Recovering the 'Public' in India's Digital Public Infrastructure Strategy

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IT for Change[1]

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1. The DPI turn in digital policy

Digital Public Infrastructure (DPI) gained wide acceptance in the policy discourse as a strategy for recovery in the post-pandemic period.[2] DPI is an umbrella term used to describe a range of technological systems (digital identity, data sharing systems, digital payments, etc.) seen as "essential capabilities for participation in society and markets as a citizen, entrepreneur, and consumer in the digital era."[3] The term has been used to refer to a variety of initiatives "from grassroots social media platforms that empower communities to state-promoted interfaces for delivering welfare payments".[4] The UNDP notes that DPI involves some combination of (i) networked open technology standards built for public interest, (ii) enabling governance, and (iii) a community of innovative and competitive market players working to drive innovation, especially across public programs.[5] There is increasing recognition of the key role of governments in designing, developing, and managing DPI.

The India DPI approach has garnered international attention for innovations in the delivery of social welfare as well as economic growth. For instance, in the last few years, India has rolled out Aadhaar (the digital identity system); the Unified Payments Interface (UPI - an instant, interoperable, payment system); Open Network for Digital Commerce (ONDC - a discovery and fulfillment network for e-commerce); the API Setu initiative (which provides open Application Programming Interfaces for public service delivery) and sector-specific data exchanges for third party data sharing in key development domains such as health, agriculture, and urban development.

[1] This brief has been prepared by Anita Gurumurthy, Nandini Chami, Sadhana Sanjay, Rudraksh Lakra, and Eshani Vaidya. This is a preliminary draft. To cite please write to itfc@itforchange.net

[2] O'Neil, K & Rasul, N 2021, Co-Develop: Digital Public Infrastructure for an equitable recovery, Rockefeller Foundation.

[3] Eaves, D & Sandman, J What is Digital Public Infrastructure? Co-Develop, accessed January 2025.

[4] Samdub, M & Rajendra-Nicolucci, C 2024, What is Digital Public Infrastructure? Towards More Specificity, Tech Policy Press.

[5] United Nations Development Programme, Digital public infrastructure, UNDP accessed January 2025.

Though there is no official policy document laying out the thinking behind the roll-out of India's DPI roadmap with all its constituent elements, the Report of India's G20 Taskforce on Digital Public Infrastructure (2024) reflects the emerging thinking.[6]

The document attempts to extrapolate insights from the Indian experience for replication of DPI in other contexts across the world and outlines three critical elements to successful DPI development:[7]

a. Technology design based on the core principles of openness, interoperability, and scalability that aids the evolution of efficient and inclusive digital ecosystems.

b. Robust governance arrangements to protect citizens' welfare entitlements and ensure inclusive innovation in DPI ecosystems, spanning the development of new mandates for traditional governance institutions as well as the exploration of new private institutions to oversee contractual arrangements in DPI innovation communities.

c. Promotion of open access and healthy competition in DPI ecosystems to prevent the capture of innovation dividends by cartels or dominant players.

The DPI turn in digital policy worldwide has been analyzed by scholars as the latest manifestation of the "entrepreneurial role of the state"[8] – the development of society-wide infrastructural capabilities that will maximize public value creation adequate to the digital era. Building on emerging insights from IT for Change's ongoing research project,[9] this policy brief evaluates the extent to which India's DPI strategy has delivered on public value creation. Reflecting on the deficits of the current policy roadmap, we conclude that India's DPI strategy gives short shrift to citizen well-being and falls short of generating public value. To reboot a vision and pathway for a citizen-centric DPI, we argue the need for a) a digital developmental state that centers the common good in the design, development, and deployment of DPI and b) a robust public governance scaffolding that is attentive to the five pillars of the common good: purpose and directionality of infrastructure development, transparency and accountability, co-creation and democratic participation in digital innovation ecosystems, access for all, and socialization of data dividends.

