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The Democratic Prospects of Digital Urban Futures: Lessons from India's Smart Cities Mission

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This paper explains the potential implications of digital interventions for social accountability through the Smart Cities Mission (SCM) in India. The SCM represents India's transition to a new political economy based on rapid urbanization and wide-scale application of digital technology to reform public service delivery while simultaneously creating new markets for urban transformation. Within this wider context, the paper considers the future of democratic practices in urban governance. We argue that while citizen-led accountability practices were trialed by civil society organizations since 1990s, the SCM presented unique opportunity and challenge to institutionalize these tools within the framework of multi-scalar governance — between central-, state- and local-level institutions and between communities, private vendors and public bodies. Zooming into the four smart city projects — Indore, Kakinada, Panaji and Ranchi — we explain how each city engaged with citizen groups, communities and civil society and what their experiences tell us about the prospects and challenges of democratizing digital urban futures.

KEYWORDS: **Digitised Governance; Urban Development; Social Accountability; Smart Cities; India.**

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In June 2023, India's 100 Smart Cities Mission (SCM) will come to an end. Launched in 2015, this was one of the flagship programs announced by the then newly

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appointed Prime Minister Narendra Modi. While the concept of "smart cities" (SCs) originated in Western e-governance movements since the 1990s (Hoelscher, 2016), in India it represented a clear shift in the direction of political economy toward urban development.

Broadly, 100 smart cities as a national mission brought together at least three major developments since India opened to neoliberal economic policy in the 1990s:

(1) *Rise in urban agglomerations* as a direct consequence of the integration of metropolitan cores with the global economy. This has taken the form of unplanned urban sprawl into the outskirts of cities as well as through planned urbanization by the development of industrial corridors linking major Indian cities such as Delhi and Mumbai, for example.
(2) Linked to this is the *demographic expansion of urban dwellers*. It has been estimated that between 2014 and 2050, India will add further 404 million urban dwellers to its existing urban population of 410 million (United Nations, 2015) — virtually doubling its urban population by 2050. Most of the urban population is comprised of new middle class, who have just come out of poverty, earning between $2 and $10 per day, and who work in the service and informal sectors of small and large cities (Basu & Capelos, 2021). Politically, they desire similar levels of social mobility and cultural recognition as the established middle classes and as voters their economic and social values determine the electoral chances of any political party in India today (Basu & Capelos, 2021).
(3) *Urban governance reform*. Following decades of "corruption talk" among the elites in India (Doshi & Ranganathan, 2017), efforts to clean up governance and modernize involved setting up of exclusive state spaces, where a new coalition of elites made up of technocratic public administrators and politicians, consulting firms and Resident Welfare Associations (RWS) from middle-class neighborhoods decide on reordering urban spaces for their collective priorities (Basu, 2019).

Based on the above trends, the Government of India's commitment to allocate INR 70.6 billion (£ 762 million) to create a pilot of 100 smart cities (Ravindran, 2015) for aspirant urban dwellers seemed like a natural step — as it firmly placed the state as a provider of "public goods" such as infrastructure and urban development (Schottli & Pauli, 2016). Today, as the SCM comes to a close, we can evaluate the legacy of this initiative from various prisms, as summarized recently by the Centre for Policy Research in New Delhi: (i) *governance*, especially the relation between different scales of government and across political, bureaucratic and civil society realms; (ii) *infrastructure*, in terms of digital and hybrid infrastructures; (iii) *sustainability*, mainly

around the environmental aspects of various projects; and finally (iv) *democracy*, meaning the extent to which citizens, communities and civil society engaged with smart city planning and execution and what prospects digital interventions hold for social accountability in the future.

Our Study

This paper focuses on the final prism for evaluation, looking at how different projects interpreted the Mission's guideline for "citizen engagement," which was a deciding criterion for the success of the application. We also compare the projects to explain what these tell us for the future of social accountability within the changing dynamics of technology, governance and new urban socio-spatial relations. We base our analysis on four case sites: *Indore*, *Kakinada*, *Panaji* and *Ranchi*.

Indore is the commercial capital of Madhya Pradesh and was selected in the first round of 20 cities in January 2016. The objective of the SCM was to develop infrastructure and city planning with optimum use of digital solutions. Cleanliness and sustainable living environment were the main priorities. Overall, the project has been celebrated as a "success" in terms of citizen engagement and timely execution (Billore, 2021).

Kakinada is a port city in Andhra Pradesh on the southeast coast of India. Like Indore, it was selected in the first round with the objective of transforming to a vibrant economic destination from a pensioner's paradise (Chintagunta, Raj & Narayanaswami, 2018).

Panaji is the capital of Goa, and it was selected in the following round of 40 cities in September 2016. Panaji was asked to resubmit its application requiring additional coverage of the citizen engagement criterion. It was selected later on a fast-track selection process. Since then, governance reform has been a priority for the Panaji project with efforts to "minimize government" at its core. They have set up a limited company called the Imagine Panaji Smart City Development Limited (IPSCDL), established a smart city office in the city center with young and IT-savvy staff and conducted a high-profile citizen stakeholder engagement drive with local celebrities. To ensure transparency in procurement, they have installed a digital system for awarding tenders to private vendors (Goel & Thomas, 2021).

Ranchi was selected in September 2016, with the proposal to create a new township in the Greater Ranchi area. This development is proposed on tribal land which is protected by the indigenous land tenure rights known as the Chotanagpur Tenancy Act and an indigenous local governance system called the Fifth Schedule in

the Indian Constitution. Ranchi Smart City Project continues from the Ranchi Master Plan of 2008, which proposes a new township on the outskirts of Ranchi. To succeed, the Smart City Project as such needs a properly decentralized local governance system, with the application of the PESA (Provision of Panchayat Extension to Scheduled Areas Act, 1996) law to make land acquisition and execution of the project a transparent and democratic process (Xaxa, 2021).

