ANNUAL REPORT

2023-2024

VOICE OF INDIAN COMMUNICATION TECHNOLOGY ENTERPRISES

Registration No. : 329 /2022
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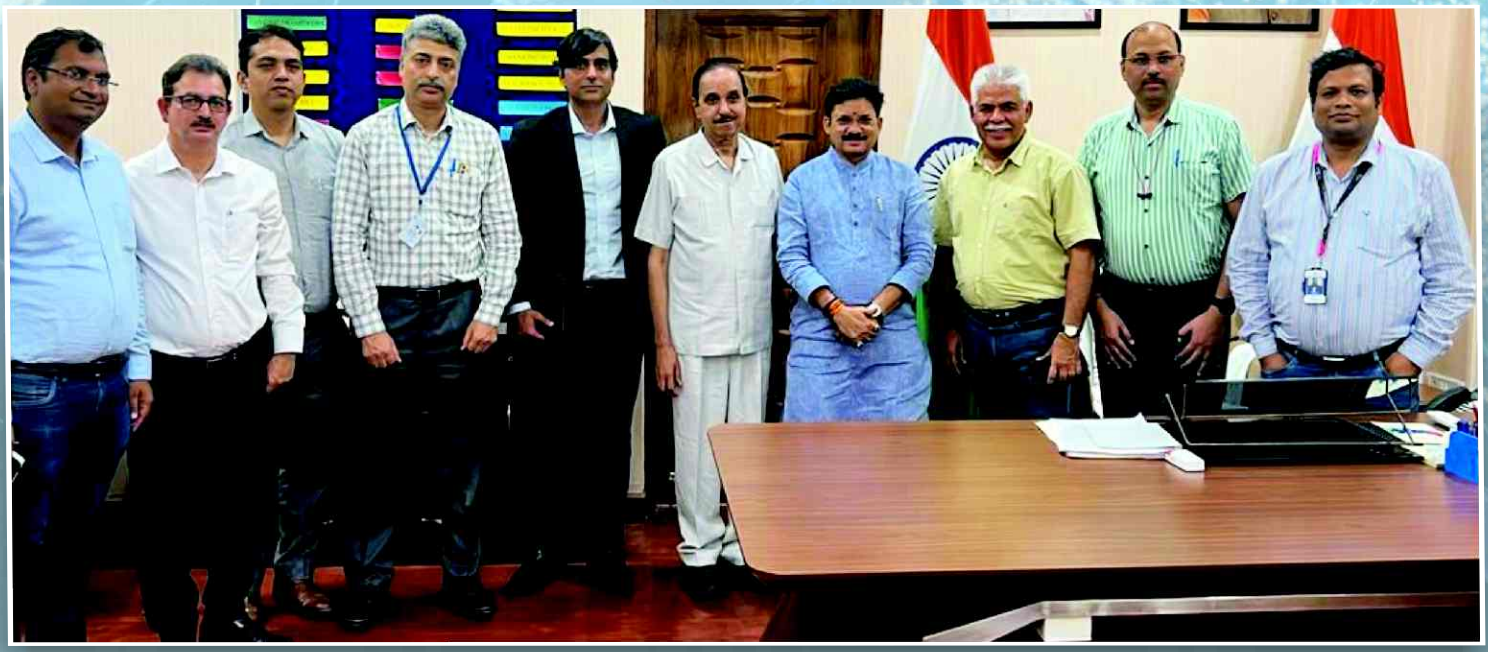
VoICE
आत्मनिर्भर
भारत
NIRAL
finecra
sparsh
cctv
BigCat
Signaltron
anav
QNU
SenseGiz
ECHELON
Rebaca
Soohtha
Avalon
DRDO
Link2



NOTICE OF ANNUAL GENERAL MEETING TO THE MEMBERS

NOTICEIS HEREBY GIVEN THAT THE 02ND ANNUAL GENERAL MEETING OF THE MEMBERS OF THE SOCIETY M/S VOICE OF INDIAN COMMUNICATION TECHNOLOGY ENTERPRISES WILL BE HELD ON TUESDAY, 24TH SEPTEMBER 2024 AT 11:30 A.M. AT E-2, SECTOR-63, NOIDA, UTTAR PRADESH-201301, INDIA TO TRANSACT THE FOLLOWING BUSINESS:

A G E N D A

1. INAUGURAL ADDRESS BY CHAIRMAN, VOICE
2. REPORT BY DIRECTOR-GENERAL, VOICE
3. PRESENTATION OF ACCOUNTS FOR F.Y: 2023-24
4. APPROVAL OF ACCOUNTS FOR THE F.Y: 2023-24
5. CONSIDER & APPROVE APPOINTMENT OF AUDITORS FOR THE YEAR 2024-25.
6. DISCUSSION ON GOVERNING COUNCIL FOR THE YEAR 2024-25
7. DISCUSSION ON EXPERT GROUP FOR THE YEAR 2024-25
8. DISCUSS ANY OTHER MATTER WITH THE PERMISSION OF THE CHAIR.
9. VOTE OF THANKS.

BY ORDER OF THE MANAGING COMMITTEE
FOR VOICE OF INDIAN COMMUNICATION TECHNOLOGY ENTERPRISES

SD/-
(RAKESH KUMAR BHATNAGAR)

DATE: 03-SEP-2024
PLACE: DELHI

NOTES:

1. APPOINTMENT OF PROXY: A MEMBER ENTITLED TO ATTEND AND VOTE AT THE ANNUAL GENERAL MEETING OF THE SOCIETY IS ENTITLED TO APPOINT A PROXY TO ATTEND AND VOTE INSTEAD OF HIMSELF/HERSELF.

2. THE ROUTE MAP SHOWING DIRECTION TO THE VENUE OF THE MEETING IS ANNEXED.

3. MEMBERS SEEKING ANY INFORMATION RELATING TO THE ACCOUNTS MAY SEND AN EMAIL AT RSROYCA@GMAIL.COM TO STATUTORY AUDITOR.

ATTENDANCE SLIP

FULL NAME OF MEMBER _____

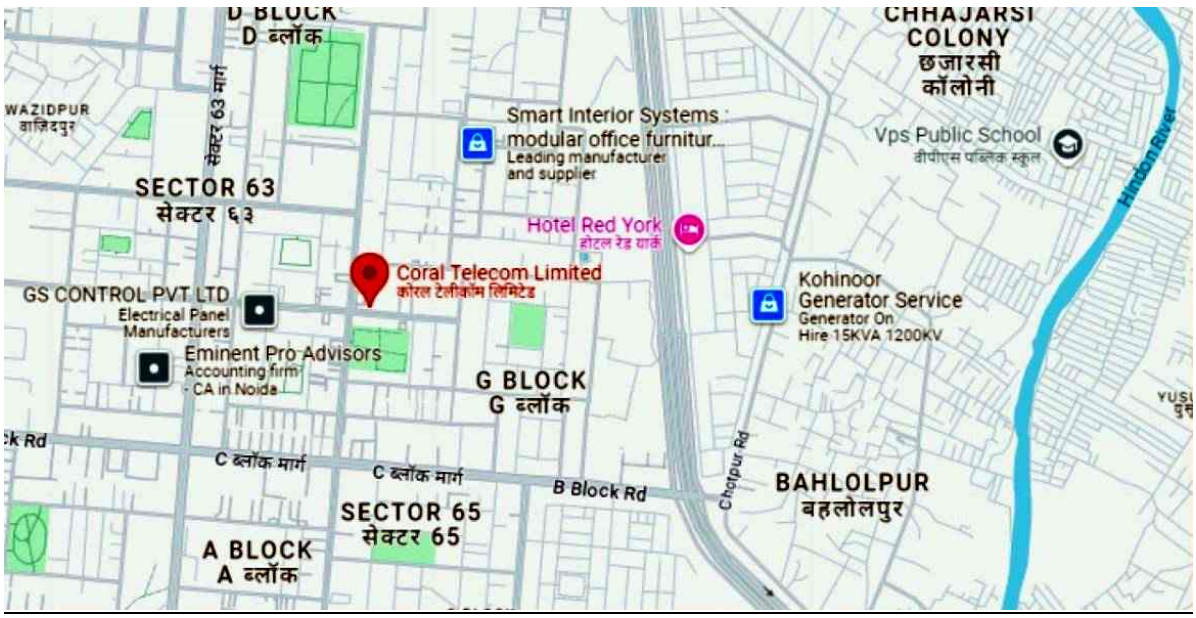
FULL NAME OF PROXY / REPRESENTATIVE _____

I HEREBY RECORD MY PRESENCE AT 02ND ANNUAL GENERAL MEETING OF THE SOCIETY HELD ON TUESDAY, **24TH SEPTEMBER 2024 AT 11:30 A.M.** AT E-2, SECTOR-63, NOIDA, UTTAR PRADESH-201301 / OR AT ANY ADJOURNMENT THEREOF.