2. India's DPI strategy - examining the scorecard for public value

In this section, we evaluate the vision and implementation of India's DPI strategy for its public value potential. Public value may be understood as the intangible, collective benefits in the public realm that contribute to social well-being, which are often left out of the narrow conceptualization of value in market economics.[10] The baseline for public value is the normative consensus in a

[6] India's G20 Task Force on Digital Public Infrastructure 2024, Report of India's G20 Taskforce on Digital Public Infrastructure, Department of Economic Affairs.

[7] Ibid.

[8] Mazzucato, M; Doyle, S & Kuehn von Burgsdorff, L 2024, Mission Oriented Industrial Strategy: Global Insights, UCL Institute for Innovation and Public Purpose.

[9] This research is carried out as part of our project, Effective Ethical Frameworks for the State as an Enabler of Innovation, a collaborative initiative of IT for Change and the Tech & Policy Lab, University of Western Australia. This project is supported by the Australian Government, Department of Foreign Affairs as part of Round 3 of the Australia-India Cyber and Critical Technology Cooperation Partnership Grants.

[10] Bennington, J 2007, From private choice to public value? University of Warwick, Institute of Governance and Public Management

democratic polity about certain 'public *values*' "(a) the rights, benefits, and prerogatives to which citizens should (and should not) be entitled; (b) the obligations of citizens to society, the state and one another; and (c) the principles on which governments and policies should be based".[11]

Although it is not straightforward, public value creation may be measured by four key dimensions:[12] outcome achievement (publicly valued outcomes across a wide variety of areas), trust and legitimacy (by the public and by key stakeholders), citizen-centricism (how people's needs are met and interests are considered) and efficiency (maximization of benefits with minimal resources).

From this starting point, it is instructive to look at the Indian policy discourse on DPI - and how its "government-as-platform approach"[13] has delivered on public value. The platformization of government involves the delivery of public services and the design and deployment of 'innovation public goods' through data and platform technologies. This includes core applications that inspire developers (from the market) to push the platform even further, and enforcing the "rules of the road" which ensure that applications work well together.[14] As an institutional overhaul of the governance process, the state as an 'open platform' with porous boundaries reflects the coming together of public sector actors/agencies, market actors, and civil society for societal problem-solving. The Report of India's G20 Taskforce on Digital Public Infrastructure exemplifies this 'government-as-platform' approach. It offers a three-pronged formula of open and interoperable technological design, rule of law to undergird multi-sectoral collaborations for public service delivery, and preservation of a level playing field in digital innovation ecosystems.[15] As our analysis in the discussion below reveals, the DPI policy approach in India is consolidating a clientelist digital welfare state and corporate capture of innovation dividends from digital infrastructural ecosystems.

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We use two case studies – (a) the Ayushman Bharat Digital Mission's (ABDM) digital health infrastructure and (b) the national Agri Stack and the state of Telangana's agricultural data exchange – to illustrate and critically analyze current trends.

2.1. DPI and the emergence of a clientelist digital welfare state

India's flagship DPI – the Aadhaar/ UID backbone for public services – was introduced with the promise of generating a fool-proof digital identification system with the stated objective of curtailing leakages in welfare delivery and ensuring that rightful beneficiaries receive their welfare entitlements.

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[11] Bozeman, B 2007, Public Values and Public Interest: Counterbalancing Economic Individualism, Georgetown University Press.

[12] Faulkner, N & Kaufman, S 2017, Avoiding theoretical stagnation: a systematic review and framework for measuring public value, Australian Journal of Public Administration, 77(1):69–86.

[13] O'Reilly, T 2011, Government as a Platform, Innovations: Technology, Governance, Globalization, 6(1):13–40.

[14] Ibid.

