Future of Standardization in the ICT Industry

April 2021

Agenda

- **About European Project SESEI**
- **Main Indian Standardisation Bodies in ICT sector**
  - BIS
  - TSDSI
  - TEC
- **New Approach/ Key Initiatives of the Indian Gov. in ICT sector**

European Project SESEI

SESEI (**S**econded **E**uropean **S**tandardization **E**xpert in **I**ndia) ***is a local face for the European standardization community in India: Dinesh Chand Sharma***

Why SESEI: India is a major trade partners for Europe, Increasing role of standards to gain market access and Evolving & complex nature of regulatory and standardization landscapes, Sharing best practices, work together

Sector: 1. ICT: M2M/IoT, Security, 5G, NFV/SDN, e-Accesibility, eHealth, eCALL… **2. Electrical equipment including Consumer Electronics**: Smart Grid, Smart Meter, LVDC, Micro- Grid, Lift Escalator… 3**. Automotive**: Connected Cars, ITS, e-Mobility… 4**. Smart Cities**: Mobility, Waste, Energy, ICT..

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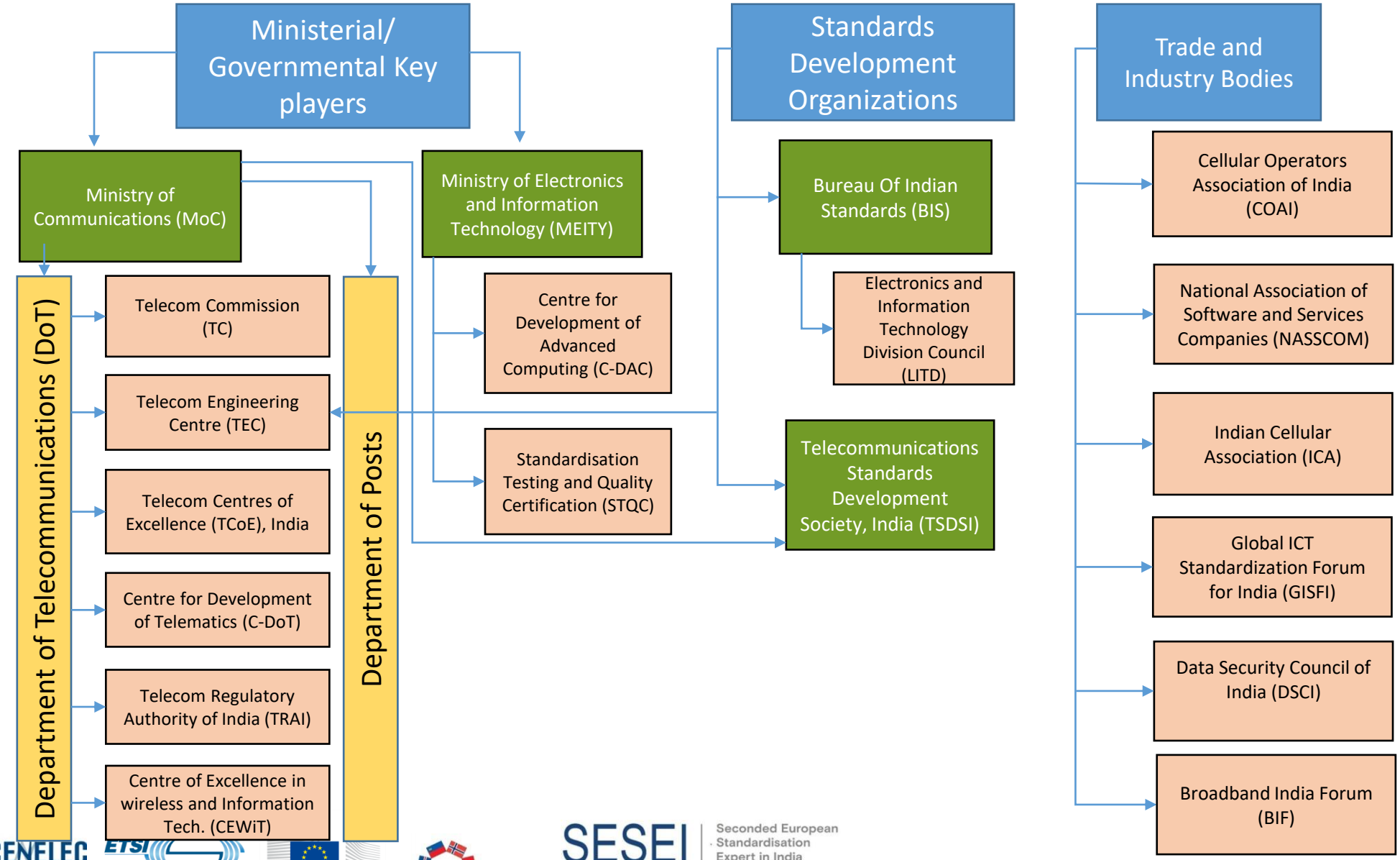
Enabling Europe-India Cooperation on Standards

Information and Communication Technology



Main Standardization bodies in Indian ICT sector

Indian Standardization

- **Bureau of Indian standards (BIS)**
  - Electronics and Information Technology Division Council (LITDC)
- **Telecommunication Standards Development Society for India (TSDSI)**
- **Telecommunication Engineering Centre (TEC)**

Bureau of Indian Standards (BIS)… 1(4)