SIGNATURE OF MEMBER / PROXY / REPRESENTATIVE _____

NOTE: PLEASE FILL IN THIS ATTENDANCE SLIP AND HAND IT OVER AT THE VENUE.

* STRIKE OUT WHICHEVER IS NOT APPLICABLE.



Voice of Indian Communication Technology Enterprises

ANNUAL ACTIVITY REPORT

2023 - 2024

Voice of Indian Communication Technology Enterprises (VoICE) is working to support Government's Make in India through Domestic Design led stakeholders and has effectively used Consortium Based 5G end to end solution Model to lead Indian SMEs and Start-Up companies ready to compete with MNCs.

AIM of the Society

"Atma Nirbhar in Communication Technologies" Fostering the development of Indian Digital Communications Technology (DCT) ecosystem through consolidated efforts of homegrown enterprises with enhanced facilitation for Start-ups/ Small and Medium Enterprises (SSMEs).

Objectives of the Society

- Foster R&D culture and encourage design ownership.
- Enable the development, commercialization, and deployment of Indian Digital Communications Technology (DCT) products.
- Facilitate creation, promotion, protection & monetization of Indian Intellectual Property (IP) / Standard Essential Patents (SEPs) with the support from Government, disclosing and licensing of of IPs/SEPs and on FRAND terms.
- Explore collaborative opportunities with the Government and its R&D institutions, laboratories for product development & commercialization including encouraging the co-creation and of joint development of IP.
- Pro-actively participate in various consultative processes (including PPP-MII) by concerned ministries/departments on policy decisions, regulations and also to assist all concerned authorities through provision of requisite industry information to enable formulation of suitable policies and regulations.

- Make policy interventions on various schemes/decisions/initiatives, as and when deemed necessary to take forward the spirit of Atmanirbhar Bharat.
- Flag the issues/grievances of membership to the concerned ministries/ departments/ forums.
- Share of information on Products/Solutions, R&D roadmaps amongst Members and with governments and further Exploring collaborative opportunities to develop end to end integrated solutions.
- Promote Design led local manufacturing and encourage procurement of locally designed & manufactured components/ subsystems.
- Enable Market access for Indian products/solutions and identification of commercial market and strategic market (critical infrastructure) requirements Eg: Tactical communication systems, PPDR network etc.
- Give special emphasis to Cyber Security in telecom products through enhanced security by indigenous design control where IPRs and design ownership reside within India.
- Seek Industry and Government support to facilitate the development of Local Testing & Certification Ecosystem for hardening of indigenous products/solutions and also to meet the National/ International standards through financial and infrastructure support.
- Support Field trials/ pilots for technology demonstrations especially through Universal Services Obligations Funds (USOF) and the USOF pilot project schemes.
- Organize and participate in seminars, conferences, fairs related to the objects of the Society and to compile, collate, edit and publish technical reports and papers related to the objects of the Society.
- Enter any arrangement with Government (s), international bodes or authorities to forward and strengthen the objects of the Society.
- Provide a platform for participation of all domestic market players, experts, financial market intermediaries and other stakeholders for identifying issues, potential failure risks and areas for development in the local DCT ecosystem.
- Proactively participate in Standardization activities in collaboration with TSDSI/ TEC / BIS/ DoT etc. and to continuously improve the competitiveness of the Member Ecosystem to develop world class telecom infrastructure and deliver the benefits of affordable digital services to national and international markets to achieve the SDGs.
- Identify and support the needs of skill development in the DCT ecosystem.
- Collaborate with academia, Centre of Excellences, test beds, State gov departments & institutions and certification labs etc. for the Member Ecosystem
- Create a hub for exchange of ideas and co-creation of technologies and solutions with Indian expertise, and act as a virtual system integrator for orchestrating end to end solutions
- Facilitate the mechanisms that assure market access for the members in certain key technology areas and critical infrastructure domains with the purpose to incubate local design, content and self-reliance.
- Actively pursue the use of Indian Digital Communication Technology/ Products/ Solutions by Indian Communications Service Providers
- Continuously strive towards improving the standards and competitiveness of the Member Ecosystem and to attain the status of the world class infrastructure and deliver the benefits of affordable services to national and international markets.

- Identify the needs of skill development in the Member Ecosystem including taking steps to prepare catalogue of types of skills, range, and depth of skills to facilitate choice to individuals.
- Determine and catalogue the existing IP, products, solutions, services, skills, competencies etc within member companies, establish standards compliance and qualifications by members as per national and international standards/ norms/ testing, endorse companies which have the requisite capabilities to ease and assist competent selection of companies and their products/ solutions/ services in government and non-government tenders and RFPs
- To facilitate in standardizing the affiliation and accreditation process for the Member Ecosystem, facilitate setting up a robust and stringent certification and accreditation process for the Member Ecosystem to ensure consistency and acceptability of standards.

VoICE has continued to play a very active role in line with the Aim and Objectives of the Society as defined above.

Quarterly VoICE Newsletters for April-June 2023, July-September 2023, October-December 2023, VoICE Booklet covering IMC2023 (October 27 to October 29 2023) at Delhi, VoICE Booklet covering G20 Event at Bengaluru, Bengaluru Tech Summit (November 29 to December 1 2023), Bharat Telecom 2024 at Delhi (29 January-30 January 2024) along with CNPN Spectrum White Paper and VoICE CNPN 5G Projects. These documents provide details on the support provided to its members including more than 100 letters to multiple Central Ministries, PSUs, State Governments and others on issues in support of its members, inputs to Government on policy formulation, recommendations, suggestions, participation in consultative process, participation in Conferences, Webinars, online and physical meetings with multiple authorities and the necessary details including Photographs from various Events in which VoICE members participated are all covered.

ACTIVITIES IN 2023-24

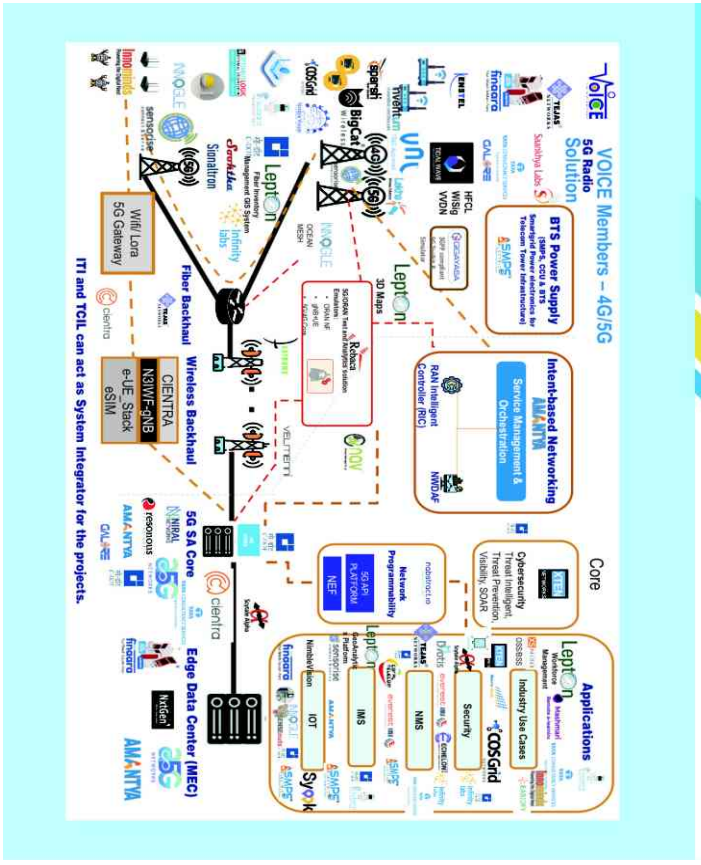
Newsletter, Participation in Events, Case Studies in support of AtmaNirbhar Bharat and Make in India

