Examining the Emergence of 'GovTech':

A Case Study of India's Consultation White Paper on a Strategy for National Open Digital Ecosystems

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Key Takeaways

- This paper seeks to examine questions and highlight key considerations around the conceptualisation of 'GovTech Ecosystems' through a 'deep dive' into the recent White Paper on a Strategy for the National Open Digital Ecosystems (NODE) (White Paper) that was opened for consultation in March 2020 in India. This would include shifts in the design of public service delivery from siloed digital services to service delivery via shared, open, and modular platforms.

- The White Paper envisions an ecosystem that is structured around fifteen principles and consists of three layers: (1) A core of open and interoperable public sector databases. (2) A layer consisting of a regulatory framework and (3) A layer made up of a community of developers, companies, and entrepreneurs that have access to open APIs on the NODE and the ability to use these to innovate towards improving public service delivery.

- From an analysis of the White Paper – key areas that deserve focus when conceptualising the development of GovTech include: citizens' voice, the digital divide, data governance, openness and interoperability, innovation, data integration and exchange, public-private partnerships, security, and infrastructure.

- There are a number of learnings with respect to GovTech ecosystems that can be taken away from the White Paper. Some of the learnings and future questions include: (1) Understanding how GovTech will fit into existing and upcoming legal frameworks and policy, particularly those around data, privacy and cyber security. (2) Engaging citizens throughout the development and implementation of the NODE. (3) Developing GovTech to hold the government accountable. (4) Articulating principles to guide the scope and use of exceptions around the collection and use of data by the private and public sector for public service delivery, development, innovation etc. (5) Incorporating experiences from previous e-governance initiatives. (6) Ensuring that any GovTech ecosystem is developed and implemented in a rights-respecting regulatory, and that oversight systems are in place to protect against and address potential harms.[1]

1   Digital India. 2020. "About Digital India." (https://www.digitalindia.gov.in/).

1 Introduction

The digitalisation of the public sector has been pursued by governments across the globe and has been an agenda encouraged heavily for a number of years by international bodies like the World Bank[2] and the World Economic Forum.[3] It is aimed towards enabling development and addressing issues such as falling fiscal space, procurement inefficiencies, and poor service delivery. For example, the approach to the World Bank's GovTech initiative includes the design and delivery of services that are accessible, affordable, and inclusive, that increase citizen participation and trust, and modernise and digitise government 'machinery'.[4] Such agendas have centered around implementing and leveraging digital identity and digital payments as a foundation for different forms of infrastructure and schemes for digital governance.[5] The recent evolution of this agenda has focused on the development of 'GovTech Ecosystems' as a comprehensive and harmonised approach to digitalisation of the public sector, enabling citizen-centric and accessible services. Openness and the interoperability of databases are integral components of GovTech ecosystems, facilitating the collection and availability of data to inform decisions and encourage innovation. Similarly, sustainable financing models and evolving working relationships between the public and private sector are important dynamics in GovTech ecosystems.[6] The global pandemic has led to a rapid acceleration of digitisation across society[7] as increasingly governmental services are moved online and digital solutions are used to manage the pandemic by governments.[8]

Although it promises a number of potential benefits, a move to 'GovTech Ecosystems' raises questions about the implementation and implications of having such a system in place for public sector delivery – particularly in contexts with vulnerable communities and political structures. Along with potential benefits, mass surveillance, exclusion, discrimination, profiling, lack of end user control or choice, and of a meaningful implementation of end user rights are a few of the harms that can emerge from or be exacerbated by such an ecosystem. Similarly, a closer examination is needed of longer term and subtle changes that can happen through

2 The World Bank. 2020. "GovTech Putting People First." (https://www.worldbank.org/en/topic/governance/brief/govtech-putting-people-first).
3 Santiso, Carlos. "Here's how tech can help governments fight corruption." The World Economic Forum, 9 December 2019. (https://www.weforum.org/agenda/2019/12/heres-how-tech-can-help-crack-down-on-corruption/).
4 The World Bank. 2020. GovTech Putting People First."
5 The World Bank. 2020. "ID4D: Principles on Identification for Sustainable Development: Toward the Digital Age." (https://id4d.worldbank.org/principles).
6 The World Bank. 2020. "GovTech Putting People First."
7 Caldwell, J.H and Dilip Krishna. 2020. "The Acceleration of Digitization as a Result of COVID-19." Deloitte, 30 July. (https://www2.deloitte.com/global/en/blog/responsible-business-blog/2020/acceleration-of-digitization-as-result-of-covid-19.html).
8 UN Department of Economic and Social Affairs. 2020. "COVID-19 pushes more government activities online despite persisting digital divide." (https://www.un.org/development/desa/en/news/administration/2020-egovernment-survey.html).

broad digitalisation, the use of algorithms, the creation of 'single sources of truth'[9], and the systematisation of society and greater level of control that such systematisation allows.[10] In this way, it is critical that the architecture, design, and processes for setting up such an ecosystem are rights-respecting, inclusive, and firmly grounded in the needs of citizens.

This paper seeks to examine questions and highlight key considerations around the conceptualisation of 'GovTech Ecosystems' through a 'deep dive' into the recent White Paper on a Strategy for the National Open Digital Ecosystems (NODE) that was opened for consultation in March 2020 in India. To do so, the paper will first examine e-Gov in India and then undertake an analysis of the White Paper. The pandemic has acutely highlighted the fact that countries will need to continue to digitise in a way that is inclusive and rights-respecting for all citizens. This is an optimal time for governments to put in place the infrastructure, regulatory frameworks and processes necessary to create such ecosystems.

9   The creation of a 'single source of truth' has been a stated objective across multiple e-gov initiatives in India including the NODE White Paper. See: Ministry of Electronics and Information Technology Government of India. 2020. "Strategy for National Open Digital Ecosystems (NODE) Consultation Whitepaper." (https://www.media-nama.com/wp-content/uploads/mygov_1582193114515532211.pdf). 2.