Here, we compare the four smart city projects on four questions:

(1) Did the city have previously established practice(s) of civic engagement on infrastructure provision?
(2) How was outreach to variety of citizens conducted and did that present any limitations?
(3) Were the selected sub-projects under SCM in each city appropriate to the context and socio-economic requirements?
(4) What access did citizens have to monitor progress and raise concerns if any arising?

We draw on ethnographic research materials, gathered from visits to case-study cities of Indore, Kakinada, Ranchi and Goa spanning the period 2016–2019 as part of consultancy assignments conducted by one of the authors. During this period, the author met a range of stakeholders including smart city planning and leadership teams, contacts in the urban local bodies (ULBs) and some of the providers engaged for implementation of the selected measures. The research provides important insights on how each smart city team and urban local body interpreted: the requirements of the Mission, the relation between different scales of government as well as with stakeholders from private vendors, civil society and community groups and what were their expectations from the project and its future impact. Citizen engagement was interpreted broadly by smart city teams — ranging from identification of context-specific criterion to mobilizing citizen engagement to following a prescribed check-list of items as a pre-qualification for selection.

The rest of the paper addresses the question of citizen engagement in smart city projects and the future prospects for social accountability as follows. First, we briefly explain the concept of social accountability, what its legacy is in the Indian urban context and what questions this raises for post-SCM futures. Then, we provide a brief description of the multi-scalar governance regime on which the SCM was based. We explain how the financial resourcing and monitoring of the projects determine the future prospects for social accountability. Then, we discuss the four smart city projects: Indore, Kakinada, Panaji and Ranchi, laying special emphasis on how each

adopted citizen engagement in the smart city projects and how this affected the design, implementation and impact of the project. Finally, we conclude with a section on the future prospects and challenges of social accountability in a digitized context.

Toward Conceptualizing Social Accountability for Digital Urban Futures

Social accountability can be defined as "civic engagement in which ordinary citizens and civil society organisations participate directly or indirectly in exacting accountability from public service providers. In response to demands for accountability, public officials inform about and justify their plans of action, their behaviour and results and are sanctioned accordingly" (World Bank Institute, 2018). Since the early 2000s, public accountability emerged as a key strategy for improving public services and achieving the Sustainable Development Goals (Joshi & Houtzager, 2012). In its 2004 World Development Report, the World Bank prioritized the *short route to accountability*, where citizens could deal directly with service providers somewhat like buyers in a market dealing with sellers (Blair, 2010). This was preferred to the more indirect *long route to accountability*, where citizens first exercise voice in electing public leaders who then on the behalf of citizens formulate public policies that are implemented through public bureaucracies (Blair, 2010). While elections prompt political leaders to promise benefits in order to widen their support base, progress is slow and can only give a general direction to political leadership.

In Indian cities, civil society and urban local bodies have pioneered few short-route tools for social accountability from service providers. Broadly, they focus on the "voice side" of accountability wherein citizens can get involved in local decision-making such as budgets and services. Some of the prominent examples are as follows:

(1) *Participatory Budgeting* first introduced in Kerala in 1996, where citizens could deliberate on how to allocate parts of the municipal or public budget;
(2) *Citizen's Report Card* — a social audit tool launched in 1994 by the Public Affairs Centre in Bengaluru. Citizens reported views of municipal service provision in the water, power, health and transport sectors, following which the survey results were released to media to garner response from the city government;
(3) *The Bhagidari Scheme* initiated by the Delhi State Government in 2000 where RWS in predominantly middle-class neighborhoods were invited to engage directly with state officials, elected office holders and industrial chambers on issues concerning user changes on essential services to budgetary allocations to their neighborhood;

(4) *The Right to Information Act* of 2005 provided yet another public accountability mechanism for citizens to request public bodies for information on any topic not related to national security within a response period of 30 days.

Current scholarship on social accountability outlines two broad approaches which are relevant to this paper. *The first approach* is that social accountability should deepen democracy and is specific to local politics. This means that the short route is not just about trialing a set of *widgets* (tools) by which citizens can extract information and performance legitimacy from their service providers. Instead, it is about deepening democracy through a much more sustained and long-drawn *watchdog* approach, which is rooted in local politics and involves collective actors such as advocacy NGOs, social movements and neighborhood associations coming together to pursue multiple goals using a variety of strategies to influence processes of public policy (Joshi & Houtzager, 2012). As Blair (2010) illustrates (see Figure 1), the *watchdog approach* requires a mediating civil society to ensure sustained rights-based engagement between citizens and duty bearers.