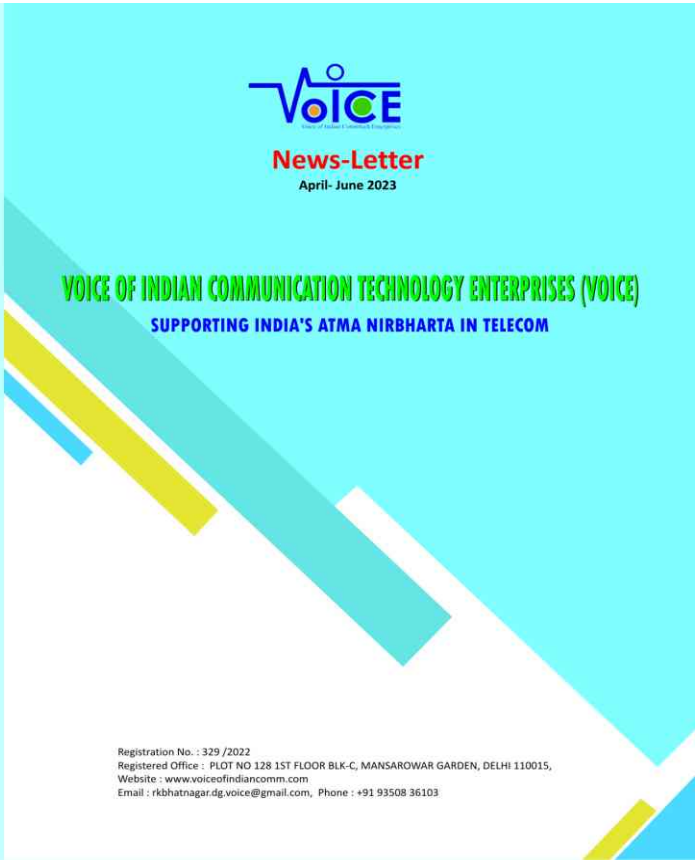
25 VoICE companies were part of India Technology Week 11 -14 May 2023

World Telecom Day 17 May 2023 VoICE Participation in DoT Event

Quarterly VoICE Newsletters for April -June 2023

https://voiceofindiancomm.com/assets/pdf/Voice-News-Letter-April-June_2023.pdf





Quarterly VoICE Newsletters for July-September 2023

https://voiceofindiancomm.com/assets/pdf/Voice-News-Letter-2-July-%20Sept.pdf

Quarterly VoICE Newsletters for October -December 2023

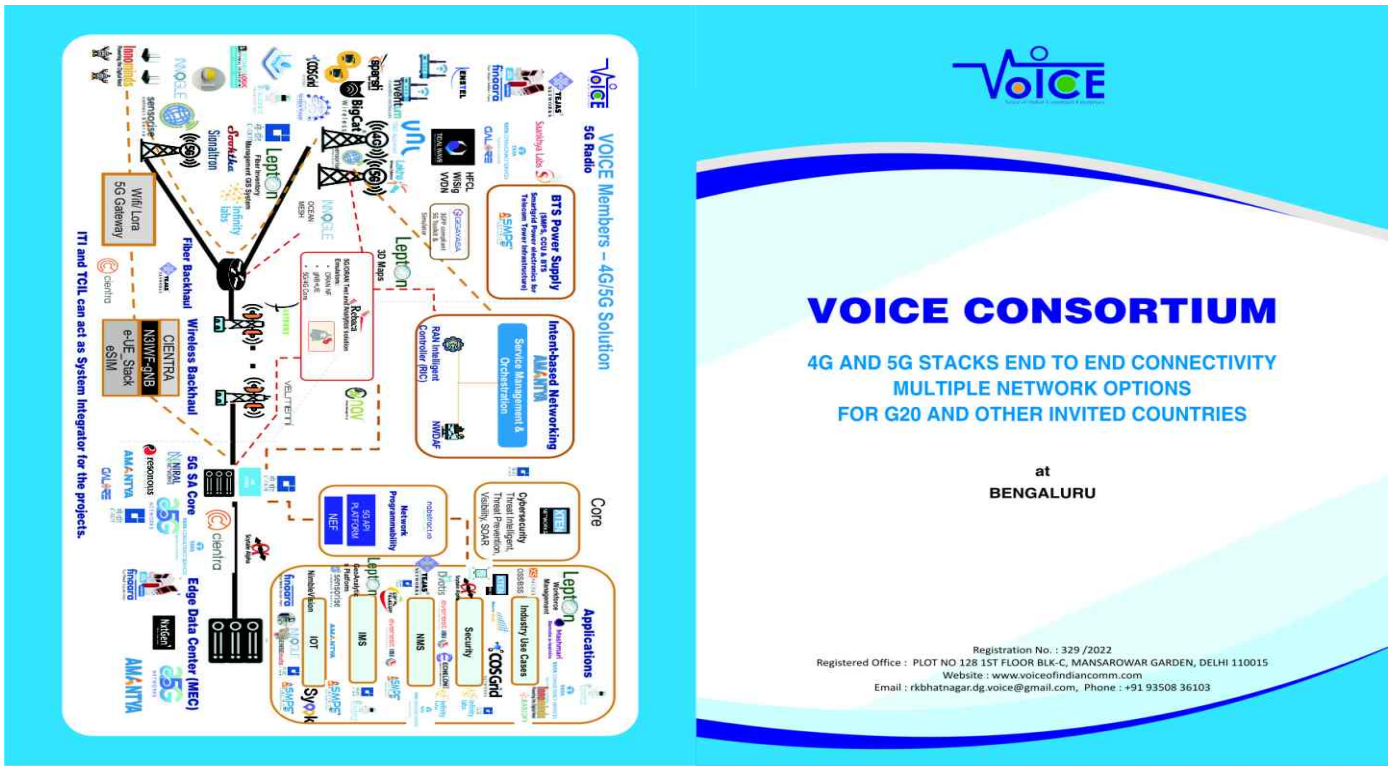
https://voiceofindiancomm.com/assets/pdf/VoICE-Newletter-3-2023.pdf

Annual Report (2022-23) cover AGM held at Bengaluru

https://voiceofindiancomm.com/assets/pdf/Annual-Report-of-VoICE-2022-23.pdf

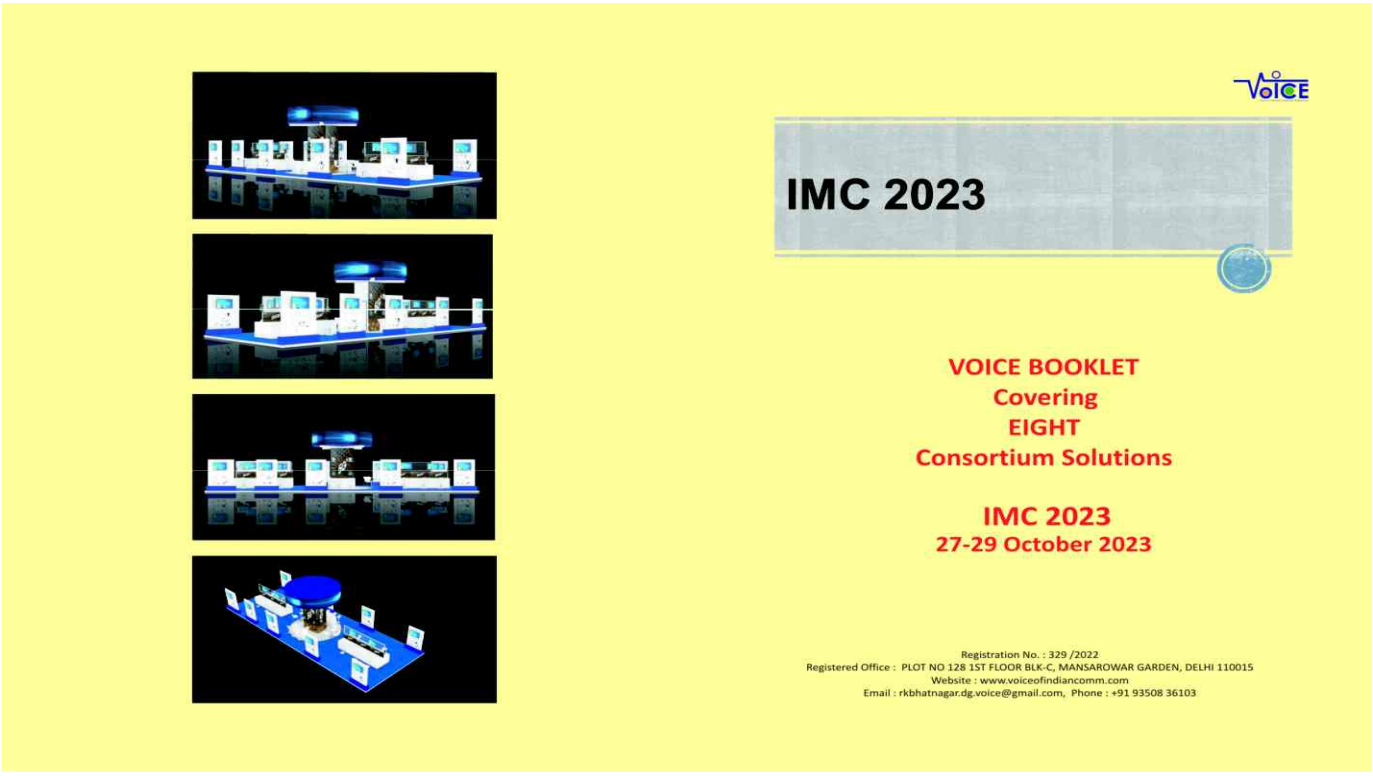
VoICE at G20 event at Bengaluru (17-19 August 2023)

