Executive Summary

The National Open Digital Ecosystems (NODEs) policy framework is an important initiative. The Government of India is imagining the architecture of a powerful software industrial policy, using government service platforms as the infrastructural centre of software ecosystems that will be the context for technology development, business enterprise, and improvements in the daily lives of citizens.

As with any initiative so ambitious, these first expressions of the overall design will require immense efforts to fill in the blank spaces. This process can only be achieved by broadening the scale of social involvement in the design. The present document reflects well the conceptions and needs of the entrepreneurial business sector but ignores all other forms of contribution crucial to a maximally healthy ecosystem in addition to these organizations.

It explains powerfully how venture-capital funded start-ups can be seeded by the immense reach of the government service platforms but it does not address role of citizens and CivicTech to provide legitimacy to the process.

SFLC.in which has over a decade of experience working with Free and Open Source Software communities in India accompanied with a strong body of work on civil liberties makes the following recommendations:

1. Public servants themselves must be empowered to contribute to the software ecosystems and not outsource everything to private players. This is the "digital transformation" mantra being adopted
by the world's largest businesses in manufacturing, finance, and services, and being architected by the IT vendors and consulting giants on whom they rely. Their "digital transformation" means reorganizing businesses around groups of "domain experts" in specific business processes who also have sufficient technological expertise and access to

resources to re-engineer those processes from the bottom up for the "cloud era" of utility computing, at the expense of traditional "IT departments" and middle management roles.

The ability of public servants in the government to engage in a similar transformation will deliver better government services at lower cost, but it depends on active incorporation of those people in the software ecosystems, not simply as consumers of business-made tech.

2. Even more important, and not yet discussed by MeitY's planning documents, is the role of the educational system in the NODE software ecologies. Students throughout India, from secondary school through post-graduate computer science programs, in every engineering college from the smallest to the IITs, should be learning from, improving, and sharing software in the government stacks. This transforms "govtech" into true "civtech," in which society as a whole benefits from every aspect of the software ecologies, learning, making, consuming, serving. This is the true form of social development policy.

3. For these aspects of the NODE approach to be valuable, "open source," as well as "open standards" and "open APIs" is a minimum necessity in all designs. The software government uses to reshape society must be fully accessible, at every technical level, for everyone to learn from, improve, adapt and share. Without "Open Source" none of the other aspects mean anything. GoI must adhere to its own “Policy on Adoption of Open Source Software for Government of India” issued in 2014 and adopt copyleft for any technology that is developed using taxpayer's money. Current experience shows the GoI is not well versed with global best practices of FOSS community.

4. The Government of India should come out with policies that ensure that private sector organisations and individuals who involve in the development of various technology stacks and infrastructure do not have any Conflict of Interest.

5. Any use of Artificial Intelligence should adhere to globally accepted principles like the OECD Principles on Artificial Intelligence that respects human rights and democratic values. It would also be useful to refer to the Ethics Guidelines for Trustworthy Artificial Intelligence of the European Commission.

6. History suggests that governments are better served by the individuals,NGOs, universities and other non-profit institutions that seek to advance public-spirited goals and its better to have their trust before rolling out changes. Government must encourage citizen engagement on some of the toughest questions when it comes to data.

7. The framework adopted should follow the globally accepted definitions of Free and Open Source Software and refrain from coming up with confusing terminology. The Government should strive to build a thriving community for software stacks that includes persons from the Free software community, academics, civil society and the private sector. The process of involving in a project should be transparent and inclusive and should not be restricted to a select few.

8. Any collection and usage of data should be in line with the proposed legislation on Personal Data Protection. It will be ideal to wait for the law to be enacted before going ahead with the development of NODEs.

9. The framework should bring software that is critical for delivery of Government service to citizens as Free and Open Source and enable civic participation in its governance by adopting an open development model. Thus the key software related to Aadhaar, GSTN, NPCI owned UPI, and various other technology stack should be released under a FOSS license.

10. The proposed design of Governance as a layer around non free core delivery platforms (Aadhaar, GSTN, UPI etc) is problematic and efforts should be taken to make

the delivery platforms truly FOSS and the development should follow the collaborative development model followed by FOSS projects.

Importance of Free and Open Source Software

Although the document makes many references to the word "open" and also Open Source software, the document has ignored the importance of the Free and Open Source Software(FOSS) movement in India and the benefits that FOSS holds for e-governance systems. The popular adoption of FOSS(Free and Open Source Software) in India began towards the end of the 1990s and the formation of various Linux User Groups (LUGs) in the country helped in accelerating this adoption. The Free Software Foundation India was formed in the year 2001. There have also been other initiatives like the Free Software Movement of India (FSMI) and various organisations formed in the state level. Various State Governments, the Central Government and academic Institutions have also helped in popularizing FOSS. Institutions like NRCFOSS and ICFOSS need special mention in this regard.