- The Indian Standards Institution (ISI) founded in 1947
- BIS took over work of ISI through enactment of BIS Act (1986) by the Indian Parliament
- BIS Act 2016 makes BIS National Standards Body of India
- Works as WTO-TBT Enquiry Point for India
- 15 Sectors, 16 Division Councils, 350+ Sectional Committees, 20,000+ Standards
- **Objectives:**
  - Harmonious, development of standardization & quality control
  - Certification schemes for products and systems
  - Growth and development of Indian industry, commerce and exports
  - Consumer protection
- **Activities:**
  - Standards Formulation
  - System Certification Scheme
  - Product Certification Scheme
  - Compulsory Registration Scheme
  - Foreign Manufacturers Certification Scheme
  - Hall Marking Scheme
  - Laboratory Recognition Scheme
  - Sale of Indian Standards
  - Consumer Affairs Activities
  - Promotional Activities
  - Training Services, National & International level
  - Information Services

Electronics and Information Technology Division Council (LITDC)…. 2(4)

- ✓ LITD covers standardization in the field of electronics and telecommunications including information technology.
- ✓ **35 technical committees** has developed more than 1650+ standards till date.
  - **LITD 13: Information And Communication Technologies** prepares standards relating to : a) computer communication networks and interfaces to these computer communication networks including microprocessor systems, interfaces, protocols and associated interconnecting media for information and communication technology equipment etc. b) Telecom equipment and associated systems & devices. It is national mirror committee of ISO TC- 25 SC- 25 (P); ISO TC- 35 SC- 35 (P); ISO TC- 6 SC- 6 (O)
  - **LITD 27: Internet of Things and related technologies**: National Mirror Committee for **ISO/IEC JTC 1/SC 41**
  - **LITD 28: Smart Infrastructure: LITD 28** prepares standards in the field of Smart Cities (Electro-technical and ICT aspects) and related domains including Smart manufacturing & Active assisted living. It is the mirror committee of IEC TC-SyC SC.
    - Released a **Pre-Standardization Study Report on Technical Requirements Analysis of Unified, Secure & Resilient ICT Framework for Smart Infrastructure**.
  - **LITD 29: Blockchain & Distributed Ledger Technologies:** National Mirror Committee of **ISO/TC 307**.
  - **LITD 30: Artificial Intelligence (AI):** the National Mirror Committee for **ISO/IEC JTC1/SC42**.

List of standards published by LITDC is available here

International Cooperation… 3(4)

- Founder member of ISO
- Represents India through Indian NC in the IEC
- Participating (P) member of 449 committees and Observer (O) member in 212 committees of ISO
- Participating member of 92 Technical Committees and observer member in 74 Technical Committees of IEC.
- Member of regional standards bodies like Pacific Area Standards Congress (PASC) and South Asian Regional Standards Organization (SARSO).
- **30 Memorandum of Understanding (MoU) & 07 Bilateral Agreements**

MoUs and BCAs/MRAs signed by BIS, India with countries/organizations 4(4)

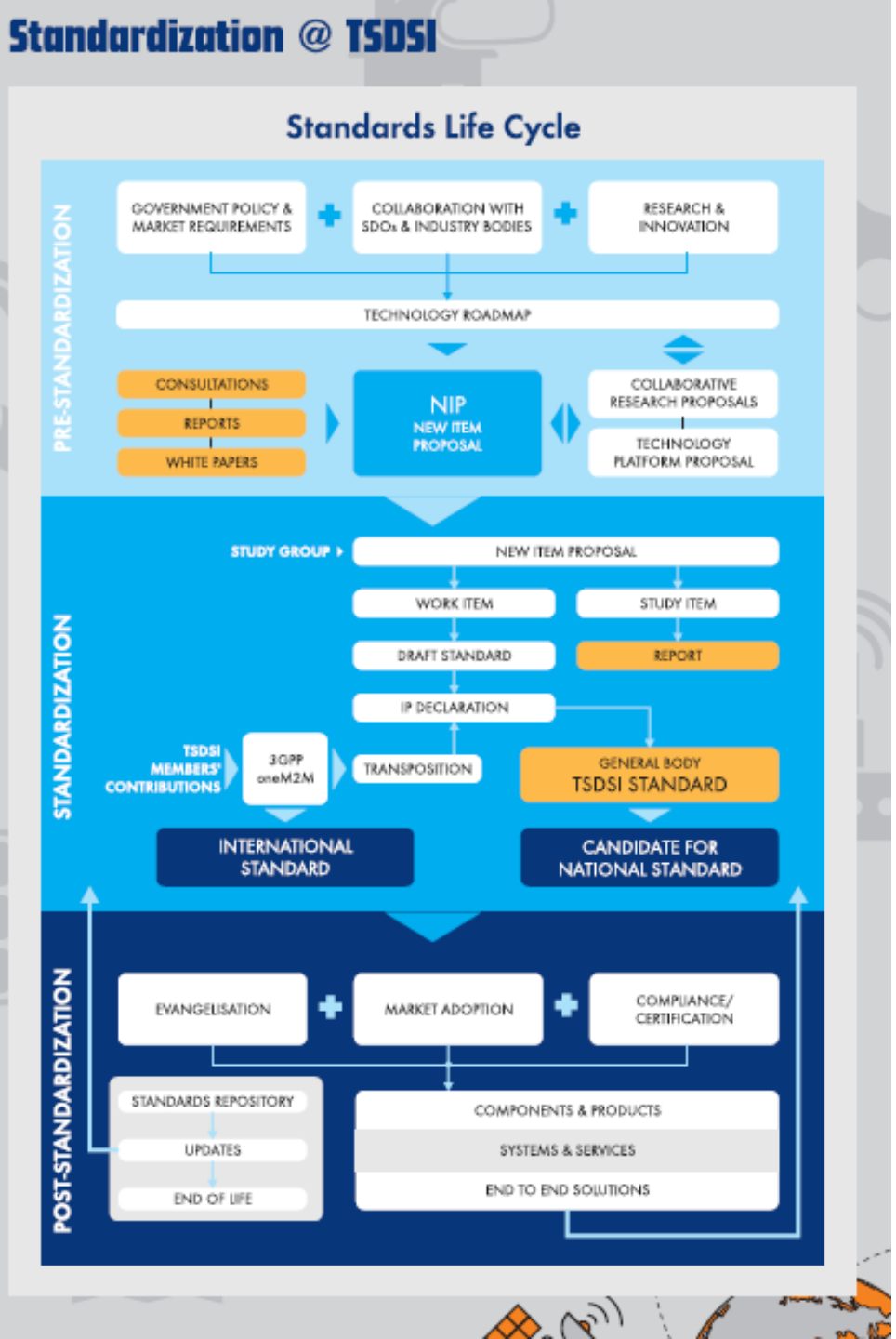
- 30 Memorandum of Understanding (MoU) & 07 Bilateral Agreements