The *second approach* links tax relations with good governance. Moore and Unsworth (2007) have argued that states which rely on broad taxation have greater

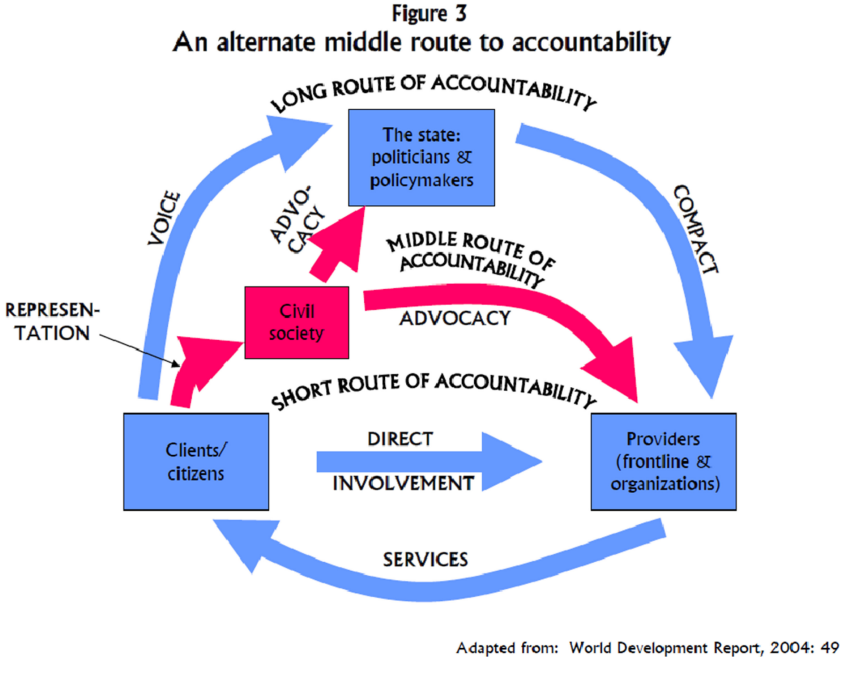

Fig. 1. The middle route of social accountability (Blair, 2010).

incentives to practice better governance, whereas governments that are not dependent on taxes are less accountable and responsive to citizen taxpayers. While this point is specifically relevant to states that rely on natural resource exports (Middle East and Africa), it also bears on local governance mechanisms. For example, where urban local bodies have arbitrary or weak tax administration with city residents, they are unlikely to have constructive political engagement with their taxpayers. Within this point, concerns are also raised that political engagement is more likely from wealthier taxpayers, e.g., from those who own property, at the expense of excluding poorer people. However, several research studies have shown that the poor in cities pay higher rents for public services from political patrons than their wealthier counterparts (Banks, 2015) and that this should be replaced with a more transparent and formal system of public revenue collection in the interest of their rights and collective entitlements.

The above approaches are relevant to our evaluation of the prospects and challenges of social accountability in the digitized governance context. At the outset, the Smart Cities Mission guidelines had set citizen engagement as a key criterion for selecting project proposals. The guidelines specified that citizen participation should be more than just "ceremonial participation in governance." Instead, it was defined as an end-to-end process, with city residents engaged in the local definition of smart city, decisions on deploying smart solutions, implementing reforms, oversight during design and implementing post-project structures (MoUD, 2015).

Against strong pressure to earn performance legitimacy from Mission Directors as well as local citizens, most cities used online portals like Facebook and the MyGov website launched by the central government to invite citizens' feedback, and few cities conducted small-scale surveys and workshops to elicit further inputs. However, citizen engagement was "tokenist" at best (Vaishampayan, Deshpande & Jadhav, 2020) and the participants were mostly those with ready online access, such as middle class residents and entities like the chambers of commerce, with limited representation from poor and marginalized groups.

Smart Cities Mission: Opportunities and Challenges for Social Accountability

Looking ahead, we argue that smart cities present opportunities and challenges to leverage on citizen engagement in a meaningful way as it has prompted a paradigm shift in *technological* and *financial models* of urban governance as such.

The Technology Drivers of "smart city" broadly encompass three elements namely installing *digital connectivity infrastructure*, *surveillance* and *monitoring of*

usage and delivery of public services; and *collecting data and applying data analytics* through Internet of Things, artificial intelligence and so on.

The "digital" therefore in the form of centralized information about public services, delivery of vital infrastructures and services online and provision of biometric and digital IDs to all citizens to access services along with the legal provision of the Right to Information Act, 2005, presents an opportunity for citizens to mobilize at least the first three components of social accountability: *accessing information*; *ongoing monitoring*; and *making demands*.[1] There remain of course huge concerns, on the *supply side* with regard to the capacity of municipalities to deliver meaningful information online, especially relevant to poor and marginalized communities living in the city; meanwhile, on the *demand side*, while more people own cheap mobile phones, they are still substantially disconnected from the grid of information, knowledge and action (Shah, 2015).

Second, opportunities and challenges lie in *funding of smart cities* in the future. As we explain below, most projects were funded through capital investments from state and central governments and loans from the World Bank and ADB. In the short run, we envisage that efficient tax administration and user charges will be necessary to sustain city projects and this opens the possibility for more constructive engagement between local bodies and taxpayers. However, this also means responding to longstanding calls to address the federal framework of urban governance in India, whereby constitutional amendments to devolve functions, finance and power from state governments to urban local bodies have not been followed (Ahluwalia, 2019). In this respect, it is promising that the recent NITI Aayog report on *Reforming Urban Planning Capacity in India* recommends that ULBs must be backed by adequate finance and capacity for planning and management in a digitized context (NITI Aayog, 2021).

Multi-scalar Governance and Democratic Futures

India has a long legacy of national missions for steering urban development priorities, with at least five of them launched over the last decade.[2] According to the

[1]Broadly, social accountability consists of five actions performed by collective actors: (i) *accessing information* about the level and quality of services; (ii) *ongoing monitoring* by social actors of the quality of the actual services being delivered; (iii) *making demands* to enforce legal standards that are not currently being met; (iv) *invoking formal grievance* procedures; and (v) *holding demonstrations* to protest against poor quality of services (Joshi & Houtzager, 2012).