10 "Aadhaar is mass surveillance system, will lead to civil death for Indians: Edward Snowden." India Tech Today, 20 August 2018. (https://www.indiatoday.in/technology/news/story/aadhaar-is-mass-surveillance-system-will-lead-to-civil-death-for-indians-edward-snowden-1319121-2018-08-20).

2 From e-Gov to GovTech in India

To understand the implications of the envisioned NODE ecosystem as laid out in the White Paper, it is useful to place the initiative in the context of the evolution of e-governance in India.

In 2006, the National e-Governance Plan (NeGP) was rolled out with the aim of making government services available to citizens through digital means. The mission consisted of 27 mission mode projects, the development of implementing infrastructure through projects like State Data Centers, State Wide Area Networks, Common Services Centers, a National e-Governance Delivery Gateway, and a Mobile e-Governance Service Delivery Gateway, as well as implementing policies around security, citizen engagement, social media, standards, interoperability etc.[11]

In 2009 India began rolling out Aadhaar, a digital identity scheme available to all residents in India that would provide a unique identity number based on an individual's biometrics for the purpose of improving service delivery and enabling financial access to the poor.[12] In 2016, a legislative framework was adopted for the scheme.[13] The scope of permitted use and adoption of Aadhaar was challenged in the Indian Supreme Court multiple times. In a landmark judgement in 2018,[14] the Supreme Court held that the number can only be mandated for the deliv-

11 Ministry of Electronics & Information Technology Government of India. 2020. "National e-Governance Plan." (https://www.meity.gov.in/divisions/national-e-governance-plan).
12 Government of India. 2020. "Unique Identification Authority of India (https://uidai.gov.in/).
13 Government of India. 2016. "The Aadhaar (Targeted Delivery of Financial and other Subsidies, Benefits and Services) Act 2016." (https://uidai.gov.in/images/targeted_delivery_of_financial_and_other_subsidies_benefits_and_services_13072016.pdf).
14 Supreme Court of India. 2018. "Justice K.S. Puttaswamy vs. Union of India on 26 September, 2018." (https://indiankanoon.org/doc/127517806/?__cf_chl_jschl_tk__=c0958f70738c669a1b-636b3a1e650f023948ca2b-1596569326-0-AcdUaT-3yAv1R_hT8iJJ1xq0J_euuQ_e-gYcfC93fjufOiBd-BL6j1ppGADaoxRxev-xINbCwaVpKOrMWBdIYy-NO5Y5d2Hc-MYy8An34UcyAHQC9KUkm0GU3k4-wTWbb6XUiRzau8EMESXL_BhXWFfpfInvQ4o-Bo9qm_3D43_sSogxGLavrFydFd5O_t7kgJpPycZ-ugwKCBQwvW6ZvvxJJ3fosLbaNbF05qXQt_gCY-6ob6-eFDYAEeMbH60OXouCoYdX8lbOADuVLQii-yL-gNqvApJNsvGgorPXdYe2S37uSzi_gTu1-Bo-mio0zoElggQTUTHoS5z6rS3I9OxXnzoMKqe1uvN-ZE0j02N9PxT-mZDLkh).

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ery of benefits and subsidies (these cannot be denied if authentication fails) and for the linking to an individual's Permanent Account Number (PAN) which is issued by the Indian Income Tax Department. Further, the Aadhaar number cannot be mandated for the opening of bank accounts, for obtaining mobile connections and by private entities for access to services.[15] On August 5th 2020, the Ministry of Electronics and Information Technology notified the *"Aadhaar Authentication for Good Governance (Social Welfare, Innovation, Knowledge) Rules"* which allow the Central Government to permit authentication via Aadhaar in the interest of good governance, preventing leakage of public funds, promoting ease of living of residents and enabling better access to services for them, for purposes including the use of digital platforms for good governance, prevention of dissipation of social welfare benefits, and enablement of innovation and spread of knowledge.[16] The number has been controversial and while seen by some stakeholders as a viable solution and a model to be adopted by other economies,[17] critics have raised concerns over the possibility of it laying the grounds for mass surveillance,[18] invading privacy,[19] resulting in exclusion,[20] lacking necessary security safeguards,[21] and not being the correct solution or technology for solving the stated objectives of reducing fraud and enabling financial inclusion.[22]

In 2015, India launched the 'Digital India' initiative in a move to bring together and evolve existing and new e-governance initiatives to *"transform India into a digitally empowered society and knowledge economy"*.[23] Digital India has been developed around three vision areas – digital infrastructure as a utility to every citizen infrastructure, governance and services on demand, and digital empowerment of citizens.[24] This includes ensuring the availability of the internet as a core utility, providing a unique identity to every citizen, enabling mobile payments for all citizens, creating Common Service Centres, creating shareable private space on a public cloud, and securing cyberspace.[25] Initiatives are driven by different government agencies and departments and there are at least 120 different initiatives listed on the Digital India website.[26] As part of this agenda, the government has continued to pursue a number of initiatives that push for presence-less, paperless, and cashless service delivery.

