# National Digital Communications Policy – 2018

**Preamble**

1. Digital infrastructure and services are increasingly emerging as key enablers and critical determinants of a country's growth and well-being. With significant capabilities in both telecommunications and software, India, more than most countries, stands poised to benefit from harnessing new digital technologies and platforms to unlock productivity, as well as to reach unserved and underserved markets; thus catalysing economic growth and development, generating new-age jobs and livelihoods, and ensuring access to next generation services for its citizens.

2. The task before India's policy makers is to ensure that the advantages of the new technologies are accessible to all equitably and affordably; while securing them against existing and emerging threats. India needs to particularly ensure that its communications infrastructure supports the entire population, whose demographic profiles vary widely across various indices such as literacy, economic conditions and urbanisation. It is important for India to remain sensitive to these factors and promote policies that increase opportunities for their social and economic development. Accordingly, this policy aims for Universal Coverage rather than revenue maximisation.

3. Digital India is already unfolding. India's digital profile and footprint is one of the fastest growing in the world. With over a billion mobile phones and digital identities and half a billion internet users, India's mobile data consumption is already the highest in the world. Over 200 million Indians regularly use social media and in the last year alone, over 200 million Indians took to mobile banking and digital payments. At the current pace of digitisation and digitalisation, it is estimated that India's digital economy has the potential to reach one trillion USD by 2025. The rapid and unprecedented proliferation of the mobile phone, the internet, social media platforms, and the rapid expansion of digital payments, data consumption and generation across India indicate that the data economy and digital technologies and services are no longer the prerogative of the privileged few; but that they have indeed evolved into widespread instruments of access and empowerment for more than a billion Indians.

4. The objective of this document is to lay out a consistent policy and principles framework, that will enable creation of a vibrant competitive telecom market to strengthen India's long term competitiveness and serve the needs of our aspiring nation. It has been broadly estimated that a 10% increase in broadband penetration in a country could potentially lead to an over 1% increase in GDP. However, studies in India estimate that the impact could be significantly higher for the country, given the increased productivity and efficiency gains that are likely to accrue to the economy.

5. Currently, India has approximately 1.5 million kilometres of OFC, and less than one-fourth of the towers are fibre-connected. In order to expand mobile and broadband connectivity across the country, it is necessary to explore and utilise the opportunities presented by next-generation-networks like 5G and other pioneering network access technologies including satellite communications. It would be critical to focus on Digital Communications infrastructure development initiatives related to fibre deployment and Right of Way clearances, for both overground and underground infrastructure, that will form the bedrock of next generation technologies.

6. While India has embarked on one of the world's largest rural optic fibre roll-outs in the world, aiming to connect 600,000 of its villages to broadband through its flagship initiative called 'BharatNet'; the convergence of a cluster of revolutionary technologies including 5G, the cloud, IOT and data analytics, along with a growing start-up community, promise to accelerate and deepen its digital engagement, opening up a new horizon of opportunities. As the world prepares for what is increasingly being called as the fourth industrial revolution, India, and indeed every single sector of its economy, need to be readied to embrace this opportunity.

7. A robust, competitive landscape, which ensures availability of new communications technologies, services and applications, is central to the growth of GDP, productivity and creation of new jobs in the economy. For consumers, competition leads to innovation, access to new technologies, improved quality, affordable prices and wider choice. Indian consumers need and deserve the widest range of services at competitive rates. The Policy seeks to promote and protect fair competition across the communications and digital economy sector.

8. Improvement in regulation and ongoing structural reforms are the pillars of a sound policy initiative. Regulatory reform is not a one-off effort, but a dynamic, long-term and multi-disciplinary process. The Policy recognises the importance of continued improvement in the regulatory framework for attracting investments and ensuring fair competition, to serve the needs of Indian citizens. Given the sector's capital-intensive nature, the Policy aims to attract long-term, high quality and sustainable investments. To serve this objective, the Policy further aims to pursue regulatory reforms to ensure that the regulatory structures and processes remain relevant, transparent, accountable and forward-looking. Additionally, the Policy aims to remove regulatory barriers and reduce the regulatory burden that hampers investments, innovation and consumer interest. The Policy also identifies steps to strengthen the sector's institutional mechanism and legislative framework, to ensure that India's economy and citizens can derive the full potential of its digital communications sector.