List of important MoUs and BCAs/MRAs			
S. No.	**Country**	**Organization**	**Total of MoU/Bilateral Cooperation**
1	------	ISO	MoU b/w the BIS – National Institute of Training for Standardization (NITS) and the International Organization for Standardization (ISO)
2	European Union	CEN	MoU for national adoption of CEN Standard EN 115:1995 + A1:1998 + A2:2004 "Safety rules for the construction and installation of escalators and passenger conveyers" in India
3	Germany	DIN	MoU between BIS and DIN Deutsches Institut für Normung, Berlin on cooperation and mutual interest in the fields of standardization and certification
4	Germany	DKE	MoU between BIS and DKE German Commission for Electrical, Electronic and Information Technologies of DIN and VDE, Frankfurt am Main
5	USA	BIS, ANSI & CII	MoU to establish an India - U.S. Standards Portal between BIS, CII and the American National Standards Institute (ANSI)
6	USA	American National Standards Institute (ANSI)	MoU between BIS and the American National Standards Institute
7	USA	The Institute of Electrical and Electronics Engineers (IEEE)	MoU between BIS, India and the Institute of Electrical and Electronics Engineers, Incorporated, USA (IEEE) on cooperation in standardization

Telecommunication Standards Development Society, India (TSDSI)… 1(3)

- Indian Telecom Industry, comprising operators and manufacturers, Academia and R&D organizations formed TSDSI on 7 January 2014, with an objective to contribute to next generation telecom standards and drive the eco-system of IP creation in India.
- It is an autonomous 'not for profit' SDO for Telecom products and services in India
- **Functions:**
  - ✓ Develop standards to support new requirements based on research & innovation
  - ✓ Distil new items of research for standardization
  - ✓ Take Indian requirements to global standards organizations;
  - ✓ Creating and Safe-guarding related IPRs;
  - ✓ to create standards based manufacturing expertise in the country;
  - ✓ transparent, open-to-all-members process for making standards.
  - ✓ Providing guidance and leadership to other developing countries

- Department of Telecommunications (DoT) & Ministry of Electronics and Information Technology (MEITY), Govt. of India are jointly supporting TSDSI as India's Telecom/ICT SDO.



Technical activities… 2(3)

Study Group 1- Networks

- CPRI FrontHaul
- Channel Characteristics : 60GHz for 4G/5G backhaul
- Enablers for Private Networks
- NB-IoT Extension
- Broadcast offload
- Spectrum Studies

Study Group 2- Services & Solutions

- Cloud Interoperability and Portability
- Public Protection and Disaster Recovery
- Dual SIM Services
- Support for Indian Languages
- Information Centric Networking
- UAV/Drone Communications and Services
- M2M/IoT
- Security and Privacy
- oneM2M

Collaboration with International and other Forums… 3(3)

- Cooperation agreements with 7 international SDOs: ARIB (Japan), ATIS (USA), CCSA (China), Continua Health Alliance, USA (IoT in Health), ETSI (Europe), TTA (Korea), TTC (Japan)
- MoU with GCF, 5G AI, TIA etc.
- Member of ITU
  - TSDSI has introduced an indigenous developed 5G candidate standard at ITU WP-5D Meeting in Geneva held during December 10-13, 2019.
- Organizational Partner (OP) of 3GPP along with six other Regional Standardization bodies
  - TSDSI has transposed 295 Specifications of 3GPP (select specifications from Rel 10 to Rel 13) for IMT Advanced (as per ITU-R M.2012-3) into TSDSI Standards (https://members.tsdsi.in/index.php/s/QCGsyjJocsm8RKj)
- Partner Type I of oneM2M
  - TSDSI has Transposed oneM2M Specifications Rel 2 (comprising 17 specifications and 10 technical reports) into TSDSI Standards. (https://tsdsi.in/onem2m/)
  - TSDSI has begun work on transposition of Release 3 specifications of oneM2M.
- Constituent SDO of Global Standards Collaboration (GSC)

Telecommunication Engineering Centre (TEC)… 1(3)