15 Gelb, Alan. 2019. "What India's Supreme Court Ruling on Aadhaar Means for the Future." Center for Global Development, 26 September. (https://www.cgdev.org/blog/what-india-supreme-court-ruling-aadhaar-means-future).
16 Ministry of Electronics and Information Technology. 2020. "Aadhaar (Authentication for Good Governance (Social Welfare, Innovation, Knowledge)." (http://egazette.nic.in/WriteReadData/2020/220856.pdf).
17 Manish, Sai. 2017. "Aadhaar model has powerful lessons for Africa: Mark Suzman." Business Standard, 6 May. (https://www.business-standard.com/article/economy-policy/aadhaar-model-has-powerful-lessons-for-africa-mark-suzman-117052600617_1.html).
18 "Aadhaar is mass surveillance system, will lead to civil death for Indians: Edward Snowden." India Tech Today, 20 August 2018.
19 Khera, Reetika. 2017. "The Different Ways in Which Aadhaar Infringes on Privacy." The Wire, 19July. (https://thewire.in/government/privacy-aadhaar-supreme-court).
20 Panigrahi, Subhashish. 2020. "#MarginalizedAadhaar: Is India's Aadhaar enabling more exclusion in social welfare for marginalized communities?" Global Voices, 7 February.(https://advox.globalvoices.org/2020/02/17/marginalizedaadhaar-is-indias-aadhaar-enabling-more-exclusion-in-social-welfare-for-marginalized-communities/).
21 IAAP. 2019. "Citizens unhappy with Aadhaar's lack of privacy, security." (https://iapp.org/news/a/citizens-unhappy-with-lack-of-privacy-security-with-indias-aadhaar-system/).
22 Ramanathan, Usha. 2018. "More Equal Than Others." The Indian Express, 29 September. (https://indianexpress.com/article/opinion/columns/aadhaar-uidai-privacy-inequality-poverty-fundamental-rights-more-equal-than-others-5378631/).
23 Digital India. 2020. "About Digital India."(https://www.digitalindia.gov.in/).
24 Digital India. 2020. "Vision and Vision Areas." (https://digitalindia.gov.in/content/vision-and-vision-areas).
25 Meena. U.C. Digital India. 2017. "A Programme to Transform India into a Digitally Empowered Society and Knowledge Economy." Powerpoint presentation. (https://www.itu.int/en/ITU-D/Regional-Presence/AsiaPacific/Documents/Events/2017/Sep-SCEG2017/SESSION-2_India_Mr_Uttam_Chand_Meena.pdf).
26 Digital India. 2020. "Di-Initiatives." (https://digitalindia.gov.in/di-initiatives?page=5).

IndiaStack[27], National Health Stack[28], and India Enterprise Architecture Framework[29] are examples of initiatives that create a 'digital backbone' on which public service delivery solutions can be developed by the private sector via the use of open an Application Programming Interface (API). Aadhaar as a ubiquitous authentication mechanism, eKYC[30], digiLocker[31], and the Unified Payments Interface[32] are tools that link architectures and facilitate authentications and transactions across platforms and services. Policy moves like demonetisation have further propelled the uptake of this infrastructure and digital payments in India.[33]

27 IndiaStack. "About." (https://www.indiastack.org/about/).
28 NITI Aayog Government of India. 2018. "National Health Stack – Strategy and Approach." (https://niti.gov.in/writereaddata/files/document_publication/NHS-Strategy-and-Approach-Document-for-consultation.pdf).
29 National e-Governance Division. "India Enterprise Architecture." (https://negd.gov.in/india-enterprise-architecture).
30 IndiaStack. "About EKYC API." (https://www.india-stack.org/ekyc/).
31 "DigiLocker." (https://digilocker.gov.in/).
32 National Payments Corporation of India. "UPI Product Overview." (https://www.npci.org.in/product-overview/upi-product-overview).
33 Gupta, Arvind and PhilipAuerswald. 2019. "The Ups and Downs of India's Digital Transformation. Harvard Business Review, 6May.. (https://hbr.org/2019/05/the-ups-and-downs-of-indias-digital-transformation).

3 The Strategy for the National Open Digital Ecosystem

A recent initiative from the Ministry of Electronics and Information Technology in March 2020 is the piloting of the Strategy for National Open Digital Ecosystems' Consultation White Paper.[34] The White Paper positions the NODE to develop a GovTech ecosystem. This would include shifts in the design of public service delivery from siloed digital services to service delivery via shared, open, and modular platforms. To this end, the White Paper lays out three phases of GovTech:

1. GovTech 1.0: Automation of specific processes and digitisation of public records.
2. GovTech 2.0: End-to-end digitisation of service delivery, unified e-gov portals, and basic online data analysis.
3. GovTech 3.0: Open, interoperable digital platforms, appropriate governance frameworks, ability for 3rd party innovation, and driven by analytics.

34 Ministry of Electronics and Information Technology Government of India. 2020. "Strategy for National Open Digital Ecosystems (NODE)." (https://www.medianama.com/wp-content/uploads/mygov_1582193114515532211.pdf).

The White Paper further envisions an ecosystem that is structured around fifteen principles and consists of three layers:

1. A core of open and interoperable public sector databases
2. A layer consisting of a regulatory framework and
3. A layer made up of a community of developers, companies, and entrepreneurs that have access to open APIs on the NODE and the ability to use these to innovate.

The platform would consist of modular applications, data registries and exchanges, stacks, and end use solutions. The principles include:

- **Be open and interoperable** – use open standard, licenses, databases, and APIs.
- **Make reusable and shareable** – use modular digital architecture to enable elements to be linked, replaced, re-used, added etc. when building new services.
- **Be scalable** – build platforms to operate at scale.
- **Ensure security and privacy** – through the application of security and privacy by design.
- **Adopt an agile, data driven development method** – use data analytics and continuous monitoring and evaluation to continue improving systems.
- **Define accountable institutions** – including appropriate legal and organizational structures and processes.
- **Establish rules of engagement** – including defining responsibilities, rights, and liability.
- **Create transparent data governance** – including data policies and standards for ownership and use of data.
- **Ensure the right capabilities** – ensure and build partnerships and skills needed to build and grow the ecosystem.
- **Adopt a suitable financing model** – including creating sustainable financing for the ecosystem.
- **Ensure inclusiveness** – including building solutions that account for multiple languages and abilities.
- **Facilitate participatory design & co-creation** – through knowledge exchange and competitions.
- **Drive end-user engagement** – via training, capacity building efforts, and awareness building.
- **Be analytics-driven and learn continuously** – leverage analytics to inform policy making and platform development.
- **Enable grievance redressal** – Develop accessible and transparent redress mechanisms.