9. If India's economic, social and political interests in the emerging data economy are to be effectively secured, its 'digital sovereignty' encompassing the data privacy, choice and security of its citizens must be a prime consideration while participating in the global digital economy.

10. The objective of a national policy on digital communications is to prepare the country and its citizens for the future. Achieving these goals would require that the key stakeholders – namely the Centre, the States, local governments and agencies, Telecom Service Providers, Internet Service Providers, Infrastructure Providers, handset and equipment manufacturers, the academic community, the innovators and start-ups come together to forge a coalition to deliver this national policy and its missions.

11. Keeping in view the changes and advancements in the digital communications ecosystem, the National Telecom Policy will hereinafter be referred to as '**National Digital Communications Policy**. To ensure effective implementation and monitoring of the Policy, it is proposed to re-designate the Telecom Commission as the Digital Communications Commission, to ensure that the high aspirations are achieved within stipulated time.

# The National Digital Communications Policy, 2018

The National Digital Communications Policy, 2018 seeks to unlock the transformative power of digital communications networks - to achieve the goal of digital empowerment and improved well-being of the people of India; and towards this end, attempts to outline a set of goals, initiatives, strategies and intended policy outcomes.

The National Communications Policy aims to accomplish the following Strategic Objectives by 2022:

1. Provisioning of Broadband for All
2. Creating 4 Million additional jobs in the Digital Communications sector
3. Enhancing the  contribution of the Digital Communications sector to 8% of India's GDP from ~ 6% in 2017
4. Propelling India to the Top 50 Nations in the ICT Development Index of ITU from 134 in 2017
5. Enhancing India's contribution to Global Value Chains
6. Ensuring Digital Sovereignty

**Vision**

To fulfil the information and communication needs of citizens and enterprises through the establishment of a ubiquitous, resilient, secure, accessible and affordable Digital Communications Infrastructure and Services; and in the process, support India's transition to a digitally empowered economy and society.

**Missions**

In pursuit of accomplishing these objectives by year 2022, the National Digital Communications Policy, 2018 envisages three Missions:

1. **Connect India**: Creating Robust Digital Communications Infrastructure

   To promote Broadband for All as a tool for socio-economic development, while ensuring service quality and environmental sustainability.

2. **Propel India**: Enabling Next Generation Technologies and Services through Investments, Innovation and IPR generation

   To harness the power of emerging digital technologies, including 5G, AI, IoT, Cloud and Big Data to enable provision of future ready products and services; and to catalyse the fourth industrial revolution (Industry 4.0) by promoting Investments, Innovation and IPR.

3. **Secure India:** Ensuring Sovereignty, Safety and Security of Digital Communications

   To secure the interests of citizens and safeguard the digital sovereignty of India with a focus on ensuring individual autonomy and choice, data ownership, privacy and security; while recognizing data as a crucial economic resource.

1. **Connect India: Creating a Robust Digital Communication Infrastructure**

**2022 Goals:**

   a. Provide Universal broadband connectivity at 50Mbps to every citizen
   b. Provide 1 Gbps connectivity to all Gram Panchayats of India by 2020 and 10 Gbps by 2022
   c. Enable100 Mbps broadband on demand to all key development institutions; including all educational institutions
   d. Enable fixed line broadband access to 50% of households
   e. Achieve 'unique mobile subscriber density' of 55 by 2020 and 65 by 2022
   f. Enable deployment of public Wi-Fi Hotspots; to reach 5 million by 2020 and 10 million by 2022
   g. Ensure connectivity to all uncovered areas

**Strategies:**

**1.1 <u>Establishing a 'National Broadband Mission – Rashtriya Broadband Abhiyan' to secure universal broadband access</u>**

   (a) Implementation ofthe following broadband initiatives, to be funded through USOF and Public Private Partnerships:

      i. **BharatNet** – Providing 1 Gbpsto Gram Panchayats upgradeable to 10 Gbps
      ii. **GramNet** – Connecting all key rural development institutions with 10 Mbps upgradeable to 100 Mbps
      iii. **NagarNet** – Establishing 1 Million public Wi-Fi Hotspots in urban areas
      iv. **JanWiFi** – Establishing 2 Million Wi-Fi Hotspots in rural areas