[2]The National Urban Missions include: Swachh Bharat Mission, 2014; Heritage City Development and Augmentation Yojana, 2015 (HRIDAY); Atal Mission for Rejuvenation and Urban Transformation (AMRUT); Pradhan Mantri Awas Yojana, 2015 (PMAY); and the Jawaharlal Nehru National Urban Renewal Mission, 2005–2014.

Constitution, the responsibility of urban development lies with state governments. It was only in 1992 that urban local bodies were recognized as the third tier of governments, as the 74th constitutional amendment mandated state governments to transfer some powers and functions to urban local bodies (Ahluwalia, 2019). This has led to a peculiar federal structure, wherein while urban local bodies are directly accountable to city residents for services like water, public health, land use, sanitation and solid waste management, yet they are not backed with the finances or the capacity to deliver them fully. Municipalities' own revenue from taxes and other charges was still as low as 0.43% of GDP in 2017–2018 — much less than the 1.03% share of GDP recorded in 2012–2013 (Ahluwalia et al., 2019).

There is a clear connection between taxation and good governance, with evidence that where there are constructive tax relationships between states and citizens, there is more prospect for constructive engagement between governments and taxpayers, including poorer people who can expect better bargaining with duty bearers than arbitrary patronage-based politics (Moore & Unsworth, 2007). In this respect, unfortunately ULBs are on a weak footing because since the introduction of the goods and services tax (GST) in 2017, they are losing out on sources of direct tax. They rely mostly on one source of tax — the property tax.

For an ambitious program for building 100 smart cities, the most obvious question was of course on how it would be financed. In this respect, the Smart Cities Mission followed its predecessor viz. the Jawaharlal Nehru National Urban Renewal Mission, and aimed to bring about a paradigm shift in the financing of city plans. This included introducing a market angle in the area of urban finance, municipal bonds and public-private partnership (Prasad, Alizadeh & Dowling, 2021). Consequently, what we have seen in the last decade is that while urban local bodies have spent a lot more (in the form of capital expenditure) furnished by central and state government grants, they have earned very little in the form of their own revenue (Shah, 2018). It is estimated that so far the central government has allocated INR 3,000 million for 100 cities (£ 32 million). On average, around USD 13 million has been allocated for each city and state governments have matched a similar amount.[3]

[3]For example, in Indore, the total cost of the smart city project is INR 5,000 crore, toward which the Madhya Pradesh Government and the Central Government have contributed INR 500 crore each, while the remaining funds were collated from other national missions (Indore Smart City Proposal, Ministry of Urban Development, Government of India). Kakinada's project cost is INR 1,993 crore and the Government of Andhra Pradesh and the Central Government have contributed INR 500 crore each toward the project (Kakinada Smart City Proposal, Ministry of Urban Development, GOI). Ranchi's project cost is INR 1,498 crore (Ranchi Smart City Proposal, MOUD, GOI) and Panaji's project cost is INR 1,775 crore (Panaji Smart City Proposal, MOUD, GOI). Special Purpose Vehicles (SPVs) were channeled to bring in loans from the World Bank and ADB with the collateral guaranteed by the government, and in the future it is expected that against the equity from the project they will be able to issue public bonds and leverage debts if needed.

The future prospects of democratic accountability in smart cities depend largely on the financial resources that will sustain some of these projects. No doubt user charges and property taxes will remain the main source of ULB income, and therefore it is not surprising that several smart cities have applied surveillance systems to guarantee property tax collection.

However, this is only part of the tax relation that is likely to unfold. Much of it will depend on the multi-scalar governance regime on which the SCM was based. With central and state governments taking control from municipal bodies, this regime was very ambiguous on accountability mechanisms, as we detail below. This confronts a very real challenge wherein local governments financed by SPVs (therefore not dependent on taxes for their finances) are less accountable and responsive to citizen taxpayers and have little incentive to build political and organizational capacities to negotiate and collect revenue and spend it effectively (Moore & Unsworth, 2007).

Amongst the states that we have covered in our case cities, Andhra Pradesh (Kakinada) has a very high ratio of own revenue to revenue expenditure at 85.4%, followed by Jharkhand (Ranchi) at 63.54%, Goa (Panaji) at 51.84% and Madhya Pradesh (Indore) at 42.08% (Shah, 2021). While these figures are for the overall state and not the specific ULB, they tell us that the initial success of a smart city project may not be reliant on the financial capacity of the ULB. However, the tax relationship which is likely to sustain the project and the accountability mechanism would indeed be borne out of this revenue model.

The SCM's federal structure was made up of vertical and horizontal relations between different scales of state and various stakeholders, respectively. The central government held the Apex Committee and National Mission Director which hosted various knowledge-sharing activities for the overall mission. The central government set the mission guidelines through the Office of the Ministry of Urban Development and provided seed funding for each city project.

In the next tier, state governments played the most prominent role in shortlisting cities that would proceed for the Mission and matched the seed funding provided by the central government. At the state level, a High Powered Steering Committee which reviewed smart city activities and a State Mission Director responsible for supervising the local governments and SPVs to plan, mobilize funds and implement the SC projects were set up.

Finally, at the city level, local governments were responsible for supervising smart city projects with the support of consulting firms and handholding agencies and Smart Advisory Forums made up of mayor, local youth, technical experts and NGOs

were set up. In most cases, municipal authorities declared that they did not have the capability or finances to run the city and in some cases they did not even have an elected representation, i.e., a mayor (Prasad *et al.*, 2021).