https://voiceofindiancomm.com/assets/pdf/Voice-Consortium-Bengaluru.pdf



VoICE at IMC 2023

https://voiceofindiancomm.com/assets/pdf/VoICE-at-IMC2023-IMC-2023.pdf



VoICE at IMC2023 (October 27 to October 29 2023) at Delhi

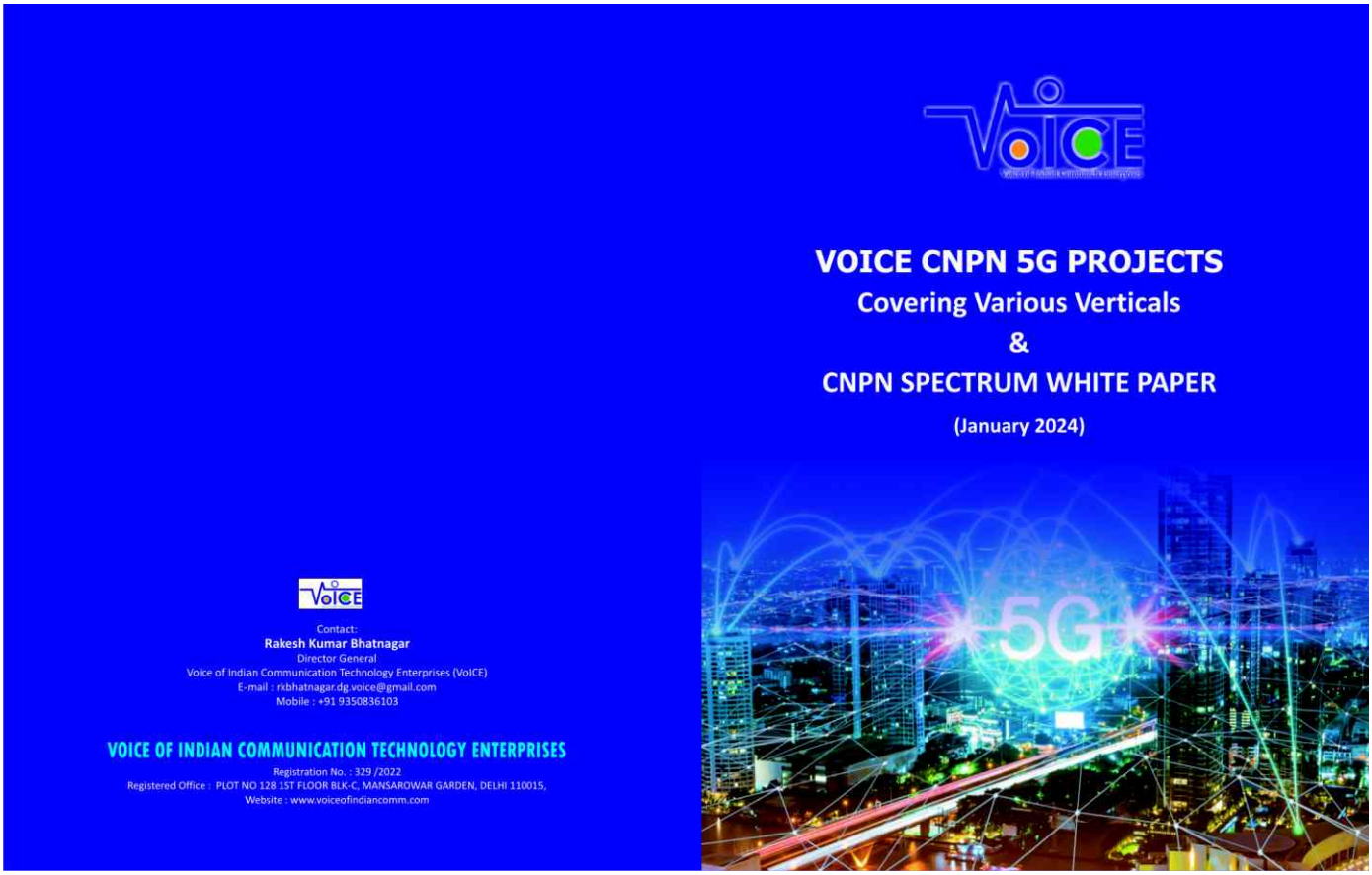
Bengaluru Tech Summit
(November 29 to December 1 2023)

Case Study on Telecom Imports from China

https://voiceofindiancomm.com/assets/pdf/case-study-on-telecom-imports-from-china.pdf

Bharat Telecom 2024 Booklet at Delhi (29 January-30 January 2024) with CNPN Spectrum White Paper and VoICE CNPN 5G Projects.

https://voiceofindiancomm.com/assets/pdf/VoICE-CNPN-5G-Projects.pdf



Shri Sanjay Nayak is the Mentor and Advisory support for the VoICE.

Shri Rakesh Kumar Bhatnagar functioned as Director General of VoICE.

Report from four task forces from Voice Members

Hon'ble MOC after a review meeting with 42 CEOs of PLI awardees had constituted four task forces to after MOC identified the need for creating task forces to resolve issues that the companies raised before him and recommend to the government measures that will boost the domestic telecom manufacturing ecosystem and remove the bottlenecks.

Under the first task force, the DoT has sought recommendation for a phased manufacturing programme for telecom gear manufacturing to boost domestic component supply chain ecosystem as well as attract global players. This task force was chaired by state-run research arm C-DoT CEO Shri RK Upadhyay, GC member of VoICE.

The second task force under chairmanship of Tejas Networks CEO Sanjay Nayak (Chairman, VoICE at that time) was constituted to study the present ecosystem and recommend to the government potential 4 -5 chip developments under scheme like Telecom Technology Development Fund, Semiconductor Policy and policy intervention required for reducing dependence on imports.

The third task force studied the time taken in custom clearance and air cargo movement, infrastructure available and suggest measures for improving lead time and reduce inventory in production and sales, setting up Free Trade Warehousing Zones at key airports etc to resolve logistics issues. This was headed by Shri Puneet Aggarwal, VVDN and Vice Chairman, VoICE.

The fourth task force was set up under chairmanship of telecom gear makers body VOICE Director General Rakesh Kumar Bhatnagar to identify new opportunities for development and manufacturing of 5G products in the country that will be required under Digital India, data centers, railway modernization etc.

Production Linked Incentive (PLI) Scheme for Telecom & Networking Products

Salient Features	Key Highlights
To promote design-led manufacturing of Telecom and Networking Products	Tenure – 5 years (Between FY 2021-22 to FY 2026-27)
To create Global Champions out of India	Incentive Rates – 4% to 7% (additional 1% incentive for Design-led Manufacturing)
1st PLI Scheme to have dedicated corpus and higher incentives for MSMEs	
Introduced Design-led Manufacturing with additional	
incentive Provides a Bouquet of Products for availing	
incentive	

Synergy with other PLI Schemes

- Vendor Connect Portal to promote Domestic ecosystem
- Semiconductor Policy
- Telecom and Networking require Electronic components which are also covered under PLI Scheme for Large Scale Electronics Manufacturing
- PLI Scheme for IT Hardware
- Electronics and Telecom Products

Specified Telecom & Networking Products...