   (b) Implementing a '**Fibre First Initiative'** to take fibre to the home, to enterprises and to key development institutions in Tier I, II and III towns and to rural clusters:

      i. According Telecom Optic Fibre cables the status of Public utility
      ii. Promoting collaboration models involving state, local bodies and private sector as necessary for provision of shared duct infrastructure in municipalities, rural areas and national highways
      iii. Facilitating Fibre-to-the-tower programme to enable fiberisation of at least 60% of telecom towers thereby accelerating migration to 4G/5G
      iv. Leveraging existing assets of the broadcasting and power sector to improve connectivity, affordability and sustainability
      v. Incentivising and promoting fibre connectivity for all new developmental construction
      vi. By making requirement for telecom installations and the associated cabling and in-building solutions mandatory in all commercial, residential and office spaces by amending National Building Code of India (NBC), through Bureau of Indian Standards (BIS).

(c) Establishment of a **National Digital Grid** by:

    i.    Creating National Fibre Authority
    ii.    Establishing Common Service Ducts and utility corridors in all new city and highway road projects, and related elements
    iii.    Creating a collaborative institutional mechanism between Centre, States and Local Bodies for Common Rights of Way, standardisation of costs and timelines; and removal of barriers to approvals
    iv.    Facilitating development of Open Access Next Generation Networks

(d) Facilitate the establishment of Mobile Tower Infrastructure by:

    i.    Extending incentives and exemptions for the construction of telecom towers
    ii.    According accelerated Rights of Way permissions for telecom towers in government premises
    iii.    Promoting and incentivizing deployment of solar and green energy for telecom towers

(e) Improve international connectivity and reduce the cost of international bandwidth by facilitating setting up of International Cable Landing Stations by rationalising access charges and removing regulatory hurdles; and by benchmarking international bandwidth to global trends.

(f) Encourage and facilitate sharing of active infrastructure by enhancing the scope of Infrastructure Providers (IP) and promoting and incentivizing deployment of common sharable, passive as well as active, infrastructure.

(g) Enabling Infrastructure Convergence of IT, telecom and broadcasting:
    i.    Amending the Indian Telegraph Act, 1885 and other relevant acts for the purpose of convergence in coordination with respective ministries
    ii.    Establishing a unified policy framework and spectrum management regime for broadcast and broadband technologies
    iii.    Restructuring of legal, licensing and regulatory frameworks for reaping the benefits of convergence
    iv.    Allowing benefits of convergence in areas such as IP-PSTN switching

(h) Creating a Broadband Readiness Index for States/ UTs to attract investments and address RoW challenges

(i) Encouraging investment in broadband infrastructure through fiscal incentives, including accelerated depreciation and tax incentives; and incentivizing fixed line broadband

(j) By encouraging innovative approaches to infrastructure creation and access including through resale and Virtual Network Operators (VNO)

(k) Promoting broadband connectivity through innovative and alternative technologies

**1.2 <u>Recognizing Spectrum as a key natural resource for public benefit to achieve India's socio-economic goals, ensure transparency in allocation and optimise availability and utilisation by:</u>**

(a) Developing a transparent, normative and fair policy for spectrum assignments and allocations

(b) Making adequate spectrum available to be equipped for the new broadband era:
   i. Identifying and making available new Spectrum bands for Access and Backhaul segments for timely deployment and growth of 5G networks.
   ii. Making available harmonized and contiguous spectrum required for deployment of next generation access technologies
   iii. Further liberalizing the spectrum sharing, leasing and trading regime
   iv. Coordinating with Government departments for freeing underutilised/ substitutable spectrum, and its assignment along with unutilised spectrum for efficient and productive use
   v. Optimal Pricing of Spectrum to ensure sustainable and affordable access to Digital Communications
   vi. Simplifying the process of obtaining permissions from various agencies such as WPC and SACFA in order to promote efficiency
   vii. Enabling Light Touch licensing/ de-licensing of spectrum for broadband proliferation
   viii. Promoting the co-use/ secondary use of spectrum
   ix. Constituting a Spectrum Advisory Team (SAT) consisting of experts, industry and academia to facilitate the identification of new bands, applications and efficiency measures to catalyse innovation and efficient spectrum management