The NODE has been described as a platform that leverages public-private partnerships and seeks to consolidate a wide spectrum of existing databases and registries and make them interoperable. The NODE also seeks to make available a set of APIs

and stacks to enable private businesses and individuals to build applications for service delivery.[35] It can also be useful to place India's digital agenda for the public sector and the NODE in the larger context of a focus on domestic capability and data sovereignty. For example, Prime Minister Modi launched the *"Atmanirbhar Bharat – self-reliant India"* vision in May 2020[36] and the Report by the Committee of Experts on Non-Personal Data Governance Framework released in July has noted 'data sovereignty' as a guiding principle for establishing legal rights over data:

> **"Data sovereignty: The ownership of the non-personal data collected about people in India and collected in India should be defined. The laws, regulations and rules of the Indian State apply to all the data collected in/from India or by Indian entities."[37]**

Though GovTech ecosystems have the ability to bring about positive changes and modernise the public sector, the way in which GoTech ecosystems are conceptualized, designed, architected, implemented, and used play a significant role in determining their impact. An analysis of the NODE Consultation White Paper highlights that the following key areas deserve focus when conceptualising the development of GovTech include:

3.1. Data Governance

While the White Paper recognises the importance of privacy and data governance, it is crucial that adequate safeguards are in place before the implementation of an ecosystem like the NODE. The Supreme Court has recognised the right to privacy in India, but currently there are only limited data protection standards under section 43A of the IT Act. Importantly, these provisions are only applicable to body corporate. There are two key regulatory frameworks that are in the process of being developed in India that will significantly impact the way in which data is governed including how it needs to be categorised, accessed, processed, used, aggregated, retained and deleted by both the public and private sector: the draft Personal Data Protection Bill 2019 and the Report by the Committee of Experts on Non-Personal Data Governance Framework. There is also evolving policy related to Aadhaar and other governance initiatives that are relevant to the NODE. Provisions from these that are particularly relevant for data governance for the NODE are outlined below:

The Draft Personal Data Protection Bill, 2019:

Introduced in the Lok Sabha, the lower house of India's Parliament, and referred to a Standing Committee in December 2019, the draft Bill proposes a framework for regulating data in India. It will be important to see the final scope of the draft of the Bill as news items have noted that the Joint Parliamentary Committee established to review the PDP Bill is considering expanding the scope to include personal and non-personal data with

35 Kodali, Srinivas. 2020. "How do we build India's National Open Digital Ecosystem?" Medium, 19 March. (https://medium.com/hasgeek/how-do-we-build-indias-national-open-digital-ecosystem-f7ffe73bd1e).

36 National Portal of India. 2020. "Building Atmanirbhar Bharat and Overcoming COVID-19." (https://www.india.gov.in/spotlight/building-atmanirbhar-bharat-overcoming-covid-19).

37 Ministry of Electronics and Information Technology. "Report by the Committee of Experts on Non-Personal Data Governance Framework."(https://static.mygov.in/rest/s3fs-public/mygov_159453381955063671.pdf). 23.

an emphasis on localisation and digitisation of data.[38] Provisions that will be relevant to the NODE and private sector companies building services off the NODE include:

- **Processing without Consent:** Chapter 3 (section 12–15) of the Bill defines a number of grounds under which data can be processed without consent. Among other things, this includes the provision of any service or benefit from the State or the issuance of a certificate, as well as the prevention and detection of any unlawful activity including fraud and credit scoring.
- **AI Sandbox:** Section 40 of the Bill creates a regulatory sandbox for encouraging innovation in artificial intelligence and machine learning. Depending on the technology being used, aspects of the NODE and services being built off the NODE may fall under this sandbox.
- **Data for Development:** Section 91 of the Bill enables the Central Government to frame a policy for India's digital economy and towards this, gives the Central Government, in consultation with the Data Protection Authority, the power to order companies to share non-personal or anonymised personal data with the government. This provision is being supported by the development of a draft framework for non-personal data and could enable the Government to access non-personal data held by services built off the NODE.[39]
- **Automated Decision Making:** The White Paper envisions leveraging automated decision making in its processes. Currently the draft Data Protection Bill is silent on user data rights with respect to automated decision making[40] and strategy documents like the draft National Strategy for AI are silent on configurations for public sector use of AI – for example whether AI should be used only in an augmenting role or if decisions can be fully automated.[41] The recent scrapping of the use of a 'streaming algorithm' in the UK visa application process is one of many examples of how algorithms can replicate and amplify systemic bias, and guidelines are needed for decisions to adopt and subsequently design and integrate algorithms into different systems.[42]
- **Data Localisation:** Section 33 of the draft PDP Bill prohibits the processing of sensitive personal data and critical personal data outside of India, while section 34 articulates a number of conditions for the transfer of sensitive personal data and critical personal data outside of India.[43] The final requirements for the localisation of data that emerge could impact which companies can build services off the NODE and how they can do so

38 Varma, Gyan. 2020. "Nothing 'personal' about Data Protection Bill as JPC proposes to expand scope." LiveMint, 24 November. (https://www.livemint.com/news/india/nothing-personal-about-data-protection-bill-11606194232029.html).

39 Government of India. 2019. "The Draft Personal Data Protection Bill." (http://164.100.47.4/BillsTexts/LSBillTexts/Asintroduced/373_2019_LS_Eng.pdf).

