaneswar smart city project has its own website, but that does not have all or even most of the relevant information. Documents analysed for this paper are widely scattered on the Ministry of Housing and Urban Affairs website, on the Government of India portal, and other parts of the Indian internet, and are often inconsistent with one another. For an analysis of a similar Toronto proposal submitted by the Google-affiliated Sidewalk Labs (which was never implemented), *see*, Blayne Haggart, 'The Selling of Toronto's Smart City' in Mariana Valverde and Alexandra Flynn (eds),*Smart Cities in Canada: Digital Dreams, Corporate Designs* (James Lorimer Limited 2020) 38-51; *See also*, Ola Söderström, Till Paasche and Francisco Klauser, 'Smart cities as corporate storytelling' (2014) 18(3) City 307.

[17] IBM, 'IBM Intelligent Operations Center for Smarter Cities' (2013) GQS12351-USEN-01 <www.ibm.com/downloads/cas/eMJY7VY4> accessed 12 April 2021; *See also*, IBM Smarter Cities Challenge <http://www.smartercitieschallenge.org/> accessed 12 April 2021. Currently, IBM seems focused on Internet-of-Things innovations that can be sold to corporations as well

On its face, encouraging competition amongst cities, especially smaller cities with less capacity than the giants of Indian urbanism (Kolkata, Mumbai, etc.), seems odd. Inter-municipal collaboration to identify and share 'best practices' might seem a better format. But national governments in the global North as well as the global South have long resented being asked to use their great fiscal resources to adequately support, on a permanent budget-line basis, the continuing operating costs of local necessities such as public transit, housing, and utilities, on a nation-wide basis and inscribed in law. The process, generally dubbed 'decentralisation' (such as that enacted in India's 1992 74th Amendment to the Constitution) often amounts not to the centre giving away power but rather to the downloading of responsibilities to local governments, often while withholding the fiscal capacity and legal autonomy necessary to meet those responsibilities.[18] That trend, which one might call 'responsibilisation' rather than 'decentralisation', makes municipalities very dependent on one-time funding programs and one-off grants, and hence encourages competition rather than collaboration. In India, the 74th Constitutional Amendment sought to empower Urban Local Boards to levy taxes and borrow money from capital markets; but most Indian cities have continued to rely on government grants and government loans. In Canada (by way of comparison), there has not been a similar formal empowerment of local governments – which have lacked constitutional status since the country's founding in 1867. But the discretionary one-time payments that accompany municipal powerlessness mean that competition is inevitable. Organising competitive one-time funding programmes, for smart cities or anything else, means that municipalities are forced to compete with one another. The regular need for one-time central government grants that are not assured, and not statutory, has existed for so long that it has become naturalised. Thus, for example, when the Ottawa Government announced its own 'Smart Cities Challenge' in 2018, there was no public debate about the competitive format of the program.[19]

The competitive format that pervades the smart city world is intertwined with another internationally prevalent governance logic, namely the desire to make local governments more business-like.[20] Since the rise of neo-liberalism in the late 1970s, central governments – as well as the global financial entities that purchase municipal bonds and thus have a great influence on local decisions – have largely adopted the view that municipalities should act more

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as cities. The name used for this widely advertised newer set of AI-centred goods and services is 'Watson'.

[18] For a detailed study of this paradox of decentralisation in the Colombian context, *see*, Luis Eslava, *Local Space, Global Life: The Everyday Operation of International Law and Development* (CUP 2015).

[19] Mariana Valverde, 'Smart cities as civic leaders' survivor games' in Valverde and Flynn (n 16) 21-35.

[20] For a great case study, *see*, Rachel Weber, *From Boom to Bubble: How Finance Built the New Chicago* (University of Chicago Press 2015); *See also*, Michael Peter Smith, *Transnational Urbanism: Locating Globalization* (Wiley 2001).

like market actors, i.e., like corporations.[21] Often this leads to promoting public-private partnerships regardless of the costs and benefits (as is the case in the Indian SCM, which mandates the use of public-private partnerships).[22] The term 'public-private partnerships' is very vague: it can denote anything ranging from the complete privatisation of both ownership and staffing of previously public services to a simple outsourcing contract. But perhaps precisely due to its vagueness, not coincidentally a feature it shares with the term 'smart city', it is a key piece in the larger puzzle many call 'neo-liberal urbanism'.[23] Setting cities to compete, as corporations do in the marketplace, follows logically if they are made into quasi-corporations responsible for their own financial fate. Along these lines, the global consulting firm McKinsey (which has a large office in Mumbai) stated in 2018 that the competitive format was a positive feature of the Indian smart city program,[24] in an article that also praised the central government for pushing local governments – through the smart city program — to acquire better credit ratings so as to be able to borrow in global financial markets (that is, to issue municipal bonds that are well regarded by investors and global funds).

We will return to neo-liberal urbanism in the next section. For now, having briefly explained the genesis of the Indian SCM, we can delve deeper into what the well-regarded Bhubaneswar plan, and the parts of it that have been implemented, can tell us about smart urbanism in India.