(c) Efficient spectrum utilisation and management:
   i. Ensuring the optimum utilisation of spectrum by management of interference free spectrum and encouraging new technologies and consolidation
   ii. Monitoring efficient utilization of spectrum by conducting systematic audits of the spectrum allocated to both commercial and government organizations
   iii. Deploying dynamic database systems for allocation/ interference management
   iv. Publishing annual spectrum utilization and availability roadmap for communication needs including those of aircraft and vessels

(d) Promoting **Next Generation Access Technologies** in India through the following actions:
   i. Encouraging licensed service providers to utilise next generation access technologies to ensure cost optimization, service agility and new revenue streams
   ii. Recognising mid-band spectrum, particularly the 3 GHz to 43GHz range, as central to India's strategy for Next-Generation Networks
   iii. Promoting the effective utilisation of high capacity backhaul E-band (71-76/ 81-86 GHz) and V-band (57-64 MHz) spectrum in line with international best practices
   iv. Rationalizing annual royalty charges for microwave links for backhaul connectivity

**1.3 Strengthening Satellite Communication Technologies in India**

(a) Review the **regulatory regime for satellite communication** technologies, including: Revising licensing and regulatory conditions that limit the use of satellite communications, such as speed barriers, band allocation, etc.
   i. Simplifying compliance requirements for VSAT operators to ensure faster roll out
   ii. Expanding scope of permissible services for the effective utilisation of High Throughput Satellite systems through appropriate licensing mechanism.

(b) **Optimise Satellite communications** technologies in India, by:
   i. Reviewing SATCOM policy for communication services, along with Department of Space, to create a flexible, technology-neutral and competitive regime, keeping in view international developments and social and economic needs of the country
   ii. Making available new spectrum bands (such as Ka Band) for satellite based commercial communication services.
   iii. Rationalizing satellite transponder, spectrum charges and charges payable to WPC
   iv. Assessing the bandwidth demands across various spectrum bands used for satellite communications, in consultation with stakeholders
   v. Prioritising international engagement with ITU on spectrum management issues, including satellite communications in India.

(c) Develop an **ecosystem for satellite communications** in India, with focus on:
   i. Streamlining administrative processes for assignment and allocations, clearances and permissions related to satellite communication systems
   ii. Promoting local manufacturing and development of satellite communications related infrastructure through appropriate policies
   iii. Promoting participation of private players, with due regard to national security and sovereignty

**1.4 Ensuring Inclusion of uncovered areas and digitally deprived segments of society by:**

(a) Channelizing the Universal Service Obligation Fund (USOF) for:
   i. Ensuring connectivity for all uncovered areas in the North Eastern States, Himalayan region, LWE areas, Aspirational Districts, Islands and Border Areas
   ii. Marginalised communities, women and persons with disabilities
   iii. Promoting innovative, effective and scalable alternate technologies for remote areas
   iv. Enabling access provision by any entity capable of fulfilling the Universal Service Obligation

(b) Reviewing the scope and modalities of USOF:
   i. Redesigning the USOF and broadening its objectives to enable universal broadband access including for economically and socially weaker sections in urban pockets
   ii. Strengthening institutional capacity of USOF to ensure effective rollout of services in uncovered, remote and rural areas

**1.5 <u>Ensuring Customer Satisfaction, Quality of Service and effective Grievance Redressal</u>**

(a) Establishing effective institutional mechanisms to protect consumers' interests including:
    i.    Telecom Ombudsman
    ii.   A centralised web based complaint redressal system

(b) Focussing on public health and safety standards to promote the well-being of citizens:
    i.    Framing a comprehensive policy to encourage the adoption of environmental and safety standards and building trust by enabling self-certification
    ii.   Generating awareness around Electro Magnetic Fields Emissions based on international experience and global best practices
    iii.  Generating awareness on hazards of e-waste and encouraging proper disposal management of equipment used

(c) Incentivising the use of renewable energy technologies in the communications sector, including:
    i.    Encouraging the utilisation of small cell fuel batteries, lithium-ion batteries or other similar technologies to improve energy consumption efficiencies
    ii.   Promoting research and development of green telecom through active participation of stakeholders across government, industry and academia
    iii.  Rationalising of taxes and levies on the manufacture, production and import of such equipment for digital communication technologies.