[15] Supra n. 6

In 2021, the CEO of the Unique Identification Authority of India (UIDAI) claimed that the interlinking of 300 centrally supported welfare schemes to Aadhaar-based modalities had enabled savings of 2.25 lakh crore INR to the public exchequer by eliminating 'ghost beneficiaries'.[16]

This claim not only fails the test of independent verifiability but also detracts from the real issues at hand. A range of research studies have demonstrated that Aadhaar is no silver bullet to eliminate welfare fraud and leakages. In the instances where the transition to Aadhaar-enabled welfare delivery has led to efficiencies for citizens, there has been concomitant attention from state governments to instituting safeguards for public accountability.[17] If this political will is absent, beneficiaries face exclusion due to new systemic vulnerabilities – others receiving payments on their behalf; short deliveries; direct cash transfers being made to accounts in their names they did not know existed; and village pradhans (heads) receiving money on their behalf for subsidized housing projects.[18]

The lack of a robust grievance redress and accountability mechanism in the regulatory framework for Aadhaar-enabled service delivery means that citizens have no way to demand justice for wrongful exclusion from entitlements.[19] The centralized strategy of Aadhaar-enabled Direct Benefit Transfer (DBT) and the Aadhaar-based Beneficiary Authentication (ABBA) mechanism is a double whammy for citizens. On the one hand, it has taken away the space at the local level for citizens to engage in claims-making and demand political accountability. On the other, it has not always brought the purported efficiencies of platformized service delivery based on data-enabled targeting of citizens' needs. More egregiously, digitalization has enabled the emergence of a new class of middlemen (unscrupulous business correspondents), and new avenues of rent extraction for existing middlemen (like ration shop owners), who control last mile digital delivery points.[20]

Not only has the Aadhaar-backed digital welfare state thus failed to check patronage networks at the last mile, but it has also ushered in a new, hitherto unforeseen form of centralized, clientelism – where digital welfare delivery and the associated institutional regime of datafication emerges as a site for the commodification of citizen data.

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In this process, government-as-platform ends up furthering the interests of data capital without bringing in additional resources or capacities for the state to fix critical infrastructural deficits in public service delivery.

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[16] Asian News International 2021, Aadhaar Has Led To Rs 2.25 Lakh Crore Savings To Exchequer, Says Its Chief: Report, NDTV.

[17] Muralidharan, K; Niehaus, P & Sukhtankar, S 2020, Identity verification standards in welfare programs: Experimental evidence from India, National Bureau of Economic Research.

[18] Wilkinson, S 2021, Technology and clientelist politics in India, United Nations University-World Institute for Development Economics Research.

[19] Bhandari, V & Sane, R 2019, A Critique of Aadhaar Framework, National Law School of India Review, 31(1).

[20] LibTech India 2020, Length of the Last Mile: Delays and Hurdles in NREGA Wage Payments, Azim Premji University.

2.1.1 The 'data fee' to access essential health services - reflections from India's health DPI

The Ayushman Bharat Digital Mission (ABDM) was launched in September 2021 with the objective of "developing the backbone necessary to support the integrated digital health infrastructure of the country [...] to bridge the existing gap amongst different stakeholders of the healthcare ecosystem through digital highways".[21] The ABDM seeks to enable the frictionless exchange of health data for incentivizing private sector health innovation to address the country's public health challenges.[22] This includes a unique health digital identifier and a unified health interface protocol to enable health data exchange between various health service providers (hospitals, clinics, labs, pharmacies, insurers, wellness centers, health tech companies, third-party administrators for health insurance, and so on). To catalyze digital health innovation, the ABDM has also adopted a sandbox approach. This means non-state actors are permitted to apply for accessing health data from the ABDM ecosystem in controlled testing environments within which existing regulations may be temporarily relaxed to allow for experimental digital health service solutions.

This entire data ecosystem of the ABDM lacks an effective data governance framework. Neither the Digital Personal Data Protection Act nor the Health Data Management Policy have instituted any safeguards for the use and re-use of anonymized data. The ABDM also extracts a compulsory 'data fee' from citizens for access to health services, especially in emergencies.

This was flagged by one of our key informants researching India's digital health:

"*The trust-based model of inclusion assumes there is a choice where people come in or stay out of the system. But this is not what happened - it was coercion, when in the pandemic there was no other way for citizens to access vaccinations, except to go through the CoWIN portal [which would generate a health ID automatically].*"

What emerges is a coercive inclusion of citizens into the ABDM data architecture, and through it into the data market, clearly in violation of citizen agency and rights.