Let us first return to the already mentioned prize awarded to the city's plan by the APA. Many prizes and awards given out to 'smart city' projects are obviously self-interested (e.g., IBM's 'Smarter Cities' program). The APA, by contrast, has independent expert authority, holds no financial interest in information technologies, and – despite its name – has a global reach, like other US-based academic and professional associations. Furthermore, many influential planning and urban studies scholars have for years cast doubt on smart

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[21] Jamie Peck and Nik Theodore, *Fast Policy: Experimental Statecraft at the Thresholds of Neoliberalism* (University of Minnesota Press 2015).

[22] Empirical studies have shown that ideological predispositions can prevent governments from critically evaluating if and when public-private partnerships make sense. For an American perspective, *see*, Ellen Dannin, 'Crumbling Infrastructure, Crumbling Democracy: Infrastructure Privatization Contracts and Their Effects on State and Local Governance' (2011) 6(1) Northwestern Journal of Law & Social Policy 47; For a Canadian perspective, *see*, Mariana Valverde and Aaron Moore, 'The performance of transparency in public-private infrastructure project governance: The politics of documentary practices' (2019) 56(4) Urban Studies 689.

[23] Peck and Theodore (n 21).

[24] Suveer Sinha, 'Combating the challenges of urbanization in emerging markets: Lessons from India' (*McKinsey & Company*, 16 January 2018) <www.mckinsey.com/business-functions/operations/our-insights/combating-the-challenges-of-urbanization-in-emerging-markets-lessons-from-india> accessed 12 April 2021; More recent articles on this issue can be found on McKinsey websites.

city plans and implementations.[25] In general, planners charged with upholding the public interest are professionally somewhat suspicious of big corporations offering 'innovations' to cities, and so the award from the globally respected, non-corporate APA has special cachet. In India today, international recognition of domestic initiatives is greatly valued; but the APA award was no doubt especially significant precisely because it was *not* given by one of the big-tech firms whose business involves persuading municipal officials of the value of their products.

Typically for the SCM, the award-winning Bhubaneswar proposal was not written by the local officials or experts, but rather by the Toronto-based transnational architecture and urban design firm IBI.[26] The firm's consultants, clearly aware of the 'techlash' that has made cities and citizens increasingly leery of technology-led smart city plans, de-emphasised data gathering, emphasising instead socially desirable goals such as reducing air pollution and providing affordable temporary shelters for workers as well as permanent affordable housing. And no doubt significant for the APA award committee, they also included 'citizen participation' as a key element.[27] What 'participation' means is not clear, however. The Government's SCM documents do encourage citizen 'engagement', very much in keeping with the well-regarded European smart city approach,[28] but without providing any standards or examples of what would count as meaningful participation.

'Engagement' is a vague word that appears in many smart city proposals, including Indian ones, and one that arguably does not usually deliver democracy or even meaningful consultation.[29] Ayona Datta mentions that the fifty-six thousand Facebook likes that Chandigarh's initial proposal garnered were counted as if fifty-six thousand separate citizens had been meaningfully

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[25] Rob Kitchin, Tracey Lauriault and Gavin McArdle (eds), *Data and the City* (Routledge 2017); EnginIsin and Evelyn Ruppert, *Being Digital Citizens* (Rowman and Little field 2015).

[26] Plans for other cities were prepared by AECOM, a large US consulting firm, sometimes in partnership with IBM. *See*, Brookings India and Brookings Institution, 'Building Smart Cities in India: Allahabad, Ajmer and Visakhapatnam' (2016) <www.brookings.edu/research/building-smart-cities-in-india-allahabad-ajmer-and-visakhapatnam-2/> accessed 12 April 2021.

[27] The smart city projects described by Ayala and Marvin in their book are uniformly justified as environment-friendly and as enabling more citizen participation. What is consistently not discussed is the ownership and monetisation of the immense amounts of data gathered by the new sensors and apps. For example, *see*, Cisco, 'Smart City Framework: A Systematic Process for Enabling Smart + Connected Communities' (2012) <www.cisco.com/c/dam/en_us/about/ac79/docs/ps/motm/Smart-City-Framework.pdf> accessed 12 April 2021; *See also*, Living PlanIT SA, 'Cities in the Cloud – A Living PlanIT Introduction to Future City Technology' (2011) <www.cisco.com/c/dam/en_us/about/ac78/docs/Living_PlanIT_SA_Cities_iWhitepaper.pdf> accessed 12 April 2021.

[28] European Parliament (Directorate-General for Internal Policies) (n 1).

[29] What many experts consider the gold-standard for digital citizen participation that is significant and not tokenism is the consultation platform designed, and still owned, by the City of Barcelona called 'Decidim' (i.e., 'We decide' in Catalan). It is significant that this system is owned by the City and not a technology company. It is available for purchase by other cities.

consulted.[30] While some workshops including marginalised groups were carried out (and attended by Datta herself) as part of the process of producing the proposal, once the proposal had been submitted, it is unclear whether cities sought citizen input other than through social media and other Internet-centric, individual-scale channels not suited to expressing group grievances or group desires (such as the Indian Government's MyGov portal).