- TEC is the technical wing of DoT (Department of Telecommunications) and acts as a National Standards Body (NSB) for Telecom sector
- ***Functions:***
  - ✓ Specification of common standards for Telecom network equipment, services and interoperability.
  - ✓ Prepare and Publish Generic Requirements (GRs), Interface Requirements (IRs).
  - ✓ Issuing Interface Approvals, Certificate of Approvals, Service Approvals & Type Approvals.
  - ✓ Formulation of Standards and Fundamental Technical Plans.
  - ✓ Interact with multilateral agencies like APT, ETSI and ITU etc. for standardization.
  - ✓ Develop expertise to imbibe the latest technologies and results of R&D.
  - ✓ Provide technical support to DOT and technical advice to TRAI & TDSAT.
  - ✓ Coordinate with C-DOT on the technological developments in the Telecom Sector for policy planning
  - ✓ Designated National Enquiry point for WTO-TBT for telecom sector
- M2M WGs at TEC have released 13 Technical Reports (Release 1 and Release 2).
- TEC is implementing Mandatory Testing and Certification of Telecom Equipments (MTCTE)
- TEC has approved adopting TSDSI transposed oneM2M Rel. 2 specifications as National Standards

Main divisions / Functional areas… 2(3)

Access Lab	Control Lab (CL)	Customer Premises Equipments & Terminals Lab (CPE & TL)	Cyber Security (CS)	Fixed Access (FA)
Future Networks (FN)	Green Passport	Information Technology (IT)	Internet of Things (IoT)	Mobile Technologies (MT)
Next Generation Switching (NGS)	Radio (R)	Regional Coordination (RC)	Smart Network	Standardization
Telecom Certification (TC)	Telecom Lab (TL)	Telecom Security (TS)	Transmission (T)	

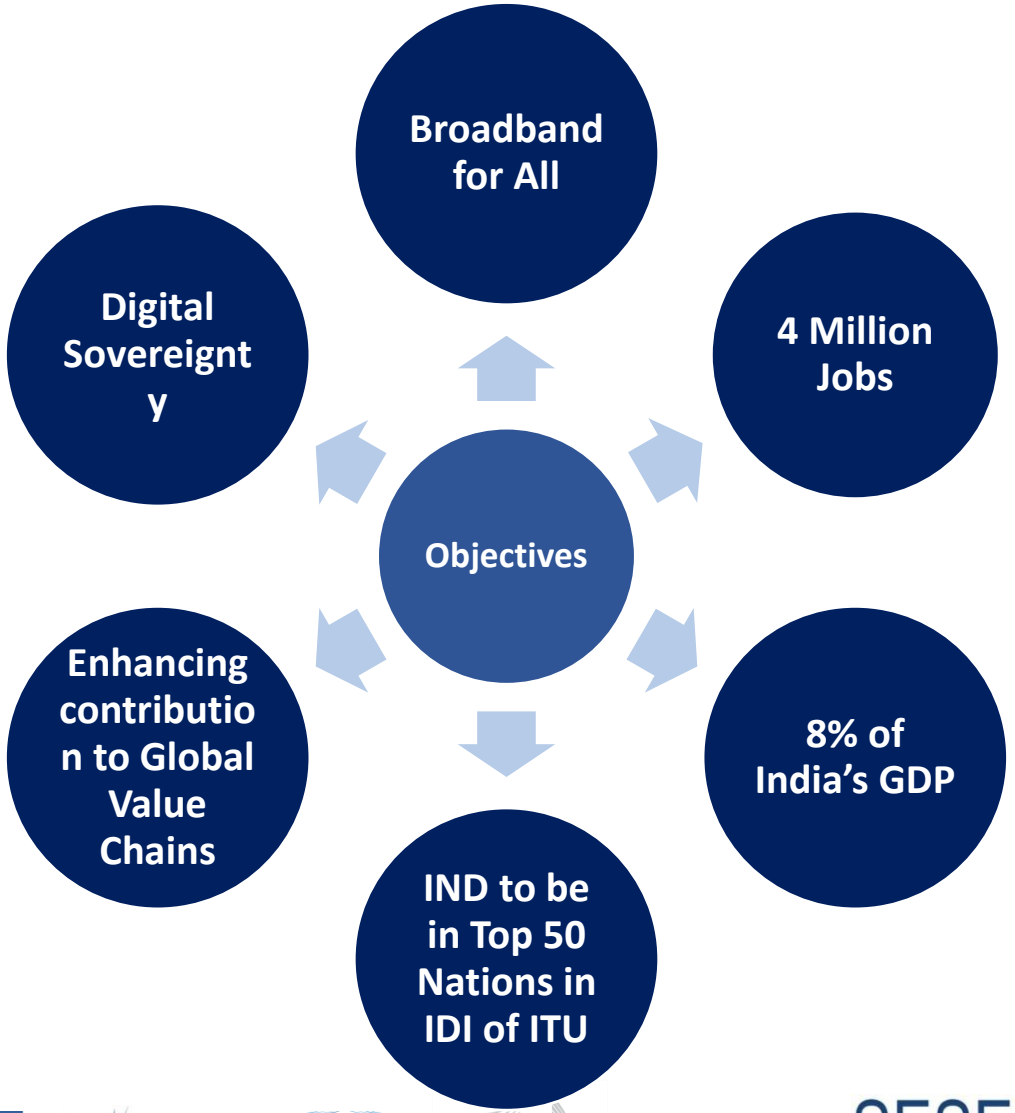
International collaboration 3(3)

- TEC participates & follow programmes of standardization bodies such as below directly/indirectly:
  - ITU
  - 3GPP
  - OneM2M
  - ETSI (Member)
  - GSMA
  - IEEE

- **National Working Groups (NWGs) corresponding to respective ITU-T Study Groups:**
  - ✓ NWG-5- Environment and climate change
  - ✓ NWG-9: Television and sound transmission and integrated broadband cable networks.
  - ✓ NWG-11: Signaling requirements, protocols and test specifications
  - ✓ NWG-12: Performance, QoS and QoE
  - ✓ NWG-13: Future networks including mobile and NGN
  - ✓ NWG-15: Optical transport networks and access network infrastructures
  - ✓ NWG-16: Multimedia coding, systems and applications
  - ✓ NWG-17: Security

New Approach/ Key Initiatives
(ICT Sector)

National Digital Communication Policy, 2018



NDCP 2018 envisages three Missions:

1. **Connect India**: Creating Robust Digital Communications Infrastructure To promote Broadband for All as a tool for socio-economic development, 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.