40 Government of India. 2019. "The Draft Personal Data Protection Bill."

41 NITI Aayog. 2018. "National Strategy for Artificial Intelligence."

42 McDonald, Henry. 2020. "Home Office to Scrap 'racist algorithm' for UK visa applicants." The Guardian, 4 August. (https://www.theguardian.com/uk-news/2020/aug/04/home-office-to-scrap-racist-algorithm-for-uk-visa-applicants).

43 Government of India. 2019."The Personal Data Protection Bill." (http://164.100.47.4/BillsTexts/LSBillTexts/Asintroduced/373_2019_LS_Eng.pdf).

Report by the Committee of Experts on Non-Personal Data Governance Framework

In July 2020 the Expert Committee established by the Ministry of Electronics and Information Technology issued a report for a data governance framework for non-personal data. Among other reasons, the need for a framework regulating non-personal data was noted to protect against the creation of monopolies and because key social, political, and cultural activities now depend on data and access to the same. The report creates three categories of non-personal data – public non-personal data, community non-personal data, and private non-personal data. It is envisioned that data custodians will undertake the collection, storage, and processing of data in a manner that is in the best interest of the data principal through a 'duty of care' and an objective of preventing harm to communities and individuals. Data principals can exercise their data rights through an appropriate community 'data trustee'. Data may be requested and shared from data businesses for national security and other legal purposes, for core public interest purposes, and for economic purposes.[44] Read together with the exceptions found in the draft Personal Data Protection Bill, it is unclear how this framework will apply to the NODE and to companies building off the NODE, and it raises further questions about ownership of data and solutions as well as standards for data access and use in the context of the NODE.

Aadhaar Authentication for Good Governance (Social Welfare, Innovation, Knowledge) Rules

The Rules will permit the Central Government to allow Aadhaar Authentication in the interest of good governance, preventing leakage of public funds, promoting ease of living of residents and enabling better access to services for them for purposes including use of digital platforms for good governance, prevention of dissipation of social welfare benefits, and enablement of innovation and spread of knowledge.[45]

The above developments raise important questions about the scope of exceptions around public and private sector use of data for public interest and development purposes, and the principles that guide determinations of the same.

44 Ministry of Electronics and Information Technology. 2020. "Report by the Committee of Experts on Non-Personal Data Governance Framework."(https://static.mygov.in/rest/s3fs-public/mygov_159453381955063671.pdf).
45 Ministry of Electronics and Information Technology. 2020. "Aadhaar (Authentication for Good Governance (Social Welfare, Innovation, Knowledge)." (http://egazette.nic.in/WriteReadData/2020/220856.pdf).

3.2. Openness, Interoperability and Innovation

The White Paper stresses the importance of openness as being a foundational component of the ecosystem through the use of open APIs, open standards, open data, and modular architecture in order to enable interoperability. Yet, it is unclear to what extent openness will inform the system as the White Paper notes that:

> **"The term 'open' in NODE refers to principles of openness, including but not limited to transparency, accessibility, interoperability, open APIs and standards and open source code, where appropriate. However, it must be noted that each NODE will have its own configuration and degree of 'openness', which may introduce certain limitations in order to adhere to specific objectives, context or to mitigate potential risks."[46]**

The White Paper and the existing infrastructure that it draws inspiration from have been criticised as "open washing" and not embodying the fundamental principles of openness particularly around questions of access, use and ownership of data, and solutions that are developed.[47]

Furthermore, the White Paper does not envision ways to build off of or complement the existing framework or community working on open data and governance in India.[48]

The NODE also envisions an interoperable ecosystem with data flowing seamlessly across databases and departments, built through modular and reusable technical architecture. This is articulated in principle 1 and 2 and meant to create inter-platform efficiencies and promote competitive behavior. Although research has demonstrated that platform interoperability can indeed promote competitive behavior by lowering the barriers for new entrants, allowing for companies to build off of existing services, preventing vendor lock-in and enabling users to move between services, research has found that it needs to be accompanied with data portability – whereby users can choose to move their data to different platforms and services.[49] Furthermore, though interoperability and open standards are emphasised in the architecture of the NODE itself, it is unclear if the services built off of the NODE by the private sector will also be open and interoperable.

Lastly, though the White Paper envisions the creation of an even playing field through openness and interoperability, it is unclear how this vision sits with other moves happening in the digital ecosystem in India such as the approval of the Reliance Jio Platforms/Facebook deal by the Competition Commission of India, whereby by Facebook has acquired a 9.99% stake in Reliance Jio Platforms, the largest telecom operator in India. Despite statements from the company that the intent is to be pro-Digital India, the acquisition has raised questions about potential market dominance and misuse of users' data.[50]

46 Ministry of Electronics and Information Technology Government of India. 2020. "Strategy for National Open Digital Ecosystems (NODE) Consultation Whitepaper."
47 Kodali, Srinivas. 2020. "How do we build India's National Open Digital Ecosystem?"
48 For example, the Open Government Data Platform India implements India's open government data policy and framework. For more information see: https://data.gov.in
49 New America. "Platform Interoperability Can Increase Competition." (https://www.newamerica.org/oti/reports/promoting-platform-interoperability/platform-interoperability-can-increase-competition/).
50 Singh, Manish. 2020. "India approves Facebook's $5.7 billion deal with Reliance Jio Platforms." (https://techcrunch.com/2020/06/24/india-approves-facebooks-5-7-billion-deal-with-reliance-jio-platforms/).