Nevertheless, social inclusion is not totally absent from the proposal. In Bhubaneswar, six thousand units of housing for 'slum-dwellers' were part of the plan. Mention was also made of the need to make cities 'child-friendly',[31] albeit whether the 40 planned centres for children have been, or will be, actually built is unclear at the time of writing this paper. Instead, many new CCTV cameras seem to have been deployed, with the surveillance justified by invoking the safety of women and children.

Some marginalised groups are mentioned, but only as potential entrepreneurs or potential connected citizens. Slum dwellers are mentioned only as a group that are to receive micro business advice, while children are not merely potential victims of crime but are also supposed to get "digital education" – an education that, if provided, will no doubt encourage sales and use of smart devices.

Uncertainty about how the plan will unfold is clearly a problem, especially post-COVID. But one feature of the plan that has already been implemented is a smart card initiative (a pre-paid debit card with some personal information). This 'smart card' can be used to travel on transit, to use the planned shared-bicycle system, and also to pay one's local taxes and utility bills. It is issued by the ICICI Bank as the "Odyssey card".[32] Such a card – very similar to the one produced by the Kansas company Pay It, which is currently under consideration by the Toronto City Council and is already in use in a number of American cities and states as a 'digital wallet' – is convenient for individuals who have a bank account, are integrated into the formal economy, and have plenty of data on their phones or computers. Such a 'smart' card is especially useful to the entities receiving the revenue streams, be they governmental or

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[30] Datta (n 11) 413; Confusing Facebook likes with democracy also happens in European contexts: *See*, Paolo Cardullo and Rob Kitchin, 'Being a 'citizen' in the smart city: up and down the scaffold of citizen participation in Dublin, Ireland' (2019) 84(4) GeoJournal 1.

[31] The ambitious housing plan's status, as of November 2020, is said to be 'ongoing'. A parliamentary committee expressed concern in January, 2020 that the whole Bhubaneswar project was quite delayed. *See*, Express News Service, 'Parliament panel raps Odisha government for snail pace of smart city project in Bhubaneswar' *The New Indian Express* (Bhubaneswar, 19 January 2020) <www.newindianexpress.com/cities/bhubaneswar/2020/jan/19/parliament-panel-raps-odisha-government-for-snail-pace-of-smart-city-project-in-bhubaneswar-2091430.html> accessed 12 April 2021. The pandemic no doubt has caused justifiable delays, but clearly the delays predated the pandemic.

[32] ICICI Bank, 'About Odyssey Card' <www.icicibank.com/Personal-Banking/cards/prepaid/Odyssey-card/index.page> accessed 12 April 2021.

private utilities, since they can save a great deal in billing resources and will be able to utilise the smart card to ensure more timely and fuller payments (whether the Odyssey smart card will become compulsory to pay local government bills is unclear).

We see here a globally ubiquitous product – a smart card used to make payments – being deployed to boost local government efficiency and financial autonomy. This is in line with the government's goals. The Government of India's overall website for the mission has a tab labelled 'financing' that sheds light on this. Clicking the tab brings one to a slide deck, whose first few slides avoid discussing the financing of smart city projects and instead lament the fact that user payments for local utilities such as water and electricity do not suffice to meet its costs. Reading this curious slide deck suggests that the Odyssey smart card may well be enjoyed by some of the already connected and bank account-holding citizens of Bhubaneswar, but its main purpose – whether or not it is realised – may well be to quietly boost municipal utility and other revenues. If the smart card becomes ubiquitous, presumably its adoption would also formalise the sector and deter the kind of jerry-rigged utility connections that are common throughout the urban global South.

Worryingly, from the point of view of privacy and data governance, the Odyssey card appears to be essential to the 'central operations centre' of the Bhubaneswar smart city. Unlike other stalled sub-projects (such as a projected 'smart street' or the affordable housing initiative), the operations centre has been in fact built through a public-private partnership with American giant Honeywell.[33] (What the contract with Honeywell involves is not public; in general, large US companies, mainly Cisco, IBM, and Honeywell, as well as Hitachi and Huawei, sign contracts with local governments that involve both equipment and software, and often also maintenance). This central operations centre is designed – like other such centres since the first one in Rio de Janeiro[34] – to receive data from diverse local agencies and from semi-autonomous networks of sensors and cameras. Whether the digital-utopia vision of a central place that sees and coordinates the actions of all agencies is in keeping with local government realities (from inter-agency rivalries to power outages to monsoon flooding) is an open question.

Importantly, however, the Bhubaneswar operations centre, which features Honeywell technology and possibly Honeywell engineers, is controlled not by the elected governments, local and state, but by the SPV that has been created

[33] What the City's contract with Honeywell involves is not public; generally, large American companies – such as Cisco, Honeywell, Huawei, etc. – sign contracts with local governments that involve physical equipment, software, and maintenance services.

[34] For a study of the Rio centre of operations, *see*, Ayala and Marvin (n 12) ch 7. However, the research was done in 2014 and the book does not explain how the financial crisis that Rio underwent after the 2016 Olympics has affected the operations of this centre.

as a new corporation to run the whole smart city project, as demanded by the Government of India's instructions. This SPV is called Bhubaneswar Smart City Limited.