Core Transmission Equipment

- DWDM, OTN, Multi Service Provisioning Platform, SDH, PTN/ MPLS, GPON/ NG-PON OLT, Digital Microwave Radio, Millimetre Radio; E/V-Band Radios; Satellite Gateway (Hub/Earth station) Equipment; Free Space Optics Communication Equipment

4G/5G, Next Generation Radio Access Network and Wireless Equipment

- 4G/LTE RAN Base Station & Core Equipment; 5G RAN Base Station & Core Equipment; Edge and Enterprise Equipment; Wireless Telecommunication Equipment in Access and Backhaul; Telecom Antenna; O-RAN Equipment (Radio Unit, Distributed Unit, Centralised Unit, and Radio Intelligent Controller)

Access & CPE, IoT Access Devices and Other Wireless Equipment

- Unified Communications Platforms, IP Multimedia Subsystem, Soft Switch, GPON ONT, Wi-Fi Access Point and Controller, LTE CPE, 5G CPE, Short Range Devices and Associated Electronics in new technologies like 4G/5G/FTTH, etc.; Internet Set Top Box; Satellite CPEs for accessing Internet; VSAT Equipment; NGPON ONT; Telecom modules of IOT/M2M Access Devices

Enterprise equipment: Switches, Routers

- Switches; Routers; IP and Packet Switching and Routing Apparatus

Task Forces for Promoting Make in India for the World

A Roundtable Conference was held on 03.12.2022 under the Chairmanship of the Hon'ble Minister of Communications with CEOs of PLI Beneficiaries to understand various issues being faced by them. DoT has constituted the following Task forces:-

- Indigenous Design of High Volume Telecom Chipsets,
- Resilient component ecosystem,
- Efficient Customs & Logistics System for Electronics & Telecom and
- New Opportunities in Telecom Equipment as a joint initiative of DoT, MeitY and Railways

Taskforce for
Efficient Customs & Logistics System for Electronics & Telecom

Steps to resolve logistics challenges for electronic sector

SN	Issues	Justification	Recommendation
1	Delay in clearance of shipments on account of CHIMS (Chip Import Monitoring System), SIMS (Steel import monitoring system) and PIMS (Paper Import Monitoring System)	1. Payment of CHIMS / SIMS / PIMS is mandatory for clearance of goods from customs. For AEO T-2 and above certified importers although deferment of duty payment is allowed the payments of CHIMS / SIMS / PIMS has to be prior to clear of every shipment. This causes a lot of delays in clearance of shipment. 2. Requirement of Digital signature certificate for SIMS is an administrative hindrance.	1. Option of deferment of payment of CHIMS, SIMS and PIMS should be allowed. 2. Requirement of using DSC for SIMs application should be done away with. 3. CHIMS, SIMS and PIMS etc. should be provided before BoE (Bill of Entry) filing. 4. Payment of CHIMS, SIMS and PIMS should be enabled through payment gateway and not required to be done on a shipment-to-shipment basis from user's Account. **As per Customs AEO Circular 33/2016 Dated 22/07/2016, we are looking similar payment deferment benefit in CHIMS, SIMS, PIMS, NIMS, MIMS etc.**
2	Physical examination of shipments requiring temperature-controlled environment	Products like PCBs, ICs, Transistors etc. are moisture sensitive and require temperature-controlled environment. On examination of these products in non-temperature controlled environment, these products have to undergo additional process under manufacturing which might delay the production by 1-3 weeks.	1.The importers of such sensitive materials should get a different label/ category . 2.Custom authority should not open such sensitive components in non-controlled environment which attracts dust and moisture. 3.Customs can Examine the Goods under X-ray without Opening such Sensitive Materials.

Steps to resolve logistics challenges for electronic sector

SN	Issues	Justification	Recommendation
3	Import of defective finished goods exported earlier for repairs and re-export is time consuming process	The process for customs clearance of goods returned for repairs and re-export is very tedious and time consuming. The goods are lying at customs warehouse for long time and go through rounds of clarifications/justifications.	Import of defective finished goods exported earlier for repairs and re-export should be allowed up-to a certain % percentage of revenue of the company with very minimal documentation and under a self declaration mechanism. For the same, one-time bond could be taken as against a shipment-wise bond which is provided. **As per Customs Notf. 45/2017 & 158/1995 - Importer can re-import the goods after the establishment of identity.** Further, to have a better clearance system, identification of the returned equipment should be done through hard-burnt serial numbers, MAC ID or similar ID's of the products for return approval. Similar identification should be used for customs clearance during re-export.

Steps to resolve logistics challenges for electronic sector

SN	Issues	Justification	Recommendation
4	Compliance with GR Waiver and NRC (No Remittance certificate)	GR (Guaranteed Remittance) waiver is required from Authorised Dealer (bank) for goods exported for which payments would not be received by the exporter. These shipments are on account of export of defective products after repair / maintenance, products send for testing / calibration where goods are destroyed during testing, products send as samples, etc. Similarly, NRC (No Remittance certificate) is required from the Authorised Dealer (bank) when goods are received on consignment basis, free shipments towards faulty goods supplied by the vendors, rejected material to be send back to overseas vendor, etc. The process of getting GR waiver and NRC from banks is time consuming (around a week) and involves a lot of paperwork.	Export of goods (RMA / Testing / Validation / replacement) without payment realization obligation up to a certain % percentage of revenue of the company should be allowed without the requirement of compliance with GR waiver. Import of goods (Samples/ Validation / replacement) without payment obligation up to a certain % percentage of revenue of the company should be allowed without the requirement of compliance of NRC. Beyond the said value, this compliance can be taken. **As per Sec. 4, exemption under notification no. FEMA 23/2000-RBI dated 3rd may 2000 needs to amended for this update.**

Steps to resolve logistics challenges for electronic sector

SN	Issues	Justification	Recommendation
5	Integration of customs portal with GST and RBI.	Integration of customs portal with GST still has issues wherein there is a delay in reflecting of GST credit from customs portal to GST portal. Also, BOE filed in customs portal at times are not reflected to AD under RBI portal, resulting in issues during payment to the vendor	All the three portals should be seamlessly integrated. Till such time, credit for GST paid during imports should be allowed even if the said credit is not reflecting in GST portal and payments should be possible through manual filing of BOE.
6	Certification requirements	While clearance, customs authorities require certification like BIS, WPC, etc. for components which may not be required. For instance, BIS for battery to be used in a final product to be exported is not required. This resulted in increase in no of cases of examination and also delay the clearance process	The certification requirements should be reassessed, There should be an Exemption from Indian Quality Standards for the Raw Material & parts which are meant for Export / Not for Re-Sale in India (E.g. – BIS / WPC / ETA / NOC form DoT should be waived off in case of Material is being used for an Export FG) (As per Respective Regulatory Authorities the Standards has made applicable so in their respective guideline these relaxation should be added. **Likewise for BIS Products Under Compulsory Certification which falls Scheme – I, Scheme – II, Scheme – III & For WPC DGFT General Provisions Regarding Imports And Exports 2.01 (B), require to be amended.**

Steps to resolve logistics challenges for electronic sector

SN	Issues	Justification	Recommendation
7	Procedural clarity	Customs process has to be further streamlined to ensure that: 1. Clarity on operations on Special Trading zones 2. Lesser queries are raised during clearance. 3. Simplification of documentation of CI/BoE/Shipping 4. Process of Advance Ruling and pre-assessment are available on the website as Guidelines and supported by step by step procedure to follow instead of dependency on third parties/CHA's. 5. Reduction in time for faceless assessment and payment of Duty Drawback / RoDTEP claims	1. The Advance Ruling takes 90 days which is very Long Time line, this should not be more than 10-15 days and complete process should be Online instead of offline. **Notification No. 55/2002 – Customs, we are seeking revision in the same.**
8	Duty impact on export of leftover material / excess inventory	Most of the components are ordered in minimum order quantity of component manufacturer. Further there are cases of inventory obsolescence due to change in technology, design, etc. At present, for such cases there is duty impact in case the initial import is under EOU or any kind of duty exemption	Considering the nature of industry, export of leftover material / excess inventory should be allowed upto a certain percentage of revenue without any duties under a self declaration mechanism. **Foreign Trade Policy (Para 6.15) to be revised for this update.**

Steps to resolve logistics challenges for electronic sector

SN	Issues	Justification	Recommendation
9	Shorter timelines are permitted for the storage of goods imported under IGCR or under bonded warehouse	The maximum permissible limit for storage of components after import in the bonded warehouse or components cleared under IGCR is not commensurate with the component's lead times at the present time. This results in additional compliance and risk of duty / GST impact on imports	The timelines should be extended to 2 years without any compliance requirement **As per IGCR Rule 2017 & Customs Circular 18/2022, the Imported Material should be consumed within 6 Months which is not possible in the current situation as there is Global crisis of components hence time line should be extended from 6 Months to 2 Years however a provision has been introduced wherein the Jurisdictional Commissioner can further extend such period of six months by another 3 months. However, it is clarified that such extension can be given provided the importer furnishes sufficient reason/s for not conforming to the time period so prescribed, which were beyond the importer's control, this provision doesn't help the Electronics Industries.**

Telecom Chipset Mission

Taskforce for
High Volume Telecom Chipset Development

Telecom Chip Industry Dynamics

✓ Telecom Equipment Companies (OEM)

- USA: Cisco, Alcatel-Lucent, Motorola, Juniper Networks, Ciena, Adtran, Calix
- Europe: Ericsson, Nokia
- Asia: Huawei, ZTE, Fiberhome, Samsung, NEC, Fujitsu, Tejas

✓ Semiconductor Companies (IDMs & Fabless)