3.3. Data Integration and Exchange

The White Paper highlights that for the NODE to succeed, data integration across databases will be critical. This is envisioned through the development of data registries of citizen information whereby data can be aggregated and exchanged across multiple departments and sources. Although the White Paper acknowledges that this poses a privacy risk that needs to be managed through governance and accountability frameworks, and points to privacy by design and consent management frameworks as possible solutions[51], the paper does not directly recognise the harms that can arise out of integration and exchange including function creep, surveillance, and enabling a trend seen in the use of big data – where a broader range of data points are relied upon to take decisions.[52] Such harms can include invasion of privacy, exclusion, and discrimination, and are exacerbated by the often mandatory nature of public service delivery schemes. These concerns need to be taken seriously given past examples of government databases in India being shared with banks, insurance companies, and police agencies,[53] and given that initiatives for public service delivery in India can potentially facilitate mass surveillance,[54] invade the privacy of citizens,[55] and enable function creep.[56] Concerns of public infrastructure and the justification of public interest being misused continue to be reflected in emerging projects like the envisioned National Social Registry[57] and measures the government has put in place related to managing the pandemic.[58]

51 Ministry of Electronics and Information Technology Government of India. 2020. "Strategy for National Open Digital Ecosystems (NODE) Consultation Whitepaper."

52 Sinha, Amber, Rakesh, Vanya. 2017. "Big Data in Governance in India: Case Studies." (https://cis-india.org/internet-governance/blog/big-data-in-governance-in-india-case-studies).

53 Kodali, Srinivas. 2020. "How do we build India's National Open Digital Ecosystem?"

54 For example, concerns have been voiced that Aadhaar can facilitate mass surveillance. See: "Aadhaar is mass surveillance system, will lead to civil death for Indians: Edward Snowden." India Today, 20 August 2018.

55 For example, concerns have been raised that the National Health Stack can risk invading privacy because of its architecture (having health records accessible via API's). For more information see Narayanan, Nayantara. 2018. "Niti Aayog plan for Aadhaar-linked digital health records raises concerns over safety and privacy."

56 For example, a report by Privacy International has raised concerns about the expanding scope of digital financial infrastructure like the UPI – citing intentions to enable banks and credit agencies to gain deeper insights into customers through their digital footprints. For more information see: Privacy International. 2017. "Fintech: Privacy and Identity In the New Data-Intensive Financial Sector." (https://privacyinternational.org/report/998/fintech-privacy-and-identity-new-data-intensive-financial-sector).

57 Argawal, Aditi. 2020. "Understanding India's plan to create a National Social Registry." Medianama, 18 March (https://www.medianama.com/2020/03/223-understanding-indias-plan-to-create-a-national-social-registry/).

58 Clarence, Andrew. 2020. "Aarogya Setu: Why India's COVID-19 contact tracing app is controversial."BBC, 14 May. (https://www.bbc.com/news/world-asia-india-52659520).

3.4. Digital Divide

The White Paper articulates the goal of driving India's public sector further into the digital to overcome different divides. Yet, it has been noted that the impact of existing divides, differing levels of access, and the diverse experiences of users online in India need to be fully accounted for when designing and implementing the NODE.[59] Such divides can be shaped by factors such as location, income, gender, education, language, and age, with rural internet density in India in stark contrast to urban internet density.[60] In this way, it has been noted that the 'digital by default governance approach' taken by the White Paper without taking into consideration local realities risks deepening existing digital inequalities rather than ameliorating them.'[61] The varying levels of digitalisation across India and the implications that this has for the type of gains that individuals will have access to has also been noted.[62] Further, the ubiquity of the NODE ecosystem also raises questions about the creation of new divides: will those dependent on state welfare have less agency over how the digital shapes their life?[63] As India continues to pursue a GovTech agenda, it will be important for steps to be taken to ensure that new divides are not created and existing ones not deepened. Focus areas can include access to infrastructure, devices, content in regional languages, and digital literacy. This will particularly be important to consider in light of the pandemic.

3.5. Public-Private Partnerships

The White Paper envisions public-private partnerships as a key component of a GovTech ecosystem in India. For example, it is envisioned that innovation will be spurred on by enabling the private sector to build services off open APIs.[64] Although public-private partnerships can help to bring in domain-specific expertise and innovation, the framework for such partnerships needs to be grounded in the public interest, be transparent, and accountable to the public. Public-private partnerships can also raise questions about how the data collected will be treated, whether it can be re-used by the company collecting it, and how India's emerging privacy law will apply to it. Going forward it will be critical to understand the extent of influence the private sector will have in the objectives and design of the functioning and delivery of public services in India, the subsequent impact that it can have on agendas such as deregulation and the form that those may take. The relationship between the public and the private sector established by the NODE should also be seen in light of the reforms introduced by the Government of India in May 2020 which included a commitment to privatise public sector undertakings and public

59 Prasad, Srikara. 2020. "Response to the White Paper on the Strategy for National Open Digital Ecosystems released by the Ministry of Electronics and Information Technology in February 2020." Dvara Research. (https://www.dvara.com/research/wp-content/uploads/2020/06/Response-to-the-White-Paper-on-the-Strategy-for-National-Open-Digital-Ecosystems.pdf).

60 Parsheera, Smriti. 2019. "India's on a digital sprint that is leaving millions behind." BBC,17 October. (https://www.bbc.com/news/world-asia-india-49085846).

61 Prasad, Srikara. 2020. "Response to the White Paper on the Strategy for National Open Digital Ecosystems released by the Ministry of Electronics and Information Technology in February 2020." Dvara Research. (https://www.dvara.com/research/wp-content/uploads/2020/06/Response-to-the-White-Paper-on-the-Strategy-for-National-Open-Digital-Ecosystems.pdf).

62 Aneja, Urvashi. 2020. "Putting the Cart before the Horse? A response to the NODE white paper." Tandem Research. (https://tandemresearch.org/publications/putting-the-cart-before-the-horse).

63 Susarla, Anjana. 2019. "The New Digital Divide is Between People Who Opt Out of Algorithms and People Who Don't." GovTech, 17 April. (https://www.govtech.com/products/The-New-Digital-Divide-Is-Between-People-Who-Opt-Out-of-Algorithms-and-People-Who-Dont.html).