In parallel to this federal framework, a Special Purpose Vehicle was set up for each city, with CEO appointed for a period of three years. Although the SPVs were envisaged as a more efficient alternative to public governance mechanisms, in reality their main responsibility was to channel and leverage the financial resources on which the smart city projects would be planned, executed and eventually sustained. Evidence from different smart city projects now reveals that smart city governance in fact took local and context-specific contours, with different scales of governments and private and public sectors sometimes mediating together and sometimes acting entirely in silos from the other entities. Furthermore, our ethnographic insights from some of the city projects tells us that CEOs and elected political leaders from state and city governments had rather contentious relations.

Therefore, looking back at smart city projects we can say that politics (formal and informal), political economy and other contextual factors have frequently seemed to be underpinning the challenges and opportunities for change. However, it is not clear the extent to which projects have taken the lesson on board. Despite the great number of attempts to establish municipal bodies for over a decade, very few have achieved levels of genuine functioning, and there is little evidence of projects attempting to take the politics on board, to manage the political side of reforms or of them being prepared to look for technically second-best, politically feasible reforms. Supply-driven attempts to redesign institutions have often resulted in expensive technical assistance left on the shelf, or new institutions that are set up existing largely just "on paper."

In this context of multi-scalar governance, therefore, the mechanisms of social accountability are still rather elusive. Urban local bodies remain the first point of contact for city residents, but clearly lack the capacity and resources to be accountable for the services they are expected to provide. Furthermore, once funded, smart city projects are governed through a *public bureaucracy* or *administration* model, which can turn out to be large and complex bodies with tremendous discretion in decision-making (Joshi & Houtzager, 2012). In this context, accountability spaces tend to be orchestrated at crucial moments of the project — before, during and after — usually at the behest of the main funding or regulatory body. Whereas, sustained democratic and collective efforts to demand rights and accountability across community and civil society actors are not much well integrated into urban decision-making mechanisms.

Case Studies: Citizen Engagement in Four Smart City Projects

As mentioned previously, *inclusive urban governance and citizen services* are *a key theme* under the Smart Cities Mission. Many of the cities that applied and received support have not only a *sizeable population aspiring for growth and service provision but also poor and vulnerable communities*. Some of the case study cities presented here have an established history of planning with community engagement as well as pro-poor planning and therefore, *familiarity with participatory methods* could be expected. The narrative in these case studies makes observations on the *civic engagement* carried out by the urban local bodies in the process of applying and delivering smart city-related projects and sub-projects and the *relevance of the selected projects* to these populations. Empirical observations and notes from visits between 2016 and 2019 have been included alongside publicly available information in the below narratives to appreciate four aspects of the city approach within SCM:

(1) Did the city have previously established practice(s) of civic engagement on infrastructure provision?
(2) How was outreach to variety of citizens conducted and did that present any limitations?
(3) Were the selected sub-projects under SCM in each city appropriate to the context and socio-economic requirements?
(4) What access did citizens have to monitor progress and raise concerns if any arising?

Indore

The SC process is driven by Indore Smart City Development Limited (ISCDL), an SPV established in 2016 by the partnership of Indore Municipal Corporation and Madhya Pradesh Urban Development Corporation that integrates the visions of both Central Government and State Government.

Indore was selected as one of the first 20 cities to be developed as smart cities under the Smart Cities Mission which considered it a "lighthouse" city, i.e., lighting up the way forward for other cities in this novel program.

It has been a prominent city for much of its *history* (circa 15th century) owing to its location on the major pilgrimage and trade routes and in recent years for industry, entrepreneurship, finance and education. The demography of Indore has constituted wealthy traders, entrepreneurs, industrialists as well as significant numbers of low-income and poor populations. Approximately 30% of the city population is considered

low-income and residing in slum-like conditions, whilst it has a high unemployment rate of just over 10% (2021 figures). Indore City is familiar to participatory methods of planning. Prior to Indian independence, Indore was a princely state enjoying widespread loyalty from the residents. As the authors note, the heritage of participatory modern urban planning is well established in Indore. Sir Patrick Geddes, a key promoter of participatory planning, drafted one of its first urban master plans in 1918 at a time when Indore had a reputation for being a plague-ridden unsanitary city. These reports have become exemplar in modern urban planning for participatory practices.

In the 1990s and early 2000s, Indore received support from UK Overseas Development Assistance (ODA) to enhance the quality of city services for the poor as well as improve city competitiveness and infrastructure. Citizen engagement was an extensive part of these programs. With the active support and efforts of the municipal corporation, Indore now prides itself as one of the cleanest cities in India.

The urban local body has embraced new methods of participatory working particularly e-governance. These also include non-electronic methods such as surveys and interviews with a large number of residents.

This, however, does not always directly appear to target or benefit the poorest and those without access to electronic media.

As per its application to the SC challenge, Indore proposed extensive *outreach to the citizens* of the city for their support and engagement with the selection of priority projects. Both online and interpersonal methods of citizen engagement have been identified, with the latter including focus groups and surveys, with the ambition by the city authorities to reach up to 25% of the city's resident population. The predominant engagement over the course of the SC work appears to be primarily electronic, using social media and e-platforms. There is limited evidence in the public domain to draw out engagement from slum dwellers, the unemployed, women and children.

The *projects identified*, *selected and delivered* are in the areas of Transport and Mobility, Heritage and History, Solid Waste Management, Health and Medicine Information and Technology and Infrastructure. The initial proposal was revised and the overall cost was reduced to INR 4,325 crore (i.e., INR 43,250,000) — down from INR 4,900 crore — and reallocated across the proposed sectors. Overall, 80+ distinct projects (with several sub-projects within) were identified with some being done in phases and sub-components. To date, group consultations and surveys have been carried out, though limited in scope, to identify situation and challenges and not necessarily with the objective of cocreation of ideas and proposals.