What is an 'SPV'? The term 'special purpose vehicle', and its acronym, are common currency in the world of international infrastructure projects. The term refers to a special-purpose authority (or corporation or consortium) that is created as a new legal entity specifically to build and perhaps also to manage the project (e.g., a bridge, power station, hydroelectric dam, etc.). Local and state public bodies, including governments themselves, are often part of the SPV. However, in the infrastructure world, 'SPVs' are definitely private-law entities – single-purpose corporations formed through bundles of contracts. They often have their own credit rating, which could be higher than that of the jurisdiction in which they are located.

What is of particular interest from the legal point of view is that in the plans of the Indian Government, the SPVs acquire unusual new functions and powers that are borrowed or taken from local government entities (Urban Local Bodies, in particular). Under the 'implementation' tab on the Indian Government's SCM website, one reads:

> The implementation of the Mission at the city level will be done by an SPV created for the purpose. The SPV will plan, appraise, approve, release funds, implement, *manage, operate, monitor, and evaluate* the smart city projects.

The smart city SPVs that are said to be compulsory in the initial plan, which have been legally created in some of the successful cities other than Bhubaneswar but not in all, hence defy the distinction that administrative lawyers have traditionally drawn between public agencies and private corporations. They hold both types of power simultaneously, which one could argue is rather problematic since they are not accountable to the citizens. The non-accountability to citizens is a feature of the legal form, not a bug; SPVs elsewhere are accountable only to the lenders that finance the project, and perhaps to the government that ultimately funds the project or has commissioned it.

In the Indian smart city context, the SPVs that not only initiate but run and even 'evaluate' the smart city projects are meant to develop new revenue streams as if they were private firms; but they are also – unusually – meant to hold all the powers normally held by elected local government through "delegation" (although how exactly this delegation works is unclear). Giving governmental powers to an entity that does include government officials (mainly from state governments, as far as the scarce information reveals) but is legally created under company law,[35] and is thus under private rather than public law,

[35] The Companies Act 2013.

results in a Russian-doll kind of complexity. The SPV, as if it were a city outsourcing some services, is expected by the Central Government's instructions to initiate and enter into 'public-private partnerships' as if it were a fully public body entering into a relationship with a private firm even though it is itself a hybrid.

To make this concrete: as mentioned above, the Bhubaneswar SPV has entered into a contract with US technology giant Honeywell for the city operations centre. The relationship is officially described as a public-private partnership; but it may simply be a contract for equipment and services. Bhubaneswar Smart City Ltd. (the SPV in question) has also begun the tendering process for another public-private partnership that will carry out slum-clearing and build affordable housing. The local elected officials are not in charge and the community will thus find it difficult to express its needs, as Indian citizens often do through voting or through protesting.

The website of the Bhubaneswar smart city project claims that the housing project is "in progress".[36] And yet, no photos of housing or even construction are provided (in a setting where photo opportunities are readily available, both in local media and on government websites). Furthermore, there are no details on the housing public-private partnership. By contrast, slum clearances have been taking place as part of the Bhubaneswar Town Centre District ('BTCD'), which appears to be under the umbrella of the smart-city plan. The four slum clearances that are underway or planned all take the form of public-private partnerships in which the private developer provides alternative housing for those displaced and is allowed to make a profit from building housing on the old slum site for middle and high-income households.

Bhubaneswar is not unusual in putting 'slum clearance' ahead of other goals. Over 30 explicitly labelled slum clearance projects have been included in other smart-city plans.[37] In Bhubaneswar, it is possible that the people being de-housed will get legal title and will thus be able to monetise their lost residences or at least the land they are on when they are expropriated, because the State of Odisha passed land rights legislation that promises slum dwellers legal land title.[38] State officials who sit on the board of the SPV must be aware of the state land rights law; how they will reconcile that promise with the financing model of the existing or future housing public-private partnerships is quite unclear.

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[36] Bhubaneswar Smart City Ltd, 'Projects' <https://www.smartcitybhubaneswar.gov.in/projects?l> accessed 12 April 2021; The information about slum clearances in other smart cities is from the Housing and Land Rights Coalition (n 4) XI.

[37] Bhubaneswar Smart City Ltd, 'About Us' <www.smart citybhubaneswar.gov.in/about> accessed 20 November 2020. This site has many cheerful diagrams promising great urban spaces, but lacks governance details.

[38] The Odisha Land Rights to Slum Dwellers Act 2017.

One further detail about the Bhubaneswar project sheds light on a governance logic very common in 'smart city' projects everywhere: namely, a 'micro' spatial scope that encourages targeting technology innovations to small areas, areas that, as urban geographers have long documented, are likely to be already privileged spatially as well as economically. The initial Government of India plan stated that 80% of the projects should be specific to a particular area, with only 20% being projects for the city as a whole. In the case of Bhubaneswar, 90% of the plan is to be focused on a small area thought to be in need of upgradation (roughly, the city centre). This spatial selectivity is not at all unique to India. It follows the global trend of using 'smart city' projects to create the kind of 'premium spaces' that urban scholars have long documented.[39] For instance, one of the Bhubaneswar proposal diagrams shows a small part of a street where all the utility cables are buried underground under nicer-than-average sidewalks. This micro-scale perspective (it is not suggested that cables will be buried and sidewalks will be improved outside of the small target area) empowers groups that are already privileged.