Data Centre Policy 2020 (Draft)

- Ministry of Electronics & IT (MEITY) has drafted a Data Centre policy to position India as a Global Data Centre hub.
- **Mission:**
  - ✓ Ensure sustainable and trusted Data Centre capacity in the country to meet the enormous demand generated in one of the fastest growing economies.
  - ✓ Strengthen India's position as one of the most favourable countries for Data Centres by incentivizing and facilitating establishment of state-of-the-art Data Centres.
  - ✓ Encourage domestic and foreign investments in the sector
  - ✓ Promote R&D for manufacturing and dev. of Data Centre related products and services for domestic & global markets.
  - ✓ Promote domestic manufacturing, including non-IT as well as IT components, to increase domestic value addition and reduce dependence on imported equipment for Data Centres.
- **Key Objectives:**
  - ✓ Drive necessary regulatory, structural and procedural interventions for enabling ease of doing business, towards attracting investments and accelerating the existing pace of Data Centre growth in the country.
  - ✓ Promote sector competitiveness through various fiscal and non-fiscal incentives.
  - ✓ Promote domestic start-ups, MSMEs and other Indian IT companies and provide impetus to indigenous manufacturing of IT and non-IT equipment.
  - ✓ Meet the data security needs by promoting investments in trusted (safe and secure) Data Centres in India.
  - ✓ Facilitate standardization in the development of Data Centres.
  - ✓ Promote capacity building in the sector through association with various skilling /human resource dev. programs.

For more details, please click **here**

Personal Data Protection Bill, 2019

- Personal Data Protection Bill, 2019 ("PDPB") was introduced by Ministry of Electronics & IT (MEITY), on December 11, 2019.
- PDPB aims to:
  - ✓ provide for protection of the privacy of individuals relating to their personal data,
  - ✓ specify the flow and usage of personal data,
  - ✓ establish a Data Protection Authority of India
  - ✓ create a relationship of trust between persons and entities processing the personal data,
  - ✓ protect the fundamental rights of individuals whose personal data is processed,
  - ✓ to create a framework for organizational and technical measures in processing of data,
  - ✓ laying down norms for social media intermediary, cross-border transfer,
  - ✓ accountability of entities processing personal data,
  - ✓ remedies for unauthorized and harmful processing, and
- Bill is being analyzed by a Joint Parliamentary Committee (JPC) in consultation with experts and stakeholders.

For more details, please click here

Download Data Protection Committee- Report>>

TEC Policy for adoption domestic/international standards

- A committee was constituted in TEC to formulate the policy for ratification/adoption of TSDSI/international standards.

- Following points have been considered while formulating this policy:
  - ✓ National adoption of TSDSI transposed international standards or standards developed by any other SDO clearly indicates to the Standards-using community that the respective Standard is reviewed/endorsed by TEC
  - ✓ It indicates that TEC has determined that the Standard adopted is used internationally by Indian trading partners and is not enshrining obsolete or little used technologies or practices.
  - ✓ It enables the selection of options for local usage that are provided for in some international Standards.
  - ✓ It expands the portfolio of Indian Standards coverage and thus encourages those seeking standardization information to seek it from within Indian Standards.
  - ✓ It provides Indian standards using community with the adopted international standard at a price that may be significantly lower than the international standard and thus encourage more use of standards for the benefit of trade and the Indian community.
  - ✓ TSDSI or any other SDO in India may under its prescribed bylaws may be required to get the standard transposed/ developed by it ratified / adopted from DOT.
  - ✓ It is the policy of TEC to align Indian national Telecom Standards with International Standards as far as feasible.

Click here for the Policy and Click here for Standardization Guide

National Telecom M2M Roadmap

- Department of Telecom (DoT) released its 'National Telecom M2M Roadmap' in May 2015 for growth of M2M
- **Focus Areas:**
  - ✓ Efforts towards assimilation of various M2M standards
  - ✓ Outline of policy and regulatory approaches for M2M
  - ✓ Plans to boost M2M manufacturing as a part of 'Make In India' initiative
  - ✓ Building M2M communication infrastructure
  - ✓ Road ahead for M2M initiatives and plans
  - ✓ Approach towards M2M adoption in different sectors of economy.
- M2M Working Groups formed at TEC in following verticals for finalization of standards related work
  - ✓ Power, Automotive, Health, Surveillance, M2M Gateway and Architecture, Home Appliances, Smart Cities
- In June 2016, DoT released draft guidelines for M2M Service Providers Registration
- In February 2018, DoT issued 13-digit numbers for the trial of M2M communications
- In May 2018, DoT released instructions in relation to SIM cards used for M2M comm. Services
- Telecom Regulator TRAI has issued recommendation on "Spectrum, Roaming and QoS related requirements in M2M Communications".
- In, September 2020, TEC has approved oneM2M specifications transposed by TSDSI as National Standards.