The initial proposal had an element of slum upgrading and rebuilding of tenements; in the revisions, however, these are not distinct line items. This could be due to

either a gap in the design of public engagement with respect to the level of participation or such priorities being covered under a different program specifically aimed at reduction of poverty and basic infrastructure provision.

In the list of 80+ projects, low-income housing for 960 units is identified for Lodha Colony and Sethi Nagar. It can be argued that the projects targeted at slum-dwelling population in the city could be increased proportionate to the poor population even though the entire city does stand to benefit from many of the city-wide infrastructure and improvements. There remains further scope for skills enhancement and other projects that enable employability and opportunities for the local population.

Next, the selected projects as well as their progress are primarily being delivered through private sector consultants. This ensures that interventions compliment the capacity of ISCDL to deliver at pace and high quality. Another desirable outcome here where information needs to be better collated is how the projects/sub-projects benefit the local economy, locally based persons and small businesses and service providers. The city has published the list of selected and ongoing works and has a clear pathway described for submitting grievances and requests for information, though this may primarily benefit those who have access and interest in engagement via electronic means of communications.

Kakinada

The SC process is driven by Kakinada Smart City Corporation Limited (KSCCL), an SPV established in 2016 under the Companies Act. Kakinada was selected as one of the first-round cities to be developed as smart cities under the Smart Cities Mission.

Historically, Kakinada emerged as one of the largest deep-sea ports and a focal point for ship-building during the British rule (18th century), and has acquired significance on a number of fronts including ship-building, higher education, tourism, preferred and affordable location for retirement and more recently, IT owing to the presence of skilled personnel. Although Kakinada had a reputation for being a reasonably well-planned town, it is rapidly growing into its peripheries. In recent years, the shipping port is being revived with private operators and investors. As per the discussion with the commissioner during the visit, there continues to be a "significant fishing community in the city/city region," most of whom work with contractors — owners sending their fleets into the Bay of Bengal. Fishing trade remains a significant contributor to the city's economy although the fishing sector workers are also engaged

in the planning and delivery of city services. The city also has approximately 30% of the population living in slums and/or poverty.

As per its application to the SC challenge, Kakinada proposed extensive *outreach to the citizens* of the city through both online and interpersonal methods of citizen engagement highlighting that almost 120,000 citizens engaged directly and interpersonally, creating, for instance, ward-level engagement structures. The Kakinada Commissioner also highlighted in discussion that the smart city local institutions such as the School of Planning and Architecture worked with the city commissioner to develop student exercises for the planning and design studio.

The specific mention of fishing communities and the ambition to proportionately reach the slum-dwelling population is not articulated in the proposal as well as the detailed design packages. This omission is difficult to explain as an important segment of the population could already have been served, except perhaps in the initial phases Kakinada had a stated priority for attracting external investment.

During discussion with the Commissioner, KMC was identified as engaging citizens using mainly technological tools such as digital sign boards, social media platforms, TV and radio and SMS along with some direct engagements using FGD (Focus Group Discussions). The city SC application highlights extensive citizen engagement through a consultative "ecosystem," although the public record of these engagements is not fully accessible on e-platforms. A poll of citizens identified solid waste management, information technology as well as housing for poor/slum upgrading as amongst the highest priorities.

In terms of *projects identified*, *selected and delivered*, the vision and mission of this project were stated as transforming Kakinada into an economic destination — economically vibrant, inclusive, livable and sustainable based on the strengths of port, marine and tourism. The city proposed a total estimated investment of over INR 1,993 crore (i.e., INR 19,930,000) for Area-based Development and Pan-City Development with significant investment in water supply, housing, urban mobility and transport projects. However, initiatives such as Wi-Fi, vehicle tracking, PA system and emergency call management were technological and less strategic.

Citizen engagement has been primarily consultative and not aimed at cocreation of proposals and ideas. The proportion of projects targeted at slum-dwelling population in the city could also be further increased proportionate to the poor population and also the economically significant fishing community. There remains further scope for skills enhancement and other projects that enable employability and opportunities for the local population. Another desirable outcome where information needs to be better collated is how the projects/sub-projects benefit the local economy, locally based

persons and small businesses and service providers. The city has not published a detailed list of selected and ongoing works in the public domain even though it has a pathway described for submitting grievances and requests for information, but this may only primarily benefit those who have access and interest in engagement via electronic means of communications.

Panaji

The SC process is driven by Imagine Panaji Smart City Development Limited, a wholly owned government company and SPV of the Government of Goa as the State Mission Directorate for AMRUT and State-level Nodal Agency and the State Mission Management Unit for Smart Cities Mission.

Historically, Panaji (or Panjim) pegged as a city circa 180 years before, first became the focal point of governance in Portuguese Goa, attracting a rich and world-renowned heritage of estuarial biodiversity, churches and a unique life style. Fishing has always been an integral part of the history. The city retained its capital status when it was taken over by India in the 1960s, thereafter attracting international as well as local visitors to its free-spirited events and semi-rural life style. In recent years, it has attracted a large number of educated intellectuals retiring and settling here and engaging in its civic life. The documented number of families living in poverty or slum-like conditions is at around 10,000. Goa also has a significantly rising elderly population. Lately, the city (and state) is reported to have high levels of unemployment.

Panaji was selected in a fast-track route after missing out narrowly on the threshold for selection. The review panel from the Ministry of Urban Development (MoUD) made recommendations on a range of improvements such as better definition of service indicators and inclusiveness, for instance: "Although improvements in physical environments of potentially tourist places in the vicinity of urban poor localities (Mala Lake area) can be expected to indirectly benefit the urban poor too, the linkage is quite weak. This aspect of inclusiveness will need to be strengthened." Once revised, the MoUD review suggested seeking the views of citizens on the proposals and review comments.