## 2. Propel India: Enabling Next Generation Technologies and Services through Investments, Innovation, Indigenous Manufacturing and IPR Generation

**2022 Goals:**
   a. Attract investments of USD 100 Billion in the Digital Communications Sector
   b. Increase India's contribution to Global Value Chains
   c. Creation of innovation led Start-ups in Digital Communications sector
   d. Creation of Globally recognized IPRs in India
   e. Development of Standard Essential Patents (SEPs) in the field of digital communication technologies
   f. Train/ Re-skill 1 Million manpower for building New Age Skills
   g. Expand IoT ecosystem to 5 Billion connected devices
   h. Accelerate transition to Industry 4.0

**Strategies:**

The recent past has witnessed an unprecedented transformation in the Digital Communications Infrastructure and Services sector with the emergence of new technologies, services, business models and players. There is hence an imperative need to review the existing licensing, regulatory and resource allocation frameworks to incentivize investments and innovation to optimise new technology deployments and harness their benefits.

### 2.1 Catalysing Investments for Digital Communications sector:

(a) According Telecom Infrastructure the status of Critical and Essential Infrastructure

   i. By recognizing communication systems and services as essential connectivity infrastructure at par with other connectivity infrastructure like Roadways, Railways, Waterways, Airlines etc. for development of India, and, in the process, enable low cost financing for development of communication infrastructure

(b) Reforming the licencing and regulatory regime to catalyse Investments and Innovation, and promote Ease of Doing Business by:

   i. Reviewing of levies and fees including LF, SUC and the definition of AGR and rationalisation of Universal Service levy
   ii. Reviewing the concept of pass through charges to align the same with the principles of input line credit thereby avoiding double incidence of levies.
   iii. Reviewing the rationalization of license fees on fixed line revenues to incentivise digital communications
   iv. Rationalising taxes and levies on Digital Communications equipment, infrastructure and services
   v. Enabling unbundling of different layers (e.g. infrastructure, network, services and applications layer) through differential licensing
   vi. Promoting Open Public Wi-Fi access through Wi-Fi / Public Data Office Aggregators and Public Data Offices
   vii. Introducing various fiscal and non-fiscal benefits for development of telecom clusters around cable landing stations to foster innovation in Digital Communications Technologies

(c) Simplifying and facilitating Compliance Obligations by:
  i.    Reducing license and regulatory compliance requirements keeping in view best international practices
  ii.   Simplifying existing systems and procedures for grant of licenses, approvals, clearances, permissions and developing a comprehensive end-to-end online platform
  iii.  Specifying timelines within which various types of licenses, permissions and clearances shall be provided by the relevant administrative offices
  iv.   Improving the Terms and Conditions for 'Other Service Providers', including definitions, compliance requirements and restrictions on interconnectivity
  v.    Reforming the Guidelines for Mergers & Acquisitions, 2014 to enable simplification and fast tracking of approvals
  vi.   Reorganizing Wireless Planning and Coordination (WPC) Wing to facilitate Ease of Doing Business
  vii.  Reviewing the penalty provisions to ensure proportionality and reasonableness
  viii. Creating a regime for fixed number portability to facilitate one nation − one number including portability of toll free number, Universal Access numbers and DID numbers
  ix.   Simplifying ETA (Equipment Type Approval) process for low powered (< 1 watt) radio devices
  x.    Simplifying import licensing requirements of Wireless Planning and Coordination (WPC) Wing