The National Policy on Information Technology, 2012 stressed on adopting open standards and promoting Open Source and Open Technologies. The Union Government adopted the "Policy on Adoption of Open Source Software for Government of India"[1] in 2014 which mandated as policy, the adoption of Open Source Software for all e-Governance systems implemented by various government agencies. The Central Government has also adopted a policy on Open Standards for e-Governance[2] in the year 2010. Various states like Kerala and Assam have also adopted policies that support Open Source software in Government.

Any discussion on using Open Source Solutions for e-Governance should build on the above policies and should not lead to the dilution of these policies.

Terminology

The document uses the term "Open" in many places without reference to the globally accepted definitions of Free and Open Source Software. The Free Software Foundation

[1] Available at https://meity.gov.in/writereaddata/files/policy_on_adoption_of_oss.pdf

[2] Available at http://egovstandards.gov.in/sites/default/files/Policy%20on%20Open%20Standards%20for%20e-Governance.pdf

defines Free software as software that respects users' freedom and community. As per FSF, it means that the users have the freedom to run, copy, distribute, study, change and improve the software[3]. The Open Source Initiative has defined the term Open Source to mean more than just access to source code.[4] The definition focuses on criteria like free redistribution and access to source code.

Key Questions for Consultation

1. **Please comment on guiding principles defined in Section 4 and indicate whether there are any principles you would add/amend/drop. Please provide reasons for the same.**

Principle 1: Be Open and Inter-Operable

The White Paper in its current form does not adhere to Government's own policies on open source and open standards. *Firstly,* we recommend that the NODEs should be in compliance with the aforementioned policies. The framework adopted should follow the globally accepted definitions of Free and Open Source Software and refrain from coming up with confusing terminology. *Secondly,* the proposed framework and development should be transparent and opt for a proactive model of transparency as outlined in Section 4 of the Right to Information Act, 2005. *Thirdly,* the NODEs framework should clearly specify with whom the ownership of data will vest especially considering that there will be an interplay of central and state governments, private players, and individuals.

Principle 2. Make reusable and shareable

It is not sufficient for the software to be modular in architecture. For ensuring effective reuse and sharing the software has to be open source and should ideally use a copy-left license.

[3] The explanation of what is free software is available at https://www.gnu.org/philosophy/free-sw.html
[4] The Open Source Definition is available at https://opensource.org/osd

Principle 4: Ensure Security and Privacy

We recommend that *firstly*, there should be clarity on the law governing the NODEs and that contractual agreements between private entities and the government should be clearly laid down. *Secondly*, there should be segregation or prioritization of data protection such as health data. *Thirdly*, it should be clarified if the NODEs framework will be compliant with the Personal Data Protection Bill and if the exemptions provided under the Bill will be availed by the NODE framework. *Fourthly*, it must be clarified as to what will be the extent of sub-contracting or outsourcing to private entities. *Fifthly*, it should also be made clear if de-identification specially relating to sensitive data would be done before it is stored or is accessed by third parties. *Lastly*, the white paper is silent on treatment of data with respect to anonymization, encryption and other methods of ensuring the privacy and identity of the data subjects. The intent as reflected in the paper makes it abundantly clear that data is going to be commercialized. In such a scenario, what are the exact principles of engagement which would clarify what is the extent to which exploitation of data would allow private players to trace the data back to its users.

Principle 5. Adopt an agile, data-driven development method

Adoption of an agile method for development could be useful in comparison to the waterfall model. However, “move fast and break things” philosophy could have grave consequences for rights of citizens.

Principle 8: Creation of Transparent Data Governance

We recommend that *firstly*, the White Paper should clarify the extent of participation of states and data sharing with respect to subjects within the domain of governance of states. *Secondly*, it should be specified who will be setting out standards and processes like the security standards, data sharing between department standards, audit etc.

Principle 11: Ensure tinclusiveness

While the White Paper provides for availability of content in vernacular languages, it nowhere talks about access of NODEs to the differently-abled. In the past a large number of differently-abled could not get access to the services linked with Aadhaar because their disability prevented enrolment[5]. It should be considered that the framework is accessible to everyone including the differently-abled.

Principle 12: Facilitate Participatory Design & Co-Creation

The White Paper in its current form does not address co-creation and participatory design from the perspective of educational system. The participation of educational institutions at every level should be duly incorporated in the White Paper. The Government should strive to build a thriving community for software stacks that includes persons from the Free software community, academia, civil society and the private sector.

Principle 14: Be Analytics Driven and Learn Continuously

Any use of Artificial Intelligence should adhere to globally accepted principles like the OECD Principles on Artificial Intelligence[6] that respects human rights and democratic values. It would also be useful to refer to the Ethics Guidelines for Trustworthy Artificial Intelligence of the European Commission.