Following this, Goa represented to have reached out to "54% of city population" during the initial preparation with wider audience addressed through print and digital media. Whilst documentation in public domain is not available to confirm this extent, citizen profile is said to have included school and college students, professionals, senior citizens, women, slum dwellers, government officials, NGOs, traders, shopkeepers, artists and politicians using both interpersonal and digital modes,

predominantly reaching out with the use of citizen engagement questionnaires. Fast-track mode of revising Panaji Smart City proposal had followed a similar engagement; that is, face-to-face engagement and questionnaires and interactions through kiosks, idea drop boxes, expo and Focus Group Discussions were said to be used. Five priority sectors for pan-city projects were said to have emerged from the initial citizen engagement process and were put to vote — Transportation: 51%, Waste Management: 19%, IT-enabled E-governance: 7%, Health and Education: 14% and Economy and Employment: 9%. For area-based solutions, upgrading of conservation zone was said to have been voted unanimously by over 40%: Citizens voted equally in favor of the proposed interventions — church area improvement, Altinho urban poor pocket upgrading, Ourem creek, improvement of pockets of urban poor in Mala and area improvement near the Mala Lake.

In terms of *projects identified*, *selected and delivered*, the objective according to the smart city website (https://imaginepanaji.com) "is to drive economic growth and improve quality of life of people by enabling local development and harnessing technology as a means to create smart outcomes for citizens."

When the authors met the smart city team in 2019, the initial projects identified in Panaji though were rather specific (than strategic); for instance, the refurbishment of historical structures (including the building within which the headquarter of the smart city project was located), enhancements in footpaths, urban greening and surveillance equipment (CCTV cameras). These projects, however, reflect a restrained ambition when seen in the context of the strategic goals as well as priorities and focus areas identified in the civic engagement.

The engagement has been primarily consultative and not aimed at cocreation of proposals and ideas. The proportion of projects targeted at slum-dwelling population, elderly and civic interactions in the city could also be further increased proportionate to the economically significant fishing community. There remains further scope for skills enhancement and other projects that enable employability and opportunities for the local population. Another desirable outcome where information needs to be better collated is how the projects/sub-projects benefit the local economy, locally based persons and small businesses and service providers. Neither the city has published a detailed list of selected and ongoing works in the public domain (such as on its website) nor a clear pathway is described for submitting grievances and requests for information.

Ranchi

The SC process is driven by Ranchi Smart City Corporation Limited (RSCCL) incorporated in September 2016. Ranchi was selected in 2016 for the SC challenge.

Ranchi (circa 200 years old as a modern urban settlement, although the urban history extends much further back in time) is reputed for its forested hilly topography and pleasant weather gaining the status of regional summer capital during the British rule attracting governance infrastructure and good transport links. Ranchi lies in what is now the Jharkhand State (founded in 2000), a state that is predominantly tribal in nature and has received little development over the years, although ironically it is also the center of mining and industry attracting modern townships such as Jamshedpur. Being a prominent and popular city, Ranchi attracted people looking for urban employment. The city in recent years has attempted to modernize its urban planning and services programs through the engagement of city managers as well as promoting skill development institutions such as the JUPMI (Jharkhand Urban Planning and Management Institute) that remain at the core of the smart city work. The city has significant number of slums and poverty (circa 7–8% of population), but also has a strong legacy of empowering community groups to take on government projects and deliver services in partnership with the local government.

Outreach to the citizens in Ranchi is said to have reached to over 100,000 households (around 1.4m population in the Ranchi Metro Area in 2019) with an "ecosystem" created with administrative machinery along with media, NGOs and private companies covering all 55 wards across the city in a door-to-door campaign by smart city volunteers. The proposal lists a wide range of stakeholders to be consulted such as schools, NGOs, slum dwellers and elected representatives using both direct consultation as well as electronic or social platforms.

In terms of *projects identified*, *selected and delivered*, mainly large physical infrastructures are currently being tendered or delivered (such as urban civic center, convention center, JUPMI building, etc.) under the Area-based Development and Pan-City Development with nearly INR 3,200 crore (i.e., INR 32,000,000) for execution. The JUPMI building construction was well underway when the authors first visited in 2017 (the academic criteria and structure for JUPMI were set out even before). The Knowledge Smart City under the Greenfield Area-based Development for RSCCL has proposed six acres for affordable housing (i.e., nearly 860 EWS units). This is currently not been implemented or tendered.

Overall, in the case of Ranchi, the engagement has been primarily consultative and not aimed at cocreation of proposals and ideas with citizens or specific groups. This primarily refers to the initial large infrastructure projects identified primarily with an intent to attract external investor interest.

There is ample scope for projects targeted at slum-dwelling population to be further increased proportionate to the economically weaker population. There is a

strong element of capacity building (with Jharkhand Urban Planning Management Institute), though the scope for local skills enhancement and other projects that enable employability and opportunities for the local population could still be enhanced. As mentioned earlier, JUPMI was well established with an intent to build the capacity of local planners. Another desirable outcome where information needs to be better collated is how the projects/sub-projects benefit the local economy, locally based persons and small businesses and service providers. The city has published a detailed list of selected and ongoing works in the public domain and mentioned pathways for submitting grievances and requests for information, though this has not been up to date.

Comparing the Four Smart Cities

Table 1 collates the observations into a matrix. Amongst the cases presented, Indore seems to have made the most progress overall on the range of scales of projects delivered under the SCM with a strong sense of civic engagement and an up-to-date information on the electronic platforms (website, social media) that were prepared for the project.