## 2.2 **Ensuring a holistic and harmonised approach for harnessing Emerging Technologies**

(a) Synergising deployment and adoption of new and emerging technologies by:
  i.    Creating a roadmap for emerging technologies and its use in the communications sector, such as 5G, Artificial Intelligence, Robotics, Internet of Things, Cloud Computing and M2M
  ii.   Simplifying licensing and regulatory frameworks whilst ensuring appropriate security frameworks for IoT/ M2M / future services and network elements incorporating international best practices
  iii.  Earmarking adequate licensed and unlicensed spectrum for IoT/ M2M services
  iv.   Encourage use of Open APIs for emerging technologies

(b) Promoting innovation in the creation of Communication services and network infrastructure by Developing a policy framework for 'Over The Top' services

(c) Ensuring the Transition to IPv6 for all existing communications systems, equipment, networks and devices

(d) Enabling Hi-speed internet, Internet of Things and M2M by rollout of 5G technologies:
  i.    Implementing an action plan for rollout of 5G applications and services
  ii.   Enhancing the backhaul capacity to support the development of next-generation networks like 5G
  iii.  Ensuring availability of spectrum for 5G in <1 GHz, 1-6 GHz and >6 GHz bands
  iv.   Reviewing industry practices with respect to traffic prioritisation to provide 5G-enabled applications and services

v. Developing framework for accelerated deployment of M2M services while safeguarding security and interception for M2M devices

vi. Defining policy for EMF radiation for M2M devices, with accompanying institutional framework to coordinate government-funded and India-specific research in this regard

(e) Ensuring adequate numbering resources, by:
i. Allocating 13-digit numbers for all M2M mobile connections
ii. Developing a unified numbering plan for fixed line and mobile services

(f) Establishing India as a global hub for cloud computing, content hosting and delivery, and data communication systems and services
i. Evolving enabling regulatory frameworks and incentives for promoting the establishment of International Data Centres, Content Delivery Networks and independent interconnect exchanges in India
ii. Enabling a light touch regulation for the proliferation of cloud based systems
iii. Facilitating Cloud Service Providers to establish captive fibre networks.

(g) Leveraging Artificial Intelligence and Big Data in a synchronized and effective manner to enhance the overall quality of service, spectrum management, network security and reliability

(h) Recognizing Digital Communications as the core of Smart Cities by:
i. Developing, in collaboration with Ministry of Urban Development, a Common Service Framework and Standards for Smart Cities
ii. Facilitating and supporting deployment of innovative solutions in identified Smart Cities

## 2.3 <u>Research and Development</u>

(a) Promoting research & development in Digital Communication Technologies by:
i. Restructuring C-DOT as a premier Telecom Research and Development Centre for identification, customization, and development of digital products and services in the country as per indigenous needs
ii. Simplifying approvals/ processes for R&D procurements/ imports
iii. Creating a framework for testing and certification of new products and services

(b) Creating a Fund for R&D in new technologies for start-ups and entrepreneurs to enable innovation in cutting edge communications, 5G, software, content, security and related technologies and applications; and commercialization of products and services through grants, scholarships, venture capital, etc.

(c) Establishing Centres of Excellence including in Spectrum Management, Telecom Security and Next Generation Access Technologies

(d) Fostering an Intellectual Property Rights regime that promotes innovation, by:
i. Implementing key recommendations in the National IPR Policy pertaining to Digital Communications, including a review of the legal regime around copyright, patents and trade marks

ii. Assisting start-ups and other innovators in filing copyright, patent and trademarks applications

iii. Providing financial incentives for the development of Standard Essential Patents (SEPs) in the field of digital communications technologies

iv. Promoting Indian IPR through international collaborations and active participation in standard development processes and IPR related events

(e) Simplifying the process of obtaining Experimental Licenses and establishing regulatory sandboxes; viz.:

i. Enabling creation of suitable infrastructure for testing of new products and services with due regard to safety and security concerns

ii. Facilitating allocation of spectrum for R&D and experimentation at affordable prices

iii. Simplifying and fast-track approvals for products and services for experimental purposes through de-licensing and other mechanisms; and promoting establishment of test beds, incubators, innovation centres, etc. in collaboration with industry and academia

## 2.4 <u>Promoting Start-ups and SMEs</u>

(a) Supporting Start-ups with various fiscal and non-fiscal benefits, including:

i. Academic collaborations, permissions for pilots and testing, concessions on imported software, mentoring support, etc.