Principle 15: Enable Grievance Redressal

We suggest that there should be clearly spelt out mechanisms for Grievance Redressal which will be incorporated, and there should be clarity on what will the function of various sectoral regulators in grievance redressal.

[5] A large number of people were deprived of their pension because of disabilities. A brief account is available here at https://www.thehindu.com/news/cities/chennai/aadhaar-a-double-whammy-for-the-disabled/article20629931.ece

[6] Available at http://www.oecd.org/going-digital/ai/principles/

3. What are the biggest challenges that may be faced in migrating from a 'GovTech' 1.0 or 2.0 approach to a NODE approach (e.g. interdepartmental systems integration, legacy systems modernization, poor usability, and poor data quality)? How might these be overcome?

In our opinion, the challenges faced in migrating from GovTech 1.0 or 2.0 to NODE approach will be:

i. Inadequate digital literacy to operate more efficient systems/softwares amongst the large part of population;
ii. Threat of exclusion of a vast majority is service delivery is exclusively over digital platforms.
iii. Lack of proper grievance redressal mechanisms;
iv. Lack of internet access and poor data connectivity in rural areas and areas with prolonged internet shutdowns (like Union Territory of Jammu & Kashmir)
v. Integration of GovTech 2.0 or 1.0 with the NODEs ensuring greater security and privacy of information;
vi. Ensuring proper structures for accountability and transparency;
vii. Adopting greater control over transfer of information to private entities;

4. In your opinion, should all delivery platforms be 'open source' or are 'open APIs' and 'open standards', sufficient? Please elaborate with examples.

As we have suggested earlier, the framework should be in consonance with the government's policies on open standards and open source. Any discussion on using Open Source Solutions for e-Governance should build on the above policies and should not lead to the dilution of these policies. Open Sourcing the delivery platforms will ensure transparency and accountability. Besides, the free and open source community will be able to improve upon the source code. However, this should not be done like in the case Aarogya Setu where the server code of the application is yet to be made available and the

current version of the distributed version is not open sourced. That defeats the whole purpose of the application being distributed as open source.

5. Do NODEs across sectors require common governance frameworks and regulatory/ advisory institutions to uphold these? Or is it sufficient for each node to have an individual governance construct? If a common framework is required, please elaborate the relevant themes/ topics e.g. financing, procurement, data sharing.

As mentioned above, the NODEs should be governed by a regulatory framework/ law. In absence of a law governing NODEs, the executive will have unfettered power to govern data sharing, financing, procurement etc. The NODE framework must enunciate data sharing guidelines between government departments, the contractual frameworks to be entered with private entities, and the data ownership concerns. There should be a common governance structure elaborating upon:

i. Data ownership;

ii. Grievance Redressal

iii. Data sharing with private entities

iv. Openness

v. Data Security and Data Privacy

vi. Data Governance and Federalism

vii. Safeguarding of Fundamental Rights

After establishing a common minimum governance structure, a more nuanced structure for individual NODEs can be considered.

7. What are some potential risks that open digital ecosystems can leave citizens vulnerable to, for example, risks related to data privacy, exclusion, having agency

over the use of their data etc.? What types of overarching guidelines and/or regulatory frameworks are required to help mitigate them?

It would be ideal to opt for a NODEs framework after the enactment of the proposed law on Data protection as the current legal framework does not give sufficient protection for citizens. There should be a proper framework for consent, ensuring purpose limitation and transfer of data to third parties.

8. What are effective means to mobilize the wider community and build a vibrant network of co-creators who can develop innovative solutions on top of open platforms? What can we learn from other platforms or sectors?

NODEs should adopt the best practices in FOSS development. Major FOSS projects could be studied to understand how to build a strong and viable community and develop innovative solutions.

10. Are you aware of any innovative grievance redressal mechanisms/models that go beyond customer support helplines to augment accountability to citizens? If yes, please describe along with examples.

It is unclear what will be the role of Data Protection Authority or other sectoral regulators like the TRAI, SEBI, IRDAI etc. in grievance redressal. Besides, the grievance redressal mechanism has not been clearly spelled out in the White Paper.

The framework for NODEs may consider including a tiered grievance redressal mechanism i.e. seeking redressal from an appointed officer at foremost level, then appealing to the higher authority, and second appeal to the foremost authority in which the person maybe a judicial officer.

14.How would you like to engage further (e.g. individual consultations, workshops, etc.) as we build the strategy for NODE?

SFLC.in has over a decade of experience working with Free and Open Source Software communities in India**.** We would appreciate the opportunity to assist with our research,

technology expertise, and consultations. We also recommend wider engagement with individuals and organizations working in the free and open source software community by holding round-table discussions and open consultations.