Also, in keeping with global trends, Bhubaneswar's project will include apps that provide 'real time' information on public transit and other city services. Such apps are likely to underline and magnify the gap between the well-connected and the unconnected, as has happened in some Latin American smart city projects where empowered 'netizens' use apps to surveil and denounce low-income, often indigenous workers doing menial jobs in public spaces.[40]

One additional globally common feature of smart-city plans, one which could be of great general benefit in India and elsewhere if scaled up, is increasing the use of renewable sources of electricity. Rooftop solar panels are indeed planned for Bhubaneswar, and thus far some have been installed at a local university. However, the solar panels seem intended as a highly localised, exceptional source of electricity, in keeping with the 'premium spaces' logic since the plan only aims to source 10% of electricity from renewables.[41]

III. HOW THE SMART CITIES MISSION GOVERNS LOCALITIES FROM THE CENTRE FOR NATIONAL GOALS

The voluminous documents generated by the Government of India's 100 SCM do not mention that there were smart city projects in India before Prime Minister Modi made 'smart living' a key part of his 2014 election campaign.

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[39] Graham and Marvin (n 9).

[40] Irazabal and Jiron (n 6); Leigh Campoamor, 'There's an App for That: Telecom, Children's Rights, and Conflicting Logics of Corporate Social Responsibility' (2019) 121(3) American Anthropologist 667.

[41] Bhubaneswar Smart City Ltd (n 37).

There is evidence of at least one such project: in Rajarhat, a township outside of Kolkata.[42] Like other self-contained, centrally planned 'smart cities' (such as Songdo in South Korea), Rajarhat was planned to be a Special Economic Zone for the emerging IT industry. Rural land was forcibly expropriated for this project but many dispossessed farmers stayed in the area and some were eventually hired for unskilled jobs such as security. Not all the land that had been forcibly cleared was built upon, which meant precarious self-built housing could emerge. The IT corporate enclave continues to exist alongside abandoned construction projects and some slums, old and new.

In that local context, some Kolkata-area people saw the Government of India's 2015 smart cities mission as a lifesaver. However, the Government of West Bengal refused to participate in the Central Government's 'mission'. Since the Government had decreed that cities had to be nominated by their state government to be considered, New Town Kolkata was not able to access-funding from the new national plan.[43] The special IT district lingers on but seems unlikely to be finished soon – perhaps as a warning to the cities that are currently part of the 'mission'.[44]

In regard to the question of local versus global aims and values, overall, one can say that there are some glimpses of local realities, specifically Indian realities, in the *content* of specific projects. One example is the plan to replace traditional funeral pyres in Varanasi by electric methods. Another example is that, instead of the electric driver less motor vehicles avidly proposed by the global North's smart urbanists, 'e-rickshaws' are being promoted in several of the chosen cities and a few e-rickshaws must exist since they have been photographed.[45]

However, within the 100 SCM's trove of documents, most of the descriptions of proposed projects are distinctly 'global', not local. The drawings, in particular, which are important since accompanying texts are often very vague, could have been taken from any European or North American smart city plan. The fact that international consultants such as KPMG and McKinsey wrote

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[42] Ishita Dey, Ranabir Samaddar, and Suhit Sen, *Beyond Kolkata: Rajarhat and the Dystopia of Urban Imagination* (Routledge India 2016).

[43] Ilia Antenucci, 'Smart cities, smart borders: Sensing networks and security in urban space' in Nina Klimburg-Witjes, Nikolaus Poechhacker, and Geoffrey Bowker (eds), *Sensing In/Security: Sensors as Transnational Security Infrastructures* (Mattering Press forthcoming).

[44] Souvanic Roy, 'The Smart City Paradigm in India: Issues and Challenges of Sustainability and Inclusiveness' (2016) 44(5/6) Social Scientist 29; Ashwathy Anand, Ajai Sreevatsan, and Persis Taraporevala, 'An Overview of the Smart Cities Mission in India' (*Centre for Policy Research*, August 2018) <https://cprindia.org/system/tdf/policy-briefs/SCM%20POLICY%20BRIEF%2028th%20Aug.pdf?file=1%26type=node%26id=7162> accessed 12 April 2021.