ii. Promoting participation of Start-ups and SMEs in government procurement

iii. Funding pilot deployments through USOF

(b) Reducing the entry barriers for start-ups by reducing the initial cost and compliance burden, especially for new and innovative segments and services

## 2.5 <u>Local Manufacturing and Value Addition</u>

(a) Maximising India's contribution to global value chains, by focussing on domestic production, increasing exports and reducing the import burden, by:

i. Rationalising taxes, levies and differential duties to incentivize local manufacturing of equipment, networks and devices to the extent of domestic value addition

ii. Introducing Phased Manufacturing Program for identified product segments in Digital Communication Technologies

iii. Attracting and incentivizing Global OEMs and Generic Component players to setup manufacturing base in India

iv. Ensuring the availability of essential background IPR in Fair, Reasonable And Non-Discriminatory (FRAND) terms required for promoting local manufacturing

v. Promoting design led manufacturing in India by leveraging indigenous software/ R&D capabilities

vi. Incentivizing fab and/or fab-less design and manufacturing of chips and system on a chip (SOC) for network and devices in emerging technologies

vii. Attracting global talent from Indian diaspora to create best in class enterprises

(b) Ensuring strict compliance to Preferential Market Access requirements:
    i.    Preferring domestic products and services with domestically owned IPR in the procurement by government agencies, especially for the procurement of security related products
    ii.    Incentivizing private operators to buy domestic telecom products

## 2.6 <u>Capacity Building</u>

(a) Building human resource capital to facilitate employment opportunities in Digital Communications Sector:
    i.    Building national capacity and institutional capabilities in telecom security tools, standards and forensics including in manufacturing of critical telecom equipment
    ii.    Creating educational resources relating to the communications sector and making them available in an open and accessible format to promote self-directed and collaborative learning through interactive formats, including audio, video and text
    iii.    Promoting Industry-Academia-Government partnerships to develop capacity and skills in line with future technology needs

## 2.7 <u>Strengthening of PSUs</u>

(a) Focus on building technical expertise and knowledge management for Public Sector Units, through the following initiatives:

    i.    Building internal capacity within PSU's to promote secure and efficient service delivery, infrastructure development and domestic manufacturing.
    ii.    Identifying and exploiting operational synergies in service provisioning, infrastructure creation, R&D, Standardization and manufacturing
    iii.    Using the training infrastructure available with telecom PSUs for skill development
    iv.    Upgrading the manufacturing PSUs under DoT to effectively harness strategic and operational synergies
    v.    Facilitating technical up gradation of PSUs

## 2.8 <u>Accelerating Industry 4.0</u>

  (a) Create a roadmap for transition to Industry 4.0 by 2020by closely working with sector specific Industry Councils
  (b) Establish a multi-stakeholder led collaborative mechanism for coordinating transition to Industry 4.0
  (c) Developing market for IoT/ M2M connectivity services in sectors including Agriculture, Smart Cities, Intelligent Transport Networks, Multimodal Logistics, Smart Electricity Meter, Consumer Durables etc. incorporating international best practices.

### 3. Secure India: Ensuring Digital Sovereignty, Safety and Security of Digital Communications

**2022 Goals:**

a. Establish a comprehensive data protection regime for digital communications that safeguards the privacy, autonomy and choice of individuals and facilitates India's effective participation in the global digital economy
b. Ensure that net neutrality principles are upheld and aligned with service requirements, bandwidth availability and network capabilities including next generation access technologies
c. Develop and deploy robust digital communication network security frameworks
d. Build capacity for security testing and establish appropriate security standards
e. Address security issues relating to encryption and security clearances
f. Enforce accountability through appropriate institutional mechanisms to assure citizens of safe and secure digital communications infrastructure and services

**Strategies:**

### 3.1 Establish a strong, flexible and robust Data Protection Regime

(a) Harmonising communications law and policy with the evolving legal framework and jurisprudence relating to privacy and data protection in India, including:
   i. Amending various licenses and terms and conditions, wherever necessary, to incorporate provisions with respect to privacy and data protection