64 Ministry of Electronics and Information Technology Government of India. 2020. "Strategy for National Open Digital Ecosystems (NODE) Consultation Whitepaper."

state-owned corporations.[65] Although the White Paper emphasises collaboration between the public and private sector, going forward it could be useful for India to articulate a process for this as well as principles to safeguard public interest for such collaborations. An example of these safeguards is the Netherlands, which pursues privatisation only after it has been confirmed by an external third party that public interest will be safeguarded.[66]

3.6. Security

India is in the process of defining a new cybersecurity strategy 2020.[67] Once the strategy is finalised it will be clear how aspects of the NODE will be categorised and what security standards the NODE will need to comply with. For instance, it is currently not clear if services built off the NODE will be categorised as critical infrastructure or if the requirement for reasonable security safeguards found under section 43A of the IT Act would apply to companies using the NODE, as the section is applicable only to body corporate. The architecture of the NODE and key characteristics like interoperability, open APIs, and the emphasis on integration of databases can also raise security concerns.[68] It will be essential for the government to also take into consideration security concerns that have been raised with respect to existing infrastructure like Aadhaar.[69]

3.7. Infrastructure

A shift to GovTech will continue driving the adoption and growth of digital in India. It will be critical for India to ensure that the infrastructure is in place to support a system like NODE before services are onboarded and made mandatory. Scenarios like a potential loss of service if there is a failure in the technology or infrastructure need to be taken into consideration as should the additional load on digital infrastructure that has been brought about by the pandemic.[70] Developing ICT infrastructure has been a core pillar of Digital India, which has supported the development initiatives such as BharatNet, Smart Cities, Common Service Centres, Digitization of Post Offices, Universal Access to Mobile, eSign, National Centre of Geo-Informatics, MyGov, DigiLocker, etc.[71] At the same time, reports have noted how current infrastructure is struggling to handle the increase in data as a result of the pandemic and have highlighted the need for increased coverage in rural areas,[72] the need to support the creation of digital highways and the telecom sector, and to develop infrastructure to support

65 Government of India. 2020. "Government Reforms and Enablers." (https://www.thehindu.com/news/resources/article31606441.ece/binary/AtmaNirbharBharatFullPresentation-Part5.pdf).

66 OECD. 2018. "Privatisation and the Broadening of Ownership of State Owned Enterprises." (https://www.oecd.org/daf/ca/Privatisation-and-the-Broadening-of-Ownership-of-SOEs-Stocktaking-of-National-Practices.pdf).

67 National Informatics Centre. 2020. "National Cyber Security Strategy 2020." (https://ncss2020.nic.in/).

68 For example, research has noted that while there are many benefits of interoperability, robust security measures need to be implemented to prevent the loss or breach of data. For more informations see: Berryman, Reid et al. 2013. "Data Interoperability and Information Security in Healthcare." Transactions of the International Conference on Health Information Technology Advancement. (https://core.ac.uk/download/pdf/144155395.pdf).

69 Christopher, Nilesh. 2018. "Security experts note that there is a need to secure the Aadhaar ecosystem, warn about third party leaks." The Economic Times, 26 March. (https://economictimes.indiatimes.com/news/politics-and-nation/there-is-a-need-to-secure-full-aadhaar-ecosystem-experts/articleshow/63459367.cms?from=mdr).

70 Singhal, Prashant. 2020. "A policy roadmap for India's digital transformation." Mint, 2 July. (https://www.livemint.com/opinion/online-views/a-policy-roadmap-for-india-s-digital-transformation-11593685812184.html).

71 Meena, U.C. Digital India. 2017. "A Programme to Transform India into a Digitally Empowered Society and Knowledge Economy."

72 KPMG. 2020. "Digital Infrastructure. India aims to provide telecom and high-quality broadband services to its population." (https://home.kpmg/in/en/home/insights/2020/08/catalysing-the-national-infrastructure-pipeline-project-india/digital-infrastructure.html).

policy requirements like data localisation.[73] This last need continues to be a priority for the government with the Ministry of Electronics and Information Technology releasing a draft Data Centre Policy in 2020.[74]

3.8. Citizens' Voice

It is important that the citizens' voice is brought in and incorporated into the conceptualisation and implementation of any GovTech ecosystem. This enables the system to be reflective of the present needs of society. The meaningful inclusion of the citizens' voice is also important for building trust in GovTech systems. While the NODE White Paper was published for public consultation, the comments received are yet to be made public – although individual institutions have independently published their submissions.[75] While the public consultation is positive, it will be critical to see how the public's comments are incorporated, and how the public is further engaged in the process and the ecosystem developed around and grounded in the needs of citizens. As recommended by the Digital Future Society[76], a programme supported by the Ministry of Economic Affairs and Digital Transformation of the Government of Spain in collaboration with Mobile World Capital Barcelona, governments can ensure that 'GovTech' initiatives are grounded in and led by citizen voices and needs, by establishing a 'right to contribute' protocol based on urban commons[77] and open data principles.[78] As India continues to pursue a GovTech agenda, it could be interesting for the government to adopt a 'right to contribute' that empowers citizens to weigh in on the development of projects that impact their social or economic well-being. The MyGov.in[79] platform could be a starting point for evolving a process like 'a right to contribute'. Organisations like NITI Aayog (National Institution for Transforming India), the policy think tank of the Government of India, could also play a pivotal role in engaging citizens in the implementation of a 'GovTech' ecosystem.

73 Confederation of Indian Industry. 2020. "Digital Infrastructure – Backbone of an economy." (https://www.ciiblog.in/technology/digital-infrastructure-backbone-of-an-economy/).

74 Ministry of Electronics & Information Technology. 2020. "Data Centre Policy 2020." (https://www.meity.gov.in/writereaddata/files/Draft%20Data%20Centre%20Policy%20-%2003112020_v5.5.pdf).