Download National Telecom M2M Roadmap>>

Internet of Things (IoT) policy 2016

- Department of Electronics and Information Technology (DeitY) drafted India's first 'IoT Policy' in October 2016
- **Key Objectives:**
  - ✓ To create an IoT industry of USD 15 billion by 2020
  - ✓ To undertake capacity development (Human & Technology) for IoT specific skill sets for domestic and international markets
  - ✓ To undertake Research & development for all the assisting technologies
  - ✓ To develop IoT products specific to Indian needs in all possible domains such as agriculture, health, water quality, natural disasters, transportation, security, automobile, supply chain management, smart cities, automated metering and monitoring of utilities, waste management, Oil & Gas) etc.
  - ✓ To facilitate global and national participation of industry and research bodies with relevant global Service Setting Organizations (SSOs) for promoting standards around IoT technologies developed in the country
- IoT Policy will support the initiatives taken by GoI to develop connected and smart IoT based system for our country's Economy, Society, Environment and global needs.

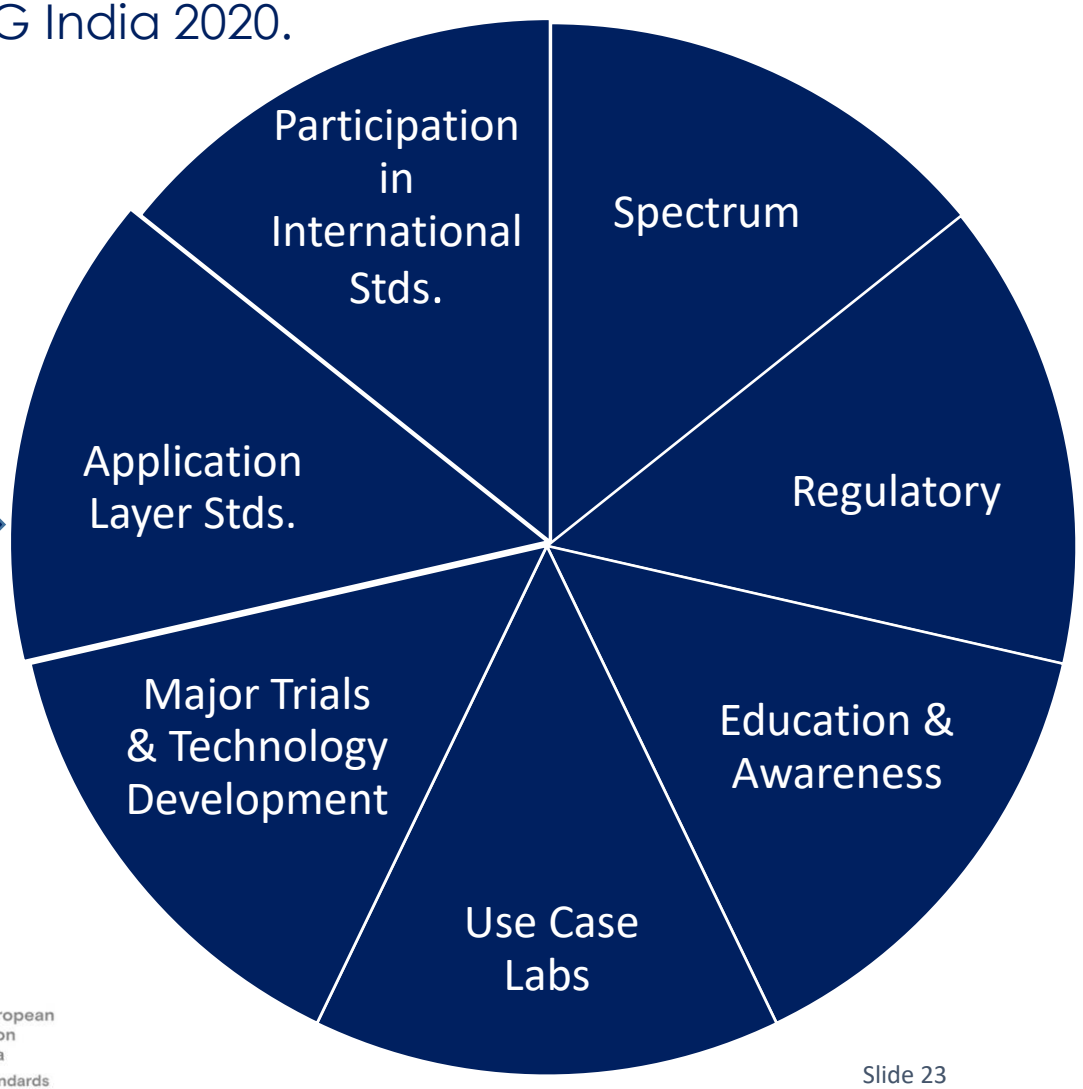
Download Internet of Things (IoT) policy >>

5G India 2020 High Level Forum

- **In September 2017, a High-Level Forum was constituted, with an aim to;**

  a. Vision Mission and Goals for the 5G India 2020,
  b. Evaluate, approve roadmaps & action plans for 5G India 2020.

Key Recommendations



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TRAI white Paper on Enabling 5G in India

- TRAI has released its white paper on "Enabling 5G in India" In order to create an enabling environment for the timely rollout of 5G in India.
- TRAI's white-paper covers:
  - Specifications of the 5G technology,
  - Potential use cases and architecture of 5G networks.
  - Areas that will require investment for 5G deployment and
  - Spectrum requirements for 5G networks.
  - Regulatory challenges that need to be addressed for the deployment of 5G.
- The purpose of the white paper is to identify the probable challenges, including regulatory ones, in the deployment of 5G Networks in India and to initiate a discussion with all stakeholders for finding implementable solutions.