This 'data fee' that the citizen is being required to pay for accessing their right to health has also emerged as a requirement in other health service schemes. For instance, it is not possible for a household to register for the Ayushman card that is proof of eligibility for the flagship insurance scheme of the Government of India – the Pradhan Mantri Jan Arogya Yojana (PM-JAY) – without going through an Aadhaar-authentication/e-KYC process.

The PM-JAY aims to ensure financial protection for accessing secondary and tertiary care from public and private providers – covering 40% of the poor and vulnerable population of the country with an insurance coverage of 5 lakh INR per household. The central and state governments co-fund the scheme in a 60:40 ratio, and the scheme covers hospitalization and many associated costs from empanelled public or private hospitals.

[21] Ayushman Bharat Digital Mission, National Health Authority, accessed January 2025.

[22] Chandrasekhar, R 2024, Datafication, Power, and Publics in India's National Digital Health Ecosystem, Socio-Legal Review, 20(1).

The civil society informants that we interviewed for the research expect the digital architecture of the ABDM to aid a consolidation of the PM-JAY; the Aadhaar-seeded beneficiary database could become a goldmine for private health sector services to develop, considering that it could be interlinked with other health datasets through the UHI-supported health data exchange mechanism. Such a move is unsurprising given that in the dominant policy approach to DPI, the state is "stripped down to the essentials"[23] and the focus is on attracting private sector actors to build service solutions that compensate for public health infrastructure/services deficits. But this logic has misfired in the case of PM-JAY. Research suggests that when the state "utilizes health insurance as a modality to direct private investment towards those areas and those services for which currently there are no providers or few providers" it instead ends up subsidizing the private health services market.[24]

Empanelled hospitals in the PM-JAY are located in the five million-plus population cities and in the urban areas of a few districts (state capitals) of some states – with "adverse implications for cost and access to hospital care in vast areas where there are no or few providers".[25] In these circumstances, and as one of our expert informants noted, the future of the ABDM-PM-JAY interlinkage and the fate of public health digitalization looks grim from the standpoint of access to health care: "*Market actors are writing policies for the state, while the state provides distribution powers. The state is essentially acting as a salesman for market actors, and is in turn becoming dependent on the private sector.*"

2.2. DPI and private profiteering from digital innovation ecosystems

In the policy vision of DPI, the India Stack narrative has occupied a central place. The India Stack imagination is that by building "economic primitives" (implying, foundational infrastructures) of the digital economy – identity verification (eKYC[26]), document management (DigiLocker), digital payments (UPI[27]), and consent-based data exchange through the DEPA[28] – the state will catalyze creative, market-based solutions to addressing India's large developmental challenges.[29]

India Stack tends to be positioned as India's answer to "data colonialism", a 'third way' (as against the US and China policies for digital economy sovereignty). However, research suggests that it has become a new infrastructure for data extraction with a lion's share of innovation dividends captured by a few private entities. Our research on agricultural data exchanges being set up by the Central and state governments demonstrates how the platform and data infrastructures deployed to reinvigorate India's agriculture falter with respect to inclusive participation and equitable distribution of data value.

[23] Supra n. 13.

[24] Hooda, S 2020, Decoding Ayushman Bharat: A Political Economy Perspective, Economic & Political Weekly, LV(25):107-115.

[25] Ibid.

[26] e-Know-Your-Customer

[27] Unified Payment Interface

[28] Data Empowerment and Protection Architecture

[29] Parsheera, S 2024, Stack is the New Black?: Evolution and Outcomes of the 'India-Stackification' Process, Computer Law and Security Review.

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2.2.1 The Agri Stack and Telangana's ADeX – commodifying the knowledge commons of agricultural data

The Agri Stack, announced in 2020, is an aggregation of multiple components. A key feature of this initiative is a farmer ID interlinked with agricultural sector databases such as crop insurance, land-related information, and weather data through a unified farmer interface. Plans are underway to create a unique ID under the Agri Stack for each land parcel, which will also be linked with Aadhaar.