- USA: Qualcomm, Intel/Altera, Broadcom, Marvell, TI, Xilinx/AMD, Analog Devices, Microchip
- Asia: MediaTek, Realtek, Huawei, ZTE, Renesas, UNISOC
- India: Saankhya Labs, SignalChip, Cirel
- Europe: NXP Semiconductors, Infineon Technologies, ST-Micro
- Some of the telecom OEM also make few of their own chipsets

✓ Semiconductor Fabs

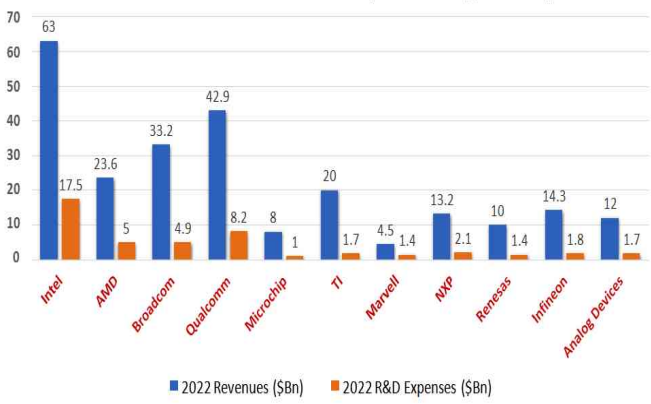
- USA: Intel, Micron, TI, GlobalFoundries
- Asia: TSMC, UMC, Samsung, Huawei, SMIC, SK Hynix, Renesas
- Europe: NXP, Nexperia, STMicroelectronics, Infineon

Traditionally telecom OEMs used to make most of their own chips till ~1995.

With the advent of fabless industry, a new trends started and companies like Broadcom, Qualcomm started making chips that were commonly used across multiple OEM

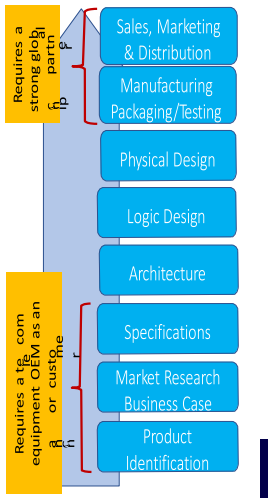
Current Landscape of Global telecom chip Suppliers:

Large Players
Significant R&D spend

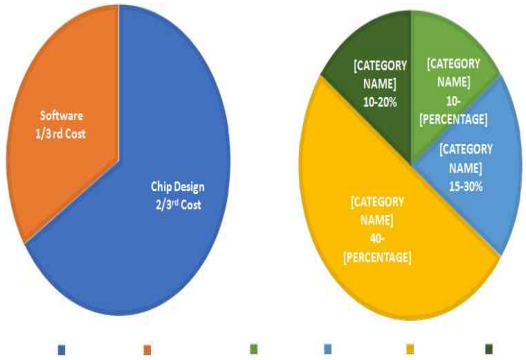


Dominated by few large global players
R&D Investments: Significant investments needed each year
Successful commercialization is important

Chip Design Steps



Chip Design Cost Break-up



Chip development Costs for:
Low Complexity $5M - $20 M; Medium Complexity: $20M - $75M; High Complexity: $75-M - $250M

Approach of other Countries

✓ USA- Major global source

- Semiconductor industry started by private companies with generous funding from Government
  - Defense, space, telecom and other strategic needs
- CHIPS and Science Act passed in August 2022
  - Invest $50B+ in semiconductor R&D, manufacturing and workforce development
- $10B funding for creating regional technology hubs
  - $1B to support distressed communities
- 25% tax credit for capex investments in semiconductor manufacturing
- Beneficiaries cannot build facilities in China and other countries of concern
  - should invest in human resource development
- $150 billion additional private investments from companies.
  - New fabs being established by Intel, Micron, Qualcomm

✓ China- Upcoming

- In 2015 announced "Made in China 2025" plan
  - Semiconductors listed as the top industrial innovation priority
- $140B+ national mission to further boost domestic chip manufacturing and R&D
- 20% subsidy on semiconductor equipment purchases; preferential tax rates
- Special incentives for investments in domestic chip design activities
  - Manpower, Building new facilities and Expansion of existing fab
- Achieved mass production of 28 nm chipsets in Domestic Fabs; now targeting 14 nm
  - Huawei/HiSilicon, UniSoc, ZTE have designed new 5G chipsets (5/7 nm technology Global Fabs)

✓ Israel

- Source of fabless chip design startups which typically get acquired by larger US chip companies
- Defense and Govt play an important supporting role (e.g. developing communications chips for internal use)

✓ South Korea

- Using their chips for captive consumption first and then exporting for others
- Gained economies of scale due to dominance in Mobile handset, Display and Memories
- Significant Long-term R&D Spending (e.g. Advance Fabs, 5G, Display, Handsets)

Indian Telecom Chips:
Need to overcome
Challenges and build
On initial success

Initial Success of Indian Chip companies- must leverage their 15+ years of experience

- Saankhya : SDR chipset for Broadcast, Satcom, 5G (shipped >50K; >1 Mn this year)
- Signalchip: LTE chipsets (initial shipments made), 5G RF, 5G BB under development
- Cirel: Power/Analog chips (shipped >1Mn chips)
- Wisig: NB-IOT chipsets (initial orders received)

Challenges faced by Indian Telecom Chips companies

- Investment is too large to be do be by entrepreneurs on their own, especially if there is no sales/business commitment, at least for initial procurement
- Government policies do not provide optimal funding. The viability funding gap is too much to bridge for a startup
- VCs unwilling to fund chip startups in India
  - Long gestation cycles, Lack of deep tech expertise in the VC industry
  - Aren't convinced that there is an opportunity to develop "me-too" chips that will compete with those already available in market from global chip suppliers
  - Lack of "role models" of success in India
- Lack of local OEMs in India, who would help define the specs and can be anchor customers
  - "Chicken and egg" problem to break into international OEMs
- Did not have enough "India-specific" problems to solve. This is changing now (e.g., NAVIC, Broadcast as a service, D2M) but significant support needed for kick off
- Vendors (fabs and EDA) are 500 pound gorillas : Foundries don't give competitive wafer pricing, resulting in more expensive per unit component costs

Why
Time is Ripe
For India

Why Time is Ripe for India

- Government focus on Atma-nirbharta & Make in India
  - Geo-Political issues & realignment
  - Need to achieve self-reliance & Security in this critical sector
  - Opportunity to build a "India telecom stack" that creates new class of devices, chipsets and architectures
- Large pool of semiconductor chip design talent
  - 3000+ Leading edge chips Designed
  - 1.25 Lakh highly skilled Chip design engineers;
  - Every Semiconductor MNC has R&D center in India
  - Growing ecosystem of Indian Semiconductor Start-ups
- A few pioneering companies have shown that chips can be designed and owned by India
  - Saankhya Labs, SignalChip, Cirel, Wisig
- We have deep expertise in Digital Signal Processing (DSP)- a critical ingredient for telecom chips
  - Foundational DSP technology with very few companies in the world, one is Indian
  - Ahead of China and Israel in this critical foundational technology
- Large demand for Semiconductors chips for telecom in India and Globally
  - Communication Chips are 30% of global semiconductors chips
    - Global semiconductor market of ~600 Billion, Reaching to 1 Trillion by 2030
  - Potential to increase Domestic value addition in equipment- India uses approx. $4 Billion of imported communication chips each year
- Growing ecosystem of system design & manufacturing companies
  - Design houses, ODMs, OEMs, EMS

What should be
our Approach in
India?