Download TRAI WP on Enabling 5G in India>>

National blockchain policy draft paper titled as "Blockchain — The India Strategy"

- Government think tank NITI Aayog has released "Draft Discussion Paper on Blockchain: The India Strategy (Part 1) in January 2020"
- It aims to demystify the concepts surrounding this technology, identify areas where it can be utilized for more transparent and open models of cooperation between entities and recommend the next steps towards achieving this goal.
- discussion paper has made a case for using blockchain technology to resolve business and governance process inefficiencies.
- Paper suggested regulatory infrastructure to be put in place for evolving a vibrant blockchain ecosystem and creation of a National infrastructure for deploying blockchain solutions with in-built fabric, identity platform and incentive platform.
- Paper also suggested government to adopt blockchain solutions for procurement process.
- Blockchains can broadly be defined as a new type of network infrastructure that create 'trust' in networks by introducing distributed verifiability, auditability, and consensus.

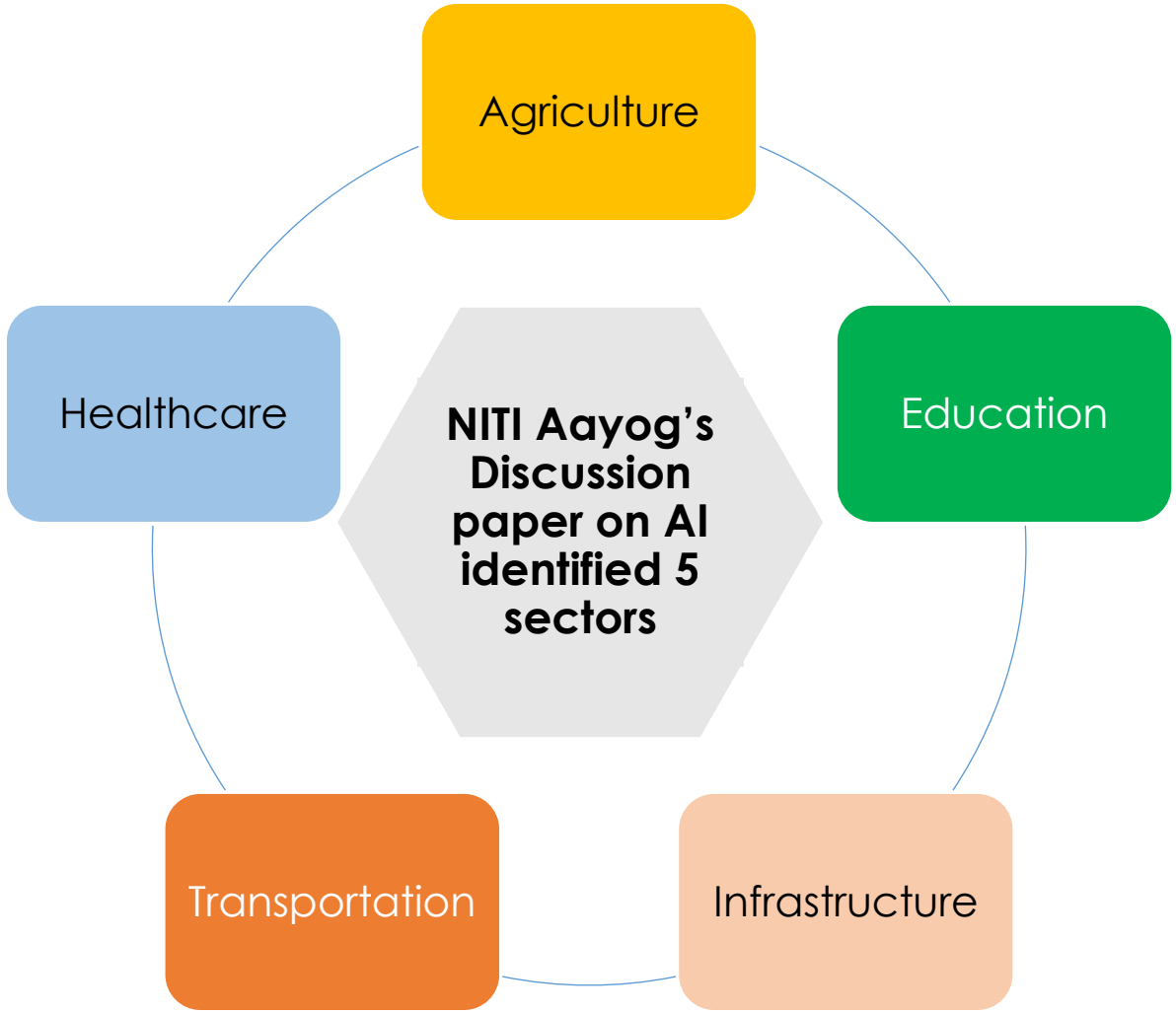
Download Blockchain Strategy here>>

Discussion Paper on the Framework of an Indian AI stack: DoT

- Department of Telecom under Ministry of Communication released discussion paper on the framework of an Indian Artificial Intelligence (AI) Stack with the intention of mitigating impediments in AI deployment and essentially make AI uniform for application across sectors.
- Paper highlights five major horizontal pillars: Infrastructure Layer, Storage Layer, Compute Layer, Application Layer, Data / Information Layer and one main vertical pillar - Security & Governance Layer
- **key benefits of this proposed Indian AI stack are:**
  - ✓ Easy interface (vertical or horizontal) with end user application;
  - ✓ Maintains, a secure storage environment that simplifies the archiving and extraction of data based on the data classification;
  - ✓ Ensures, protection of data, data federation, data minimisation; open algorithm framework; defined data structures; interfaces and protocols, monitoring, audit and logging; trustworthiness, etc;
  - ✓ Ensures, legitimacy of backend services, transaction movement etc;
  - ✓ Provides services through secured gateway services to the customer;
  - ✓ Protection of Digital Rights and maintaining ethical standards;
  - ✓ Consent for use of data from customers will be taken through properly framed consent framework;
  - ✓ Enables provision of safe, secure and trusted AI services to the customer;
  - ✓ Enables open API integration and facilitates the environment for load balancing, security, failover capabilities, multi-tenant architecture for concurrent users; and
  - ✓ Enforces the usage of Government Public Key Infrastructure (PKI) services.

Download Discussion Paper here>>

Discussion Paper on AI: NITI Aayog



- In June 2018, Government think-tank, NITI Ayog has unveiled its **discussion paper on national strategy on Artificial Intelligence (AI)** which aims to guide R&D in new and emerging technologies.
- Government has approved the expenditure of Rs 7,000 crore till 2024-25 for NITI Aayog's artificial intelligence (AI) programme.
- Niti Aayog will develop a national data and analytics platform to make all government data accessible to stakeholders in a user-friendly manner.

Digital India

- Launched by Government of India on 1st July 2015 to transform India digitally empowered society and knowledge economy.
- **Three core components**
  - Development of secure and stable Digital Infrastructure
  - Delivering government services digitally
  - Universal Digital Literacy
- **Nine Pillars**
  - Broadband Highways
  - Universal Access to Phones
  - Public Internet Access Programme
  - e-Governance - Reforming government through Technology
  - e-Kranti - Electronic delivery of services
  - Information for All
  - Electronics Manufacturing - Target NET ZERO Imports
  - IT for Jobs
  - Early Harvest Programmes