[45] For weekly updates, *see*, <https://smartcities.gov.in/>. accessed 12 April 2021

most of the proposals makes it additionally likely that components were pasted in from projects elaborated in very different socio-geographies.[46]

But what is likely to matter, especially for local governments, is neither the drawings nor the apps that give connected individuals transit information, nor even the placing of a few solar panels on roofs. What will matter much more is that the organisational, political, and financial underpinnings of projects, mandated by the Central Government as conditions for receiving funds from New Delhi, are precisely those that for-profit firms like McKinsey Global, the Brookings Institute and financial organisations like the World Bank have long been promoting. As Ayona Datta and India-based critics have argued, a key, if not the key, aim of the Central Government's mission appears to be turning the mid-size cities that are the targets of the program into global financial actors. These actors will, if the Government's plan is successful, obtain good credit ratings, so they can sell municipal bonds on global markets.[47]

For lawyers and socio-legal scholars, however, the most internationally unusual and interesting aspect of the Indian SCM may be the role assigned to SPVs, already examined in the context of Bhubaneswar.

In the infrastructure world, which as mentioned is the primary domain for SPVs, the SPV legal form is very useful because it isolates the project legally and financially. If it fails, it fails by itself, without affecting the financial status of the parent bodies that formed it. Large-project SPVs have their own credit ratings, although in many cases there is an implicit or explicit understanding that a solvent government will back the project if it runs into financial trouble.

But SPVs elsewhere do not have public powers such as expropriation and the ability to levy fees and impose taxes. And the Indian smart city SPVs are also given the role of evaluating the projects they themselves carry out – something that would elsewhere be the job of a separate public official, such as an auditor-general, or an independent consulting company. No close studies of the few dozen SPVs that have been created to run Indian smart city projects are yet available. But the novel utilisation of an old legal form (SPV) to designate what is essentially a novel hybrid of public powers and private sector goals and methods is remarkable.[48] The Indian smart city SPV is a combination of

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[46] A large sample of these generic diagrams and plans can be found on the website of the US-based Smart Cities Connect organisation and also on the websites of the major vendors of 'urban operating systems', such as Cisco, IBM, Hitachi, and Siemens.

[47] An early report by the Brookings Institution supports the government's novel use of the SPV legal form, but also complains that Indian municipalities have not yet become enthusiastic about joining the global municipal bond market (n 26). There is little public information available on whether Indian municipal bonds are finding customers in financial markets. However, the international bond market has generally been weak in the years since the current Government was elected.

[48] Datta (n 11).

a public body and a private corporation, a hybrid rather than a public-private partnership, for in partnerships, each participant retains its own autonomy outside of the specific venture. And, as was mentioned, the SPVs are meant to use their legal and financial autonomy to themselves become 'partners' in public-private partnerships (as if they were municipalities or traditional public agencies). And SPV board members are appointed, not elected by the public.

When entities are run, or at least officially governed, by a quasi-corporate appointed board, as is the case in Indian smart city SPVs, accountability problems can be acute. Citizens might be able to name their City Councillor, the Mayor, and the Governor of the State. But who would know who are the directors on the board of a smart-city SPV, even if many of them are public officials? And even if names are made public, how would citizens know what powers the SPV holds?

The decision to disempower elected local governments in favour of the SPVs is clearly linked to the Central Government's already mentioned desire to create an international demand for municipal bonds. In the history of infrastructure projects, the ability of a separately constituted entity (such as the New York Port Authority, often cited as the grandmother of all special purpose public corporations) to issue bonds on its own, rather than have the governments that created the entity do so, has been crucial to success. However, in the Indian local government context, whether an autonomous SPV's credit rating necessarily improves the credit rating of participating governments is an open question.

A study of major public-private infrastructure projects on the Mekong River Basin is illuminating. By the end of the twentieth century, Laos had long been excluded from global finance, as a poor, small, and on top of that a communist country. A large dam on the Mekong was built through a complex multi-country SPV, whose lenders were the Asian Development Bank and the World Bank. The Government of Laos found it impossible to resist the governance requirements and the less formalised norms imposed on public authorities by the global lenders, and many changes in national regulations ensued. The package of measures and norms that travel under the umbrella term 'good governance' had to be adopted by the Government of Laos. As the Australian authors of the study note, non-market practices continued to exist in Laos; but as government officials were brought into the infrastructure project, including participating in the SPV, they, or at least some of them, imbibed market values and sought to deploy them in the public sector.

In any infrastructure project that is separately constituted, the lenders, often global actors such as pension funds, foreign banks, and private equity firms, impose conditions that they feel are necessary to ensure that the loans are paid back. The first transnational hydroelectric dam built on the Mekong delta was

touted as highly successful by both public and private global entities. As a result, the Government of Laos acquired a credit rating valid in global financial circles. The authors imply that obtaining the credit rating was perhaps the main achievement of the dam – not an implausible conclusion since the electricity produced went to Thailand and did not benefit Laotian people.[49]

In India, the SPVs brought into being by the SCM are meant to develop their "own revenue streams".[50] But whether it is feasible to monetise most of the smart-city innovations is an open question since most citizens expect municipal improvements to be provided generally, not only to those who can pay. In Canada, for example, cities may want and even need to create new revenue streams by imposing congestion charges and/or highway tolls, but such revenue streams have proven elusive for both political and legal reasons. And neither public nor private bodies that are not governments are able to impose taxes.