Indore seems to be the most progressed amongst the case study cities and despite the limitations around the focus of programs, the e-portals as a tool for information and social accountability are up to date and informative for those citizens with online access. This is something that other cities can learn from.

This is one of the main reasons why cities such as Indore are more likely than Ranchi, Kakinada and/or Panaji to succeed in integrating social accountability mechanisms within the SCM typology.

In all cities under the SCM, the groups that are most likely to engage with the SCM planning and engagement processes are those with robust online access. This is where the bulk of the engagement and information exists. Communities, individuals or groups that do not engage with electronic means of communication are likely required to find alternative ways to engage with SCM planning and delivery. Capacity within SCM could also be enhanced for such offline engagements in future versions of the programs.

In future, as the access of communities to electronic methods of communication grows, these e-platforms will most certainly become more active and better understood spaces for social accountability on service provision. However, for several communities such as the elderly, retirees and groups such as the low-wage workers in fishing and industry, it could turn out to be a long transition.

The SCM in various cities could use this as an opportunity to design transitional measures using intermediaries within community organizations, at the ward level or

Table 1.
Comparison of the Four Smart Cities

	Indore	Kakinada	Panaji	Ranchi
Overall progress on SCM	Significant progress and spending on SC projects.	Limited progress and spending.	Limited progress and spending.	Progress mainly on large infrastructure projects.
Did the city have established practice(s) of civic engagement?	Yes (strong track record).	Limited previous track record though SCM introduced several practices.	Limited previous track record though SCM introduced several practices.	Yes.
How was outreach to citizens conducted and did that present any limitations?	Multi-modal. However, there is much reliance on electronic and social media platforms. People without access to online platforms will consequently have limited ability to monitor SCM progress.	Multi-modal. However, there is much reliance on electronic and social media platforms. People without access to online platforms will consequently have limited ability to monitor SCM progress.	Multi-modal. However, there is much reliance on electronic and social media platforms. People without access to online platforms will consequently have limited ability to monitor SCM progress.	Multi-modal. However, there is much reliance on electronic and social media platforms. People without access to online platforms will consequently have limited ability to monitor SCM progress.
Were the selected sub-projects under SCM in each city appropriate to the context and socio-economic profile?	Scope for further projects that generate newer skills and business opportunities for the local communities.	Significant communities like fishing, port employees and retirees could be further engaged through the SCM projects.	Significant communities like fishing, settled intellectuals and port employees could be further engaged through the SCM projects.	Scope for further projects that tackle low-income and marginalized communities, particularly through skill building and livelihoods from the SCM projects.

Table 1. (*Continued*)

	Indore	Kakinada	Panaji	Ranchi
What access did citizens have to monitor progress and raise concerns if any arising?	The Indore SCM website is well maintained and up to date. Contact details of process to raise grievances is clearly presented and online presence on social media is available. Offline communication on SCM remains a gap that could be improved.	Website and social media platforms are not up to date.	Website and social media platforms are not up to date.	Website and social media platforms are not up to date.

within specific groups such as industry workers, fishing and so on, as per the requirements of each city. Such transition plans for online social accountability will also reinforce and complement the digitization ambitions of the SCM. This will permit engagement beyond the initial planning and well into the monitoring and management of the infrastructures and services created. It is also worth remembering that communities play a significant role in management of urban assets and integrating such online transition plans will help the ULBs to reinforce their capacity for urban asset management as well as transparent e-governance around service delivery, a win-win situation.

Conclusion

Comparing across the four smart cities and looking across the SCM as a whole, we draw the following conclusions. First, in the SCM, cities engaged with citizens in creative ways — albeit limited — in identifying a wide range of measures for engaging, planning and implementing the SCM by using both digital and interpersonal methods to reach out and engage with the citizens. However, local smart city teams and governments were limited by resources and in terms of understanding of the participatory planning techniques. Therefore, it is recommended that in the future more structured engagement with community leaders and representatives as intermediaries could enhance the experiences of both digitally connected and disconnected citizens to the SCM process. Even where investors are the key target for SCM, enabling digitalization for economically or socially significant community groups (such as fisher folk in Kakinada) can really be helpful in making the experience more inclusive as MoUD reviewers always expected and advised.

Beyond this, digital interventions present unprecedented opportunities for transparency and accountability in governance practices. However, India is in a transition phase where such opportunities are accessible only to regular users of digital media and tools and, in particular, those who actively search for information. This implies that additional efforts are required to be made for persons (irrespective of income level) who may not be using digital media to its full potential or in an appropriate manner.

Digitalization can be an effective enabler for participation and democratization, and the SCM has presented every intention to do so. However, given the extent of the digital divide, the most optimum use of this technology for participatory governance will take time and sustained efforts to mature. Until then, the support of local

intermediaries such as community organizations, NGOs and vernacular media to include all parts of the society should be designed into SCM and related programs.

Furthermore, it is important to raise awareness and consult with citizens engaged in digitalization on how they feel impacted from data collection, algorithmic automation and surveillance. The views of the citizens can shape more socially diverse practices in automation and digitally driven participation in the future. We highlight this point especially in light of the National Urban Digital Mission, which succeeds the SCM and aims to enable data sharing between private and public entities on shared platforms.

Finally, there are some powerful rules and guidance emerging globally on data privacy (GDPR, for instance); however, within the landscape of digital engagement amongst fast-changing laws, citizen's understanding of these laws is an unprecedented challenge for everyone. Missions such as the SCM could plan some resources aimed at excellent communication with the citizens on the opportunities and risks that are presented by datafication.

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