Suggested Approach

- We should focus on Fabless chip design
- Government support is a must to kickstart this effort
  - Other countries did get due support from their Government
- Leveraging India's current strength in Chip design talent
  - Leverage India's strength in Algorithms & Digital Signal Processing
  - Attract participation from Global Indians and enlist their support
- Develop chips that can be used in equipment for large Domestic market
  - $4 Billion demand- substitute with Indian chips where possible
  - Target global customers as a "trusted" chip source, once we achieve success in India
- Lower commercialization risks by identifying anchor OEMs in India
  - Leverage eco-system of 30+ System companies which got approved under PLI, to increase their domestic value-addition
- Ensure optimal level of funding
  - Need to support all stage of development as well as well as successful commercialization
  - Investment needed for: design, testing, prototyping, software tools (SDK, Compilers)
- Support any Indian Company (startup, MSME or large company)
  - Select those who have the best chance of success due to their competency
  - Key is to ensure successfully development as well as commercialization of the chips

Key Criteria
For Selecting
Initial Focus Chips

Key Criteria used for selecting which Telecom Chips to focus first

- Strategic importance for India
- Local and global demand in telecom systems
  - Also look at adjacent sector demand, where possible
- Availability of technical/development know-how within India (do-ability)
- Ensure development complexity such that we can deliver within targeted timelines of 24-36 months
- Availability of licensable IPR/libraries that will be required to complete the SoC
- Ability to develop a "competitive" chip against global competition
  - Strategically develop key chipsets without overt head-on competition against generic microprocessor or a large-scale smartphone handset chipsets
- Select few chips that go into the following 2 categories of products
  - CPE devices
  - Network infrastructure equipment
- Should help build strong capabilities/competencies in digital, analog and mixed-signal chip design

Telecom Chipset Mission

Products to Chipset Mapping: Chips Used in different Telecom Products

Telecom Products	Types of Chips & IPs Used
Wireless	
Radios	RF Transceiver, Power Amplifiers, FPGA, LDMOS, Power Management, Drivers, Analog Front End (mixed signal ASICs)
Baseband Unit	Digital Signal Processors, FPGA, Packet Switch, Multi-core CPUs, Timing Engines for Network/GPS synchronization
Handsets	5G Modem, High-End Processor, Wi-Fi, Graphics, RF IC, GPU, AI/ML, Sensors
IoT/Dongle Devices	Microcontrollers, WiFi, Baseband & RF for Multi-Radios (Zigbee, NBIoT, Lora)
Wireline	
Optical Transport	Packet Switch, Framer, FPGA, Optical Transceivers, Control Processor, Memories, Ethernet Switch, Line Interface Chip, High-speed Serializer/Deserializer (SERDES), Synchronizers, Clocks
Home Broadband – OLT Equipment	Packet Switch, FPGA, PON MAC, PON Optical Transceiver
Home Broadband – ONT (Fiber Modem)	WiFi SOC, PON SOC, PON Optical Transceiver
Packet Switches	Ethernet PHY/MACs, Processor, Switching ASICs, Traffic Manager
Routers	Switching/Routing Chip, DDR4/GDDR/HBM/TCAM Memory Chips, FPGA, High-speed SERDES, Control Processors, Optical transceivers, Synchronizers, Oscillators, GPS/IRNSS receiver
Common Modules	
These are generic functionalities	Power Modules, Oscillators, PLL Clock Multipliers, Memories, PLD, FPGA, Control Processors

Telecom Chipset Mission

Recommended Chipsets for CPE

➢ Customer Premises Equipment (CPE)

- Next-generation Broadband CPE chipset
  - Key IPs: xPON-ONT & WiFi 6/6E/7
  - Products: Home gateway for FTTH (Fiber to the home)

- 5G Modem + Radio chip for Dongles/IoTs/Mobile Edge/Satcom
  - Key IPs : 5G Modem Baseband + RF, Processor
  - Products: Dongles / Edge devices /Satcom IOT

- Multi-radio chip Micro-controller for Gateways
  - Key IPs: Microcontroller, Multi-Radio Baseband + RF, Analog
  - Key Radio IPs: NB-IoT/ZigBee/LoRa/Wi-Fy (BaseBand & RF)
  - Products: IoT, Industry 4.0 and Edge Gateway

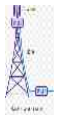
Telecom Chipset Mission

Recommended Chipsets for Network Equipment

➢ Network Infrastructure Equipment

- xPON OLT chips for fiber broadband infra equipment
  - Key IPs: Serdes, xPON MAC, Switch Fabric
  - Products: Broadband Head-end Units

- Digital Signal Processor for Radio and Baseband Processing
  - Key IPs : Architecture, Vector ALU/FPU, FFT, LDPC cores
  - Products: Wireless infra 5G/6G RRH/BBU, RU/DU



- L2/L3 Packet Switch chipsets with Embedded Processor
  - Key IPs: Serdes/MACs, DPI engine, Lookup engine, Schedulers
  - Products: Campus and Enterprise/DataCenter Networks

Impact Analysis for the recommended Chip-Sets

Telecom Chips of National Importance								
ChipSet	Product/Application	Volume	Complexity	Tech Node	Dev Cost	Selling Price $ (range)		Indian Biz
		M Units			$M	Low (75%)	High(25%)	6% of Global
x-PON-ONT	Home	150	Medium-Low	12 nm	20	3	30	88
WiFi-6/6E/7	Home/Outdoor CPE	500	Medium	12 nm	80	3	60	518
5G Modem + Radio	IoT/Auto/Meter for UE	1000	High	7 nm	80	5	25	600
Microcontroller + Multi Radio	Edge/IoT	500	Medium-Low	12 nm	25	10	30	450
x-PON-OLT	Exchange/CO	10	Medium	12 nm	25	50	80	35
Configurable-DSP	5G/6G Baseband/SDR	10	High	12 nm	45	100	150	68
L2-L3 Packet Processor	Switches/Routers	20	Medium	12 nm	25	20	150	63
Total		**2190**			**300**			**1820**

- *The proposed chipsets have an estimated annual demand of $1.82 Billion in India*
  - *Currently India imports around $10 Bn of telecom equipment*
  - *Semiconductor components would at least be 40% i.e., ~$4 Billion. This number will only go up in future*
  - *After success in India, we can sell the same chips internationally and the revenue potential will be very high*
- *The total development cost is estimated to be $300 Million across all chipsets*
  - *Average of $50 Mn per chip, including development cost as well as commercialization incentives*

Key Recommendation Policy Support

➢ Key Recommendations (1 of 2)

- Initially focus on developing upto 6 chips
  - 3 chips to be used for CPE/Customer Devices
  - 3 chips to be used in Network Infrastructure equipment
  - Facilitate development and ownership of maximum IP content in the chips to make India really Atmanirbhar
- Overall approach should be to focus on development as well as successful commercialization and initial procurement.
  - Aggregate the government demand to offer the initial procurement commitment
- Allocate a budget of $300 Million for the Telecom Chipset Mission
  - Covers development costs as well as commercialization incentives
- Augment MeitY's DLI scheme for semiconductor design and amplify it using TDDF from DoT
  - GoI should fund 75% or more of the total chip development expense, depending on track record and size of the company
  - We need to tweak existing DoT and MeitY's policies for smoother implementation, including milestone based funding with upto 20% advance and time-bound execution (committee-to-funds in <6 months)
  - Provide free access to EDA tools as part of National EDA grid

Next Steps For Implementation

✓ **GoI-DoT to issue an RFP inviting qualified bidders to submit Chip Development proposals for the focused chips**

- DoT should only specify high-level requirements & use cases
  - The selection of process node and architecture should be left to the implementer
- Bidders to propose detailed proposal focusing on
  - Architecture and Detailed Technical specifications
  - Chip Development cost & Funding Requirement, in line with the functional complexities of chipset
  - Details of anchor customer as well as manufacturing partners, when possible
- Ensure time bound completion for the approval process
- Development-cum-Procurement RFP should be offered

✓ **Enable Technical collaborations with systems companies who serve as anchor customers**

- PLI beneficiaries could be prospective Indian OEM customers
- System OEM can either be domestic or a foreign telecom equipment/device OEMs

✓ **Global business collaborations for faster development and marketing of the chips**

- Licensing, Co-Creation of IPs and marketing agreement with strategic partners who are already making other parts of semiconductors for telecom equipment.
- IP Licensing in lieu of equity or royally from the start-ups who have developed similar IPs for other product segments.

✓ **Incremental augmentation of existing DoT and MeitY's policies**

- Existing PMI policies should be augmented to promote use of domestic chipsets, where available
- Aggregate demand for commercialization (USOF, Defence, Power, Railways, Space, Broadcast etc.) and offer initial procurement commitment through current government projects; enable market access in strategic areas
- Incentivize private telcos to buy PMI products with high domestic value addition

Key Recommendation Policy Support

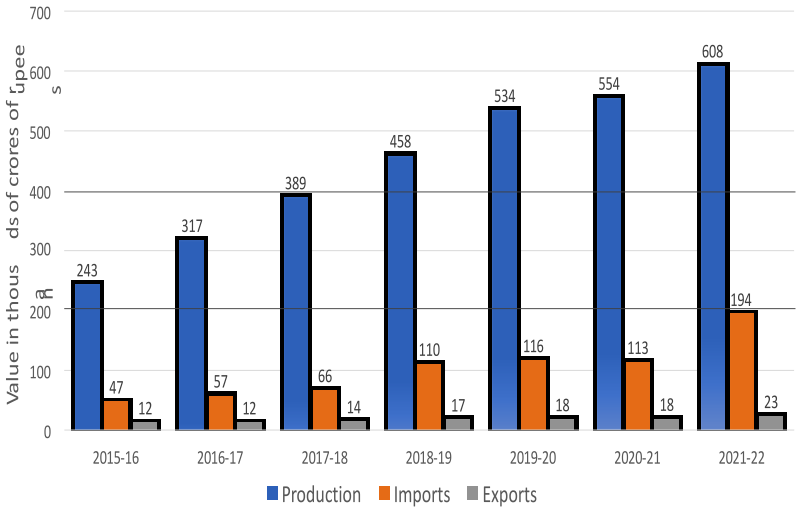
➢ Key Recommendations (2 of 2)