Whatever happens with the plan to generate more business-style methods and new sources of revenue, the Indian Government has succeeded as a legal innovator in creating a legal form that could promote the kind of global financial flows that finance and, to a large extent, shape infrastructure projects all over the world. An August 2018 study by the Centre for Policy Research in New Delhi states that at the time of writing, only 59 cities had created SPVs – but more could follow, depending on the Central Government's priorities in the post-COVID era.[51] And perhaps national capital will be lured to participate in or finance Indian SPV's, if global markets remain uninterested. But whether the SPVs credit would improve the municipalities' financial fortunes or whether a successful SPV might detract from the legal and political powers of Urban Local Bodies is an open question.

The SCM governance picture's fuzziness is compounded by one additional factor. Wealthy countries are said to be providing financing for smart city projects in India, in many cases through their development aid agencies; but it is not clear whether the funds are aid (donations) or rather loans and what conditions are attached to them. By August 2018, the British Government had committed to support the smart city projects of Pune, Indore, and Amaravati, while Japan was said to be "assisting" the Chennai, Ahmedabad and Varanasi South smart city projects.[52] The conditions attached to international aid directed

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[49] Ben Boer and others, *The Mekong: A Socio-legal Approach to River Basin Development* (Routledge 2015).

[50] Housing and Land Rights Network (n 4) 44.

[51] Ashwathy Anand, Ajai Sreevatsan, and Persis Taraporevala, 'An Overview of the Smart Cities Mission in India' (Centre for Policy Research, 24 August 2018) <https://cprindia.org/briefsreports/an-overview-of-the-smart-cities-mission-in-india/> accessed 1 May 2021.

[52] Anand, Sreevatsan, and Taraporevala (n 44). The authors suggest that the Government of India's idea that smart cities would somehow raise adequate private funding was not working

toward smart cities in India – if the funds are indeed aid and not loans – are not publicly available.[53]

Now, in the case of information technology, making clients dependent on a particular system from the largest technology companies in the world has long been associated with the well-documented problems of 'vendor lock-in'. Cities that purchase packages of goods and services from a single vendor (such as Honeywell or IBM), perhaps with international 'aid' funding, are then tied for a long time not only to specific hardware but to maintenance and tech-support contracts from the original provider. Their ability to choose and buy new technology innovations from local start-ups is highly limited by the original choice of proprietary hardware and software.

Another issue that merits consideration is the language of financing agreements. Consider the case of Laos again. The original plan stated that the World Bank and the Asian Development Bank had made commitments for five hundred million and one billion US dollars respectively. However, as is usual in government discourse everywhere, the language chosen creates the illusion that global lenders are *giving away* money. Indeed, in many of the documents examined, the terms 'funding' and 'financing' are used interchangeably. However, financing means 'going into debt', while 'funding' means providing cash.[54] The important distinction between financing and funding that is elided in the SCM documents, and in much of the smart city world, is crucial. Many countries in the Global South and even in Europe have found, to their dismay, that borrowing, even from non-private sources such as United Nations-linked regional banks, can be extremely costly, not only for the government that does the borrowing but for future generations. Requests for the refinancing of loans are often met with non-negotiable demands for systemic restructuring changes not in keeping with the democratically-elected government's policies, changes such as curtailing state pensions or shrinking the public sector.

Requiring local entities to use not only transnational corporations, such as IBM, transnational financial actors, and even international consultants, who write generic global smart city project proposals, clearly promotes 'globalisation' – but a dependent form of globalisation one could call neo-colonial. Promoting the use of public-private partnerships that use global markets to finance projects also performs a somewhat dependent form of globalisation.

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out and that there appears to be a shift away from ambitious projects with private funding to small-scale projects with traditional funding, namely government grants.

53 Anand, Sreevatsan, and Taraporevala (n 44) 50.

54 Institute for Government, 'Financing Infrastructure' (22 November 2018) <www.instituteforgovernment.org.uk/explainers/financing-infrastructure> accessed 12 April 2021.

IV. LOOKING TO THE FUTURE: RISKS INHERENT IN THE INDIAN 100 SMART CITIES MISSION

Throughout this article, we have identified a number of ways in which the deployment of 'smart' technologies, and the building of smart city mini-districts, negatively affects urban equality and long-range civic planning. The global literature on smart cities has identified the amplification of economic and spatial inequities as a common risk that only vigilant, civic-minded public officials, who refuse to be dazzled by diagrams and pictures of smart gadgets, can mitigate.[55] The fact that Latin America, where levels of inequality are very great, has seen smart city districts created in small and already privileged urban spaces is particularly relevant to the Indian context. Further, the emphasis on apps and on social media communications, visible in the Indian SCM documents, is likely to amplify the gap between the majority, who do not regularly use social media or even internet services, and a minority of already well-connected citizens.

Even worse, the well-connected 'netizens' may use apps and cell phones to exercise new forms of control over certain people. This is clearly visible in a mini-project in Chandigarh. Ayona Datta reports that the Chandigarh smart city project borrowed an idea from nearby Mohali in the form of an app known as 'smart cleaning'.[56] The app does not help anyone to clean, however. Instead, the app allows the well-connected to report on street sweepers by sending a message to the city authorities denouncing sweepers who are either absent or are not working sufficiently hard. Given that street sweepers are at the bottom of the caste and class systems, subjecting them to surreptitious surveillance, which includes the possibility of taking and sending a geo-coded photo of the sweeper in question, is highly problematic. It is equally problematic to use apps that increase the power of the well-connected over workers at the bottom of the social and economic pyramid, as this does. One can only hope that this app is exceptional rather than normal.

