

“Regulatory and economic incentives for an inclusive sustainable digital future”

• Defining regulatory and economic incentives to stimulate the deployment of digital infrastructure, especially in rural and isolated areas – Experience of India

The deployment of digital infrastructure has become increasingly important in today's society, with a growing reliance on technology for personal and professional use. However, the lack of digital infrastructure in certain areas can be a significant barrier to economic development, making it essential to develop regulatory and economic incentives to stimulate its deployment. India is well-versed about this fact and some of the mechanisms being followed to encourage and incentivise the service providers to invest in these underserved areas have been enumerated below.

- i.** USOF initiatives like BharatNet project has been rolled out to provide nationwide digital connectivity infrastructure in rural areas. Under BharatNet program, 1,91,000 Gram Panchayats¹ (cluster of villages) have been covered and 104,600 Public Wi-Fi hotspots² have been installed for universal connectivity.
- ii.** Mobile services in uncovered villages in North-eastern Region (NER) and Border Areas, 4G mobile saturation in remote and rural India and Island connectivity through submarine OFC has helped in provision of quality and affordable mobile and digital services across the rural and remote areas of the country.
- iii.** To ensure ease of doing business and creation of infrastructure at lower costs, a Centralized National Portal for obtaining Right of Way (RoW) called “GatiShakti Sanchar” Portal for cable laying and tower installation has been started. States and other central ministries are also integrated with this portal.
- iv.** Street furniture has been included in RoW portal for faster 5G rollout.
- v.** Sharing of Active and Passive Infrastructure among Service Providers have been permitted to enable them to expand their network coverage and improve the quality of service, while reducing capital expenditure and operating costs, especially in remote and rural areas.
- vi.** Exemption of License Fee for promotion of Fixed Line Broadband has been proposed and is being considered for implementation.
- vii.** For improved security of network, a mechanism has been established to procure equipment from Trusted Source only. With robust cyber security measures, India ranked 10th in Global Cybersecurity Index (GCI)³.
- viii.** USOF has also launched Telecom Technology Development Fund (TTDF) Scheme October 2022, which aims to fund R&D in rural-specific communication technology applications and form synergies among academia, start-ups, research institutes, and the industry to build and develop the telecom ecosystem. Additionally, the Scheme aims to promote technology ownership and indigenous manufacturing, create a culture of technology co-innovation, reduce imports, boost export opportunities and creation of Intellectual Property.

• Identifying the right incentives required to ensure the introduction of emerging ICT technologies and business models – Experience of India.

To bridge the digital divide, the Government of India has introduced the ‘Digital India’ initiative, covering various programmes such as e-governance, mobile e-health services, and digital finance for digital inclusiveness. Some of the examples are as follows :

¹ Bbnl.nic.in

² Bbnl.nic.in

³ ITU publications – Global Cyber Security index 2020

- i. **Digital Identity-** is known as Aadhaar- It provides biometric based Unique Identification Number to the residents. It was started to eliminate duplicate and fake identities of beneficiaries - It has been issued to 1.35 billion people
- ii. **Financial Inclusion** - PM Jan Dhan Yojana - 480 million⁴ bank accounts have been opened for weaker sections and low-income group people for ensuring access to various financial services.
- iii. **Direct Benefit Transfer Scheme** - It is Government's Digital Delivery system for direct financial funding to beneficiary. Total USD 65 billion⁵ transferred till date in FY 2022-23.
- iv. **Digital Payments** - Unified Payment Interface (UPI) – it is instant real time payment system-74 billion transactions done in the year 2022 worth USD 1500 billion⁶. It has been estimated that 40% of world's real-time digital payments take place in India. Global adoption of UPI is on the rise and UPI is available now in more than 10 countries including France, Singapore and Switzerland.
- v. **DigiLocker** – It is Citizen's Digital document Wallet - Secure cloud-based platform for storage, sharing and verification of documents and certificates. It is currently having 5.62 billion documents.
- vi. India is giving emphasis to manufacturing and we are developing our own 5G telecom technology stack to be rolled out this year in our country and will offer it to the world in 2024. About 9-10 countries have shown interest in the India-made technology stack.
- vii. A grant of over USD 6 Million has been approved for startups and Micro, Small and Medium Enterprises (MSMEs) to develop indigenous 5G equipment.⁷
- viii. To promote local manufacturing, Productivity Linked Incentive (PLI) schemes has been launched:
 - a. For Telecom and Networking Products with a support of USD 1450 Million⁸
 - b. For Semiconductor and Display ecosystem with a support of USD 10 Billion⁹
 - c. Manufacturing of mobile phones with a support of USD 4.3 billion¹⁰
- ix. The **National Single Window System (NSWS)** has been created for **G2B clearances from 26 Central Ministries/ Departments**, in addition to different State/UT Level clearances. It provide a **single platform** for obtaining approvals and clearances needed by investors, entrepreneurs, and businesses in India. NSWS sees visitors coming from 157¹¹ countries on NSWS with USA, UK, and UAE (United Arab Emirates) on top.
- x. India has the **world's largest Government-funded healthcare programme 'Ayushman Bharat'**. Over 40 Mn health records of citizens have been digitized and linked with their Ayushman Bharat Health Account (ABHA). Government initiatives and incentives, along with changing patient expectations have made India a fertile ground for HealthTech startups. Currently, more than 7000 HealthTech startups¹² populate India's digital healthcare ecosystem. These healthcare startups are aiming at specific problems and building innovative technology solutions that can help leapfrog the gaps in the Indian healthcare system.
- xi. Driven by the government's focus on designing online education programmes and catering to the rising demand for upskilling among students, Online education has

⁴ <https://pmjdy.gov.in/account>

⁵ <https://dbtbharat.gov.in/reportnew/scheme-group-report>

⁶ NPCI UPI statistics

⁷ <https://tele.net.in/dot-clears-rs-500-million-grant-for-43-startups-and-msmes-to-help-develop-indigenous-5g-equipment/>

⁸ [Dot.gov.in/pli-scheme](https://dot.gov.in/pli-scheme)

⁹ <https://www.meity.gov.in/esdm/Semiconductors-and-Display-Fab-Ecosystem>

¹⁰ <https://www.meity.gov.in/esdm/pli>

¹¹ <https://pib.gov.in/PressReleasePage.aspx?PRID=1880251>

¹² ETHealthWorld April 03, 2022

witnessed a surge in popularity. **Indian EdTech Industry** was valued at US\$ 750 million in 2020 and is expected to reach US\$ 4 billion by 2025 at a CAGR of 39.77%¹³,
xii. The Digital Agriculture Mission 2021–2025 was launched in September 2021. Five Memorandum of Understandings (MoUs) were signed to advance digital agriculture through pilot projects to encourage and speed up projects based on cutting-edge technologies, including AI, blockchain, remote sensing, robots, and drones. Over 1,000 agri-tech start-ups are based in India, and various venture capital funds, loan funds, and angel investors have long supported the sector.

New Role of policy makers and Regulators regarding the deployment of emerging technologies

- i. Managing Security and Privacy issues – to control Fraud and Spam
- ii. Capacity building and skill upgradation in new areas – 5G/6G/AI/AR/VR/Industrial IoT
- iii. Mirror Governance/Regulations for Virtual world – parallel governing rules and regulations are required for virtual world.
- iv. Regulators, at times, do not have access to certain information or data which may be required for framing fair regulations. Such kind of Information Asymmetry needs to be addressed.
- v. Capability to handle the social-cultural-ethical issues arising in the wake of technical development and blurring of boundaries between physical and virtual world.