In the policy discourse, Agri Stack will serve as the catalyst for a public-private digital innovation system to enhance agricultural productivity. The Ministry of Agriculture has signed over 10 MOUs with private entities for the Agri Stack.[30]

`Worryingly, there has been a glaring lack of consultation with farmers and farmers' organizations in determining the use of their data commons.[31] Agri Stack is also not backed by a data governance policy.

The Agricultural Data Exchange (ADeX) that Telangana state is setting up is supported by a data framework that codifies principles of consent, purpose limitation, data minimization, proportionality, fairness, and lawfulness in data collection and processing.[32] It provides some critical rights to data principals, especially the right to be notified in instantiations of third-party data sharing and the right to restrict sharing and even request deletion.

However, ADeX sidesteps the question of preserving agricultural data as a societal commons and of how free-riding may be prevented. The Report of the Committee of Experts on Non-Personal Data Governance (2020) has argued for extending the Directive Principles of State Policy of the Constitution of India – distributing community resources effectively for the common good (Article 39(b)), and preventing the concentration of wealth and means of production in the economic system (Article 39(c)) – to data, arguing that a robust resource governance framework is needed for the data commons.[33]

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[30] Ministry of Agriculture & Farmers Welfare 2022, Agristack Project, Press Information Bureau. The entities include global Big Tech firms such as Microsoft and Amazon, in addition to major Indian corporations such as Jio.

[31] Subramaniam, N 2021, Why The Indian Government And Microsoft's Agristack Project Has Alarmed IFF, Farmer Bodies, Inc42.

[32] Agriculture & Cooperation (A&C) Department & Information Technology, Electronics & Communications (ITE&C) Department 2023, Agricultural Data Management Framework (ADMF), Government of Telangana.

[33] Expert Committee Report on Non-Personal Data Governance Framework 2020, Ministry of Electronics and Information Technology.

The ADeX data governance framework treats data implicitly as a state-owned resource that it has absolute ownership rights over. What this means is that the state does not have an obligation to consult with the relevant data publics/communities before making decisions on how to manage their aggregate data. Rather than act as a trustee to steward the data commons, the state can determine unilaterally if and how 'partnership' arrangements may be forged with private players for data-based innovation. Notably, in the ADeX framework, such partnerships are not underscored by guardrails to prevent data harms to farmer/rural households who are targeted through such innovation (such as robust anonymization and purpose limitation in non-personal data sharing). A government official emphasized why compliance burdens could come in the way of the data market: "*It is important to ensure that privacy is given prominence.....but let us also ensure we create the outcomes [innovation dividends].....Now you have some data [available for innovation], and let us not create more complications [frictions in accessing it].*"

The regulatory deficits of Agri Stack and ADeX deepen the risk of adverse incorporation of farmers into the emerging digital economy – integrating them into a digital innovation ecosystem under terms that are unfavorable to their individual and collective autonomy. To illustrate; one of ADeX's objectives is to enable the private sector to offer credit services/financial service products for farmers. However, given the lack of guardrails, a private entity might exploit data about a farmer for predatory lending or feed information into a biased AI credit-scoring system.

Considering that 91% of Telangana's agricultural households were in loan stress in 2025 and over 25% of farmer suicides in India occurred in Andhra Pradesh and Telangana in the past 15 years, there is a real risk of ADeX accentuating farmer distress.[34] [35]

3. Concluding reflections – recovering the public value potential in India's DPI strategy

The discussion above unequivocally demonstrates that the governance deficits of India's DPI strategy have led to a "techno-patrimonial regime".[36] The political will to orchestrate the common good is absent; instead, the state has enabled a rentier capitalism. What we see is a private capture of data dividends from digital innovation systems, including through conversion of welfare delivery into a data marketplace where citizens pay a data fee for receiving benefits. As things stand, the current DPI approach is not delivering on creating public value – worse, it may be inverting the logic of the social contract.