75 For example, submissions have been published by the Centre for Communications Governance, Dvara Research, Tandem Research, Mozilla Foundation, the Centre for Internet and Society India, Medianama etc.

76 Digital Future Society. 2020. "GovTech: a new driver of citizen participation?" (https://digitalfuturesociety.com/report/govtech-a-new-driver-of-citizen-participation/).

77 Urban commons is a concept that involves the "joint administration of the shared- common resource by the users by means of self-organisation". For more information see: Amsterdam University of Applied Sciences. 2020. "Urban Governance and Social Innovation." (https://www.amsterdamuas.com/urban-governance/research/urban-commons/urban-commons.html).

78 Open data principles include: complete, primary, timely, accessible, machine processable, non-discriminatory, non-proprietary, and license free. For more information see: "Open Government Data Definition: The 8 Principles of Open Government Data." (https://opengovdata.io/2014/8-principles/#:~:text=-Data%20Must%20Be%20Timely%20Data,allow%20automated%20processing%20of%20it).

79 MyGov.in is a platform developed by the Government of India that allows citizens to participate in groups, tasks, discussions, polls, blogs, and talks. For more information see: https://www.mygov.in/.

3.9. Accountability and Oversight

The White Paper includes principles that focus on different aspects of accountability and oversight including principle 6 which focuses on the creation of accountable institutions, principle which focuses on defining responsibilities, rights, and liability, principle 8 which focuses on transparent data governance, and principle 15 creating grievance redressal mechanisms. Yet, is unclear if the ecosystem will ultimately be used to make government behavior more transparent and accountable to the citizen as opposed to the citizen more transparent to the government. An emphasis on governmental transparency could help to quell concerns that have been voiced around governmental surveillance and function creep as mentioned above.

4 Conclusion

The Strategy for National Open Digital Ecosystems Consultation White Paper published in March 2020 by the Ministry of Electronics and Information Technology envisions an ambitious ecosystem to propel the Indian public sector fully into the next wave of the digital revolution. It seeks to facilitate cutting edge innovation through the development of an ecosystem that enables the private sector to grow public-oriented services, and adheres to principles that promote competition and innovation. There are a number of learnings with respect to GovTech ecosystems that can be taken away from the White Paper and it will be important to see how India continues to build on the White Paper to pursue a GovTech agenda. Some of the learnings and future questions include:

- **Understanding how GovTech will fit into existing and upcoming frameworks.** In India these include upcoming regulatory frameworks around data and security – namely the draft Personal Data Protection bill, the framework for non-personal data, the upcoming cyber security strategy, and existing frameworks for Open Data. These proposed regulatory frameworks will significantly shape how personal and non-personal data can be collected, used, processed, accessed, retained, deleted, owned and protected in India by both the public and private sector.
- **Engaging citizens throughout the development and implementation of the NODE.** It is important that GovTech ecosystems are built around the needs of citizens. To achieve this, architecture and solutions need to be grounded in evidence from needs assessments that engage the public and account for local realities. This could be facilitated through a right to contribute. Mechanisms such as pilot studies, needs assessments, human rights impact assessment, and continuous evaluation and monitoring will also be critical.
- **Developing GovTech to hold the government accountable.** GovTech should be focused on making government behavior more transparent and accountable to the citizen as opposed to making citizen behavior more transparent to the government. Beyond developing GovTech solutions to make service delivery more effective, GovTech solutions should be developed to measure and communicate how effective existing government efforts are. This could feed into the needs assessment noted above and help in identifying areas where innovation is possible.

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- **Articulating principles that should guide the scope and use of exceptions around the collection and use of data by the private and public sector for public interest, public service delivery, development, innovation etc.** As noted in the paper, the notification of the Aadhaar Rules indicates a broadening of scope in terms of the understanding of what has typically been in the public interest. Similarly, grounds such as innovation and development are emerging as exceptions to data protection standards. Going forward, it will be critical for principles to be articulated to guide the use of exceptions for the collection and use of data by the private and public sector and attention should be paid to the potential impact on privacy that broad exceptions can have.

- **Incorporating experiences from previous e-governance initiatives, metrics, and monitoring and evaluation.** It is important that GovTech does not only build upon existing e-gov initiatives but also improves upon them with respect to process, implementation, design, and architecture. This will necessarily include making assessments of existing initiatives, developing meaningful metrics, and undertaking a process of continuous monitoring and evaluation for emerging initiatives.

- **Ensuring that any GovTech ecosystem is developed and implemented in a rights-respecting regulatory framework and that oversight/redress systems are in place to protect against and address potential harms.** It is important to ensure that the architecture does not result in causing harm through inaccurate, subjective or biased decision making through the exceptions of public interest, development, and state service delivery. At a minimum, frameworks needed include:

  - Privacy legislation that extends adequate safeguards and individual data rights to public sector collection and use of personal data.
  - Cyber security frameworks.
  - Legal provisions to protect against discrimination.
  - Surveillance framework that is in line with international human rights law.
  - Strong national commitments to international human rights instruments such as the ICCPR and a good track record.
  - Open data policy and ecosystem.
  - Specific legal backing as appropriate.
  - Clarity on the framework for the development and use of algorithms and automated decision making by the public sector including aspects such as when decisions will be automated and if human judgment was involved in the decision.
  - Appropriate and effective redress mechanisms.
  - Clear distinctions between when identification, authentication, and access to a digital service can be mandatory and when it cannot, and availability to alternative forms of access as appropriate.

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Elonnai Hickok is an independent expert working at the intersection of policy, society, and technology. She has guided research with international organisations and has presented worldwide on issues of digital rights and emerging technology and the counterbalancing of governmental and individual interests and rights. She has written extensively on issues relating to privacy, surveillance, cyber security, intermediary liability, and AI.

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