For more information, please click here

National E-Commerce Policy 2019 (Draft)

- In Feb 2019, India has released "draft national e-commerce policy" proposing setting up a legal and technological framework for restrictions on cross-border data flow

- It also laid out conditions for businesses regarding collection or processing of sensitive data locally and storing it abroad.

- Policy addresses following six broad issues of the e-commerce ecosystem
  I. data;
  II. infrastructure development;
  III. e-commerce marketplaces;
  IV. regulatory issues;
  V. stimulating domestic digital economy; and
  VI. export promotion through e-commerce.

- It identifies critical aspects of each issue and lays out strategies to achieve the Government's vision.

For more information, please click here>

EU-India cooperation

EU-INDIA Cooperation

- India-EU bilateral relations date back to the early 1960s with India being amongst the first countries to establish diplomatic relations with the European Economic Community in 1962.
- India -EU have been working on a Broad-based Trade and Investment Agreement (BTIA) since 2007, but India's trade regime and regulatory environment remains comparatively restrictive.
- EU & India held its Summit virtually on 15 July, 2020 and endorsed "**EU-India Strategic Partnership: A Roadmap to 2025**" as a common roadmap to guide the joint action and further strengthen the EU-India Strategic Partnership for the next five years.
    - key focuses of cooperation are around Security, Climate Change, Clean Energy, ICT, Transport, Green Deal, resource efficiency, circular economy, clean tech, renewables, Artificial Intelligence, R& I, RAIL etc. and importantly to re-commence the EU-India BITA.
- Many ongoing cooperation projects between EU and India around ICT, Circular Economy, Political/ Security, Trade and Investment, Defence, Mobility/ Migration, Science, Research and Innovation, Energy, Environment, Science & Technology etc.
    - EU-India portfolio of projects

Cooperation Project around Standardisation & related policies

- **Project SESEI – Seconded European Standardization Expert in India**
  - supported and operated by ESDOs i.e. CEN, CENELEC, and ETSI as well as by EC DG ENTR and EFTA
  - SESEI's mission is to enhance the visibility of European standardization activities, increase the cooperation between Indian and European standardization bodies and support European companies facing standardization related issues hampering market access to India.
  - **Priority areas**: ICT, Automotive, Electrical equipments including Consumer Electronics and Smart Cities
- **India-EU Cooperation on ICT-Related Standardisation, Policy and Legislation**
  - to promote closer alignment between India and Europe with regard to the production and use of ICT standards and to harmonise the exchange of statistical data, thereby facilitating trade, increasing interoperability and the ease of doing business for companies, and adding additional weight to European and Indian ICT standardisation efforts at the global level.

US bill for creating a “Technology Partnership Office”

- Democracy Technology Partnership Act aims to counter the influence of authoritarian regimes – namely China – on advanced wireless communications technologies, including AI, machine learning and 5G, as well biotechnology, semi-conductors, quantum computing and surveillance technologies like facial recognition and fibre optic cables.
- Bill requires to build the International Technology Partnership Office (ITP) to set global tech standards and lead in tech governance.
- ITP will create a partnership among democratic countries to conduct joint research and coordinate export controls and investment screening on emerging and critical technologies.
- ITP requires to create a politically neutral standards process, promote data privacy and sharing, ensure supply chain security and raise awareness about authoritarian efforts to erode democracy using tech.
- **Download pdf of bill>>**

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