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On all four dimensions of public value creation (outlined at the start of this paper), the scorecard leaves a lot to be desired. The 'digital by default' mode of transition to the digital welfare state without concomitant legal-regulatory guarantees to protect citizen entitlements and enable citizen voice and participation has eroded trust in government and the legitimacy of state exercise of power. The normalization of the stakeholderist regime in finding solutions to society-wide

[34] Rao, U 2025, AP tops in agri loans with average outstanding of 2.45 lakhs per household, Times of India.

[35] Rao, U 2024, In 15 years, over 25% of farmer suicides are in Andhra Pradesh and Telangana, Times of India.

[36] Aiyar, Y 2023, Citizen vs Labharthi? Interrogating the Contours of India's Emergent Welfare State, The India Forum.

developmental challenges has resulted in a shift from inclusive citizenship to a corporate grammar that undermines agentic citizenship. The focus seems to be on orchestrating an environment where businesses will contribute to the common good.

The collaborative ecosystems of DPI have not led to the synergistic pooling of resources and skills from multi-sectoral actors in a manner that enhances the efficiencies of the state to deliver on public value creation. Instead, there is parasitism – the flight of public value from foundational digital infrastructures provisioned by the state into captive innovative ecosystems. We now offer some reflections on what it would take to recover the public value potential of DPI. To begin with, "government-as-platform" needs a fresh imagination beyond market-led techno-solutionism. Innovation public goods provisioned by the state must be normatively grounded in citizen rights, and able to generate net public value.

This calls for the digital developmental state to orchestrate digital infrastructure development through its allocative, distributive, and stabilization functions. [37] [38]

We now offer some reflections on what it would take to recover the public value potential of DPI. To begin with, "government-as-platform" needs a fresh imagination beyond market-led techno-solutionism. Innovation public goods provisioned by the state must be normatively grounded in citizen rights, and able to generate net public value. This calls for the digital developmental state to orchestrate digital infrastructure development through its allocative, distributive, and stabilization functions.

Public value creation or the common good requires a deliberate approach that accounts for distributive justice and the social well-being of all citizens. Openness and interoperability of design and a rule of law (aimed at a level playing field for DPI innovation systems or an automated consent manager to enable citizen data sharing in welfare delivery) are not enough. There is a need to intervene in the political economy of DPI development and implementation and evolve a public governance scaffolding grounded in the common good.

Drawing upon the work of Mazzucato (2023)[39], we reflect below on five core pillars of a public governance framework for DPI.

1. Purpose and directionality: Just like any other form of infrastructure, Digital Public Infrastructure is also a site of power and its techno-political design creates clear winners and losers. The purpose and directionality of DPI needs to be nudged towards the vision of public value maximization. Two critical interventions are needed in this regard: (1) A DPI policy roadmap that directs the DPI strategy towards inclusive knowledge societies/ economies. Here, a leaf can be taken out from the Kerala state government's initiative, the Kerala Development and Innovation

[37] Allocation, distribution and stabilization are three core functions of the state. The allocative function in budgeting determines on what government revenue will be spent and how it will be divided between private and social goods. Distribution refers to measures including taxation for distributing income and wealth in a manner that society considers fair. Stabilization refers to state intervention for full employment and price level stability in the economy.

[38] Government economic policy, Britannica Money, accessed January 2025.

[39] Mazzucato, M; Eaves, D & Vasconcellos, B 2024, Digital public infrastructure and public value: What is 'public' about DPI? UCL Institute for Innovation and Public Purpose.

Strategic Council (K-DISC), that aims to shape a state-level strategy for knowledge economy development.

K-DISC is tasked with the mandate of shepherding the much-vaunted Kerala development model for the digital context. (2) A legal framework that aims to provide more than just regulatory certainty for the private sector, providing the de jure basis of a new constitutionalism – like Brazil's Marco Civil da Internet. The Digital India Act which is intended as the successor to the IT Act should articulate an integrated and indivisible human rights agenda for the digital context – protecting not only first-generation rights but also guaranteeing a just digital transition that furthers economic, social, and cultural rights of all citizens.