(b) Addressing issues of data protection and security in digital communications sector, by:
   i. Ensuring that core data protection and security principles are applied and enforced
   ii. Promoting the usage of indigenous communication products and services

### 3.2 Provide Autonomy and Choice for every citizen and enterprise

(a) Recognising the need to uphold the core principles of net neutrality:
   i. Amending the license agreements to incorporate the principles of non-discriminatory treatment of content, along with appropriate exclusions and exceptions as necessary
   ii. Ensuring compliance with net neutrality principles, by introducing appropriate disclosure and transparency requirements

### 3.3 Assure Security of Digital Communications

(a) Addressing security issues across layers:
   i. Infrastructure Security (physical infrastructure, cyber-physical infrastructure, hardware & network elements), Systems Security (equipment, devices, distributed systems, virtual servers)
   ii. Application and Platform security (web, mobile, device and software security)

(b) Developing security standards for equipment and devices:
   i. Telecom Testing and Security Certification (TTSC)to develop and enforce security standards and obligations for digital communications products and services
   ii. Aligning with global standards on safety and security
   iii. Harmonising the legal and regulatory framework applicable to security standards such as the BIS Act, Electronics & Information Technology Goods (Requirements for Compulsory Registration) Order, Indian Telegraph Act, etc.

(c) Participating in global standard setting organizations to ensure consideration for local needs of the Indian communications industry

(d) Strengthening security testing processes by:
   i. Enhancing institutional capacity to perform testing, including establishing domestic testing hubs and laboratories with state-of-the art facilities
   ii. Establishing comprehensive security certification regime based on global standards

(e) Formulating a policy on encryption and data retention, by harmonising the legal and regulatory regime in India pertaining to cryptography with global standards, as applicable to communication networks and services

(f) Facilitating Security and Safety of Citizens, Institutions and Property by:
   i. Facilitating establishment of a Central Equipment Identity Registry for addressing security, theft and other concerns including reprogramming of identity of mobile handsets
   ii. Facilitating lawful interception of all Digital Communications with state of the art lawful intercept and analysis systems for implementation of law and order and national security
   iii. Increasing awareness amongst users about security related issues concerning digital communications networks, devices and services

(g) Establishing a Security Incident Management and Response System for Digital Communications Sector by:
   i. Instituting a sectoral Cyber Security Incidence Response System (CSIRT)
   ii. Improving information sharing and coordination between various security agencies, including CERT-In and sectoral CERTs as may be necessary
   iii. Enforcing obligations on service providers to report data breaches to authorities and affected users, based on specific parameters
   iv. Strengthening the Security Audit Mechanism

## 3.4 Developing a comprehensive plan for network preparedness, disaster response relief, restoration and reconstruction

(a) Strengthening network resilience by:
   i. Framing and enforcing standard operating procedures to be followed during disasters and natural calamities, including sectoral guidelines for disaster response and recovery applicable to various service providers

ii. Establishing institutional framework to promote monitoring of activities, rapid dissemination of early warning disaster notifications and better coordination and collaboration between relevant Ministries / Departments, including the National Disaster Management Authority of India

(b) Developing a Unified Emergency Response Mechanism by:
   i. Creating an institutional framework with clearly defined roles and responsibilities, Standard Operating Procedures and technical guidelines
   ii. Incorporating obligations under the license terms and conditions for implementation of Next Generation 112 services in all areas, based on geo-location technologies, and provide online access to caller location and details to authorised central and state agencies
   iii. Enforcing obligations of service providers to share infrastructure, and ensure interoperability in emergency situations in a network-agnostic, operator-agnostic and technology-agnostic manner.

(c) Enhancing the Public Protection and Disaster Relief (PPDR) plan for India by:
   i. Facilitating the establishment of a Pan-India network for Public Protection and Disaster Relief (PPDR)
   ii. Making necessary spectrum available for PPDR including by establishing INSAT satellite-based mobile communication systems
   iii. Implementing global and regional harmonized spectrum Plans for PPDR

It is hoped that this policy will facilitate the unleashing of the creative energies of citizens, enterprises and institutions in India; and play a seminal role in fulfilling the aspirations of all Indians for a better quality of life.