There are two further features of smart-city projects that have received less attention thus far than the potential magnification of existing inequalities. These are also identifiable in the Indian SCM plan and in some of the information about implementation.

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[55] One non-profit policy research organisation working to help cities avoid mistakes in the search for 'smartness' is the Montreal-based Open North. Reports available on their website provide practical tips and 'best practices' in municipal procurement that could easily be adapted for use outside of Canada. *See*, <https://opennorth.ca> accessed 12 April 2021. Similar policy research groups exist around the world, many university-based, but few are designed to support municipal officials in particular.

[56] Datta (n 11) 413.

One feature that poses risks for local democracy and inclusive urban planning is the highly limited and selective *scale* of the digital, data-based governance that is currently central to today's smart-city projects. The problems caused by projects' very limited scale can be broken into two parts. Firstly, computer systems working exclusively with quantified data make it literally impossible to see and recognise information about the urban sphere that is not quantifiable (e.g., the historical experiences of indigenous or other marginalised groups). Much has been written on 'data-fication' and its effects but few researchers have tried to empirically document exactly which knowledge is excluded through data-fication and how.

Secondly, the reliance on algorithms that is now central to urban operating systems, and which feeds city managers' dreams of using streams of real-time data to integrate and coordinate urban governance, has a strong built-in preference for a very limited spatial and temporal scale. As Ayala and Marvin's international study of urban operating systems shows,[57] there are 'technical' reasons why smart city systems are used primarily or even exclusively to identify real-time or near-future problems such as traffic jams, imminent storms and about-to-happen land slides and floods. The reason is that real-time data used to generate warnings can only predict events that are quantified risks, are imminent, and highly localised as well.

In the area of crime prevention, for instance, an urban operating system that relies on cameras and sensors connected with a control room can tell city officials when a group is gathering in a street corner associated with drug sales; but that data will be of no help in devising longer-term prevention strategies. Similarly, the 'smart' traffic lights that have built-in sensors to detect volumes of traffic will, if the sensors are suitably connected to 'actuators', as is now the trend, result in automatic changes in the timing of traffic lights, thus helping drivers in real time – but the data is not very useful for long-term transportation planning. In general, digital data that are very useful for facilitating faster emergency responses are not particularly useful for long-term urban planning. And long-term planning, if it is going to be democratic at all, has to include the active participation, before plans are made, of marginal groups whose historical and place-based experiences are not suited to quantification.

We see, therefore, that the limited spatial scope of many smart city projects, which has often been associated with magnifying urban inequalities associated with 'premium spaces', connects with the built-in temporal preference of urban data analytics for the short term, which results in a neglect of long-term planning and prevention.

[57] Luque-Ayala and Marvin (n 12) 143-71.

Finally, the reliance of smart city systems and smart city-focused officials on social media communications and real-time online 'crowd-sourcing' has the effect (intended or not) of disempowering grassroots groups that have long fought for social justice using methods emphasising collective action over a more extended time frame. By contrast, groups such as slum dwellers, tenants, women, migrants, and precarious workers are effectively empowered by the tool of local democracy known as 'participatory budgeting': a process that features groups, not individual consumers of city services, and encourages, indeed demands, bottom-up grassroots organising. Crowd-sourced data that feed algorithms do have their uses and could easily help to mitigate risks such as floods and power outages – very important goals, but ones that authoritarian as well as democratic regimes share. But civic engagement in many smart city venues, even in countries known as democracies, is measured solely by how many individuals have punched keys on their cell phones or computers.

The fragmentation and disempowerment of civil society sectors and existing grassroots groups is a particularly serious risk in India, which has long had strong organisations advocating for slum dwellers, 'pavement dwellers', lower-castes, and women – organisations that may use social media communications but which are seeking collective justice and not the digital participation of connected individuals in the running of the data-driven city. The serious gap between the technology industry's 'users', on the one hand, and on the other hand the citizens who live in specific areas, work in particular jobs, and belong to specific ethnic and religious groups or to other minorities is a very important one for city authorities to keep in mind. The citizens of any city, large or small, are always differentiated, and none of them are the abstract economic actors of the technology marketplace (i.e., 'users').

This article is rather preliminary, given the slowness of the Indian SCM roll-out and the dearth of independent and thorough case studies. But the international as well as the Indian literatures make it clear that 'smart cities', under that name or not, are here to stay. Technology is neither intrinsically good nor intrinsically bad, in computing as in other areas, but there are many, often unexpected risks, socio-economic risks perhaps more than technical ones. In-depth comparative studies across different cities and jurisdictions are needed to help public officials and engaged citizens appreciate the political, legal, financial, and social risks inherent to smart city projects and work collaboratively to try to avoid or mitigate these risks.