2. Transparency and accountability: The need for effective guarantees for informational transparency and social accountability in DPI and the innovation ecosystems that emerge around them cannot be overemphasized. The pre-legislative consultation policy needs to be appropriately implemented in the DPI/innovation communities context. The voice and participation of civic publics whose interests are implicated in specific DPI contexts is paramount. Proactive disclosure obligations under Right to Information legislation should be followed in meaningful ways by government agencies when they set up DPI sandboxes, and enter into multistakeholder partnerships in service delivery or third-party data sharing arrangements. Platform and data technologies also necessitate new measures for citizen accountability and transparency.

For instance, the idea of a "citizen data statement"[40], analogous to a bank statement would allow individuals to track every instance in which their personal data is utilized in DPI ecosystems.

3. Co-creation and democratic participation in digital innovation ecosystems: Shaping digital ecosystems for democratizing innovation dividends is vital. Currently, India's DPI strategy focuses only on opening up market participation opportunities to support digital service delivery or build solutions for pressing social development challenges. Digital welfare delivery and innovation in social sectors are yet to capitalize on public-community partnerships – whereby contextually grounded solutions that leverage digital and data affordances can be explored through people-led systems for enhancing quality, last-mile efficiency, and inclusiveness. Data capabilities must be available to frontline workers, panchayat officials, and citizens – enabling decentralized monitoring and tracking rather than the creation of god-view dashboards. Similarly, we need to privilege DPI approaches that galvanize people's stewardship of the digital commons, achieve fair distribution of value, and stimulate an "entrepreneurial culture"[41], thus promoting equitable local digital economies.

4. Access for all: DPI in the delivery of welfare and essential economic services (payments, public transportation, labor market intermediation) should be accessible to all citizens, especially those facing barriers in digital access and digital fluency. In a developing country context like India, instead of the mobile-first JAM[42] approach, publicly provisioned digital access points at the last

[40] Swamy, R 2023, Why Exploring the Legal Structure of Data Usage: Engagement with IT Systems and Digital Architecture is Necessary for an Ethical AI, Centre for Development Policies and Practices.

[41] The Thiruvananthapuram Declaration on A New Innovation Ecosystem for Our Collective Digital Futures 2023, accessed January 2025.

[42] The JAM trinity of Jan Dhan-Aadhaar-Mobile is a strategy to deliver Direct Benefit Transfer through mobile- and Aadhaar-linked bank accounts opened under the Jan Dhan scheme. The Jan Dhan scheme was introduced to include all households in the country in banking services.

mile can serve as citizen knowledge centers (rather than a privately run digital kiosks model[43]). These public access points should also serve as the first point of contact for grievance redress and complaints about unjustifiable exclusions.

Secondly, in the emerging innovation ecosystems of DPI, there must be attention to ensuring institutional support that will enable smaller economic actors such as MSMEs, social enterprises, and cooperatives. For example, the Open Network on Digital Commerce will bring data innovation dividends to smaller economic actors only if its open, interoperable e-commerce marketplace is complemented by the financial, entrepreneurial, and infrastructural capabilities of smaller players.

5. Socialization of data dividends: In the emerging AI economy, data is emerging as the most critical economic resource. From the narrow imaginary of a 'privacy and security' approach, data governance needs to move towards an economic justice imperative. Stewardship models that deepen and promote a commons-based governance regime to socialize data dividends need to be encouraged through appropriate legal-policy measures. Data exchanges should not be provisioned by the state as a free-for-all public good. Access-and-use conditionalities through appropriate licensing and fair use frameworks are vital to prevent market capture of the data innovation dividend.

[43] The Common Services Centre (CSC) model illustrates a Public Private Partnership approach for last mile delivery of e-government and other private digital services through a service charges/commision-based incentive and subsidization by the state. Civil society advocates have pointed to exclusions at the last mile arising from prioritization by the CSC operator or commercial rather than public service functions and lack of accountability for faulty service performance (such as errors by operators in filling beneficiary forms or processing entitlements resulting in wrongful denial of benefits).