- Provide 20% Deployment Incentive (capped at Rs 200 crore per chipset) to offset initial cost handicap
  - Creates market pull against incumbents
  - No taxes of any kind (custom duties etc.) on Indian chips until a certain critical volume is reached
  - This incentive may be given to any Indian telecom chip with Indian IPs, even the suo-moto designed ones
  - Mandate/Incentivize private operators to deploy Indian products that have high domestic content (preferably with Indian chips)
- Aggregate India-needs for chip manufacturing and common negotiation with Fabs
  - Establish dialog with global players to provide manufacturing support (wafers, MPW, Masks, ATMP)
  - Facilitate IP Licensing of common building blocks that go in a SoC
- All Indian companies, irrespective of size, should be eligible
  - Focus is on selecting the best candidate who can deliver results
  - Academia can be involved in providing their expertise in areas like algorithms and architectures
- After the initial handholding, industry can step-up on its own, once we have established a few successes

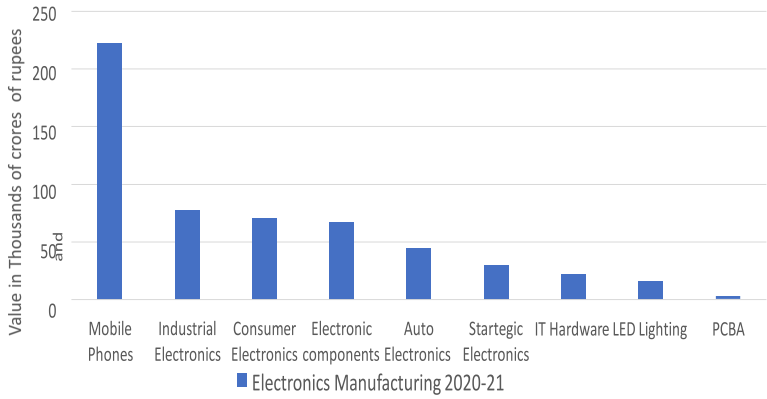
Task Force on Telecom Components

Building a resilient component ecosystem for telecom manufacturing

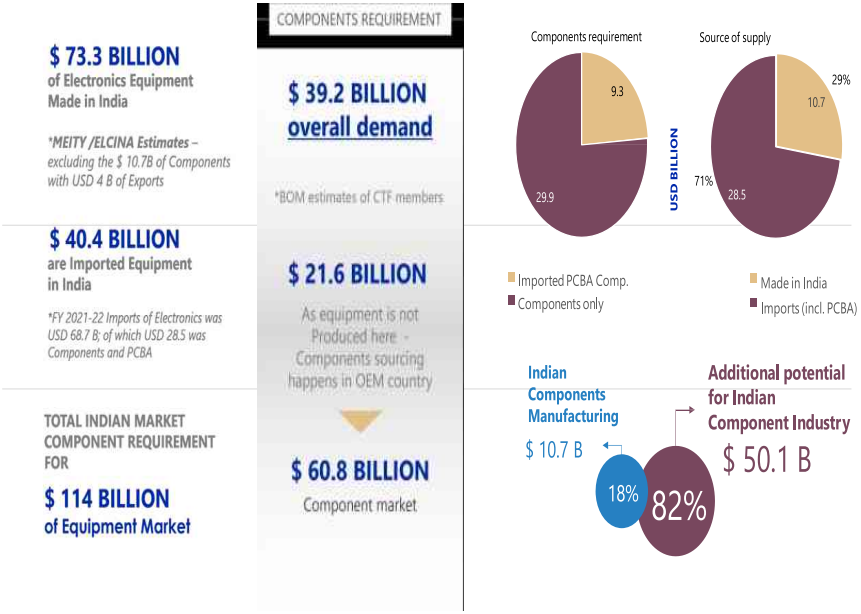
Electronics Production and Components Imports Versus Exports in India



Electronics Manufacturing in 2020-21



Indian Electronics component Industry in FY 2021-22



Key Pain Points

- Domestic telecom manufacturing/research sector facing heat due to component shortage thus disrupting manufacturing
- High lead time in import of critical telecom electronics components, (Post covid, lead time for procurement of many critical components have gone up to two years)
- Cost estimation, delivery forecasting etc. becomes unreliable due to dependency on imports and high lead time
- OEMs have to pay LD (late delivery) charges and the reputation of Indian market takes a hit.
- Differential pricing of these components compared to other global manufacturers
- Logistics issues like customs delay etc.
- No restriction on imports of unmarked components leading to imports at lower prices leading to cost disability.

Breakup of spends and requirements in the value chain

Passives, PCBs and RF devices are easier to start than ICs

Commodity	% Spend
Integrated Circuits (ICs) & Memory modules	40% to 50% & 6% to 8%
Passives (Resistors, Caps, Inductors, Magnetics)	18% to 20%
PCB	8% to 10%
RF Devices	5% to 6%

Key Recommendations

Medium Term:

- RF and Passive components can be manufactured in India. These type of components are easy to localize with limited investment.
- We have PLI scheme for Electronics component Manufacturers, very few suppliers only committed to invest till now (i.e. Walsin, TDK & Vishay)
- There are many Japanese supplier like Murata, Yageo, TaiyoYuden, Panasonic, NIC etc. We can work with friendly countries like Japan to establish local manufacturing for these passives/RF.
- Most of the chip manufacturers are using Indian talent to design Chips and have their design team already established in India. Encourage Fabless Design in India through specific schemes for specific chips
- Engage with chip companies like TI, Microchip, Infineon etc. to set up its ATMP in India . JVs for ATMP with the help of the government
- Normally Telecom products require more than 12 layers PCBs. Most of the current local supplier don't have technical capabilities & capacity to meet the quality requirement. Also they are not cost competitive to supply high complex boards.
- PCB domestic manufacturing capabilities to be strengthened to fabricate complex PCBs. Infrastructure requirements like heavy water plants, tightly controlled lab environments need to be built on large scale.
- Work with other global supplier like Mutlex, TTM to establish their PCB manufacturing in India

Key Recommendations

Short Term:

- Liberalised PLI for components and ATMP (assembly, testing, marking, and packaging) units
- Focus with friendly countries to set up JVs for Passive manufacturing under PLI
- There is a need of distributor warehouses of components in India (on similar lines as Singapore, Hong Kong etc.).
- Distributors need to be promoted to open up warehouses (with facilities of testing, packaging, logistics etc.) through incentives, and /or Policy measures (liberalization of FTWZ), providing better logistics, reduction of custom delays etc.
- Revise our FTWZ trade policies and relax it to encourage Free trade from FTWZ.
- FTWZ also can support as distribution hub for local manufacturing and also can cater Global requirement from India.
- Eventually become electronics hub similar to Dubai, Singapore, Malaysia & Hong Kong .

Key Recommendations

Long Term:

- Set up Fabs in India with JV
- End to end manufacturing from wafer to ICs

PLI for Components

Sl	Scheme	Dept/Ministry	Investment Threshold Range	Incentives to Investment Ratio
1	PLI 1 (Mobile Phones Global companies)	MeitY	INR 1000 Cr	347%
2	PLI 1 (Mobile Phones Domestic companies)	MeitY	INR 200 Cr	283%
3	PLI 1 (Specified Components)	MeitY	INR 100 Cr	80%
4	PLI 2 (Specified Components)	MeitY	INR 25 Cr	30%
5	PLI for WG & LED – 6 Categories of AC, 4 Categories of LED	DPIIT	INR 10-600 Cr	64%-99%
6	PLI for Telecom and networking – Total 2 Categories	DoT	INR 10-100 Cr	45%-48%
7	PLI for IT hardware – Total 2 Categories	MeitY	INR 20-500 Cr	75%-83%

❑Investment limit and Capital to Output Ratio is high (1:4) for small SME's in current PLI Policy (round 2)

Recommendations for Components

- **Flexible Investment threshold** so that Small, Medium and Large, all three categories of Investors/Manufacturers can participate. Investment threshold to be kept as low as Rs 15 Crore (instead of current 25) for SMEs and Rs 100 Crore for large companies
- **Realistic Capital Output Ratio** of **1:2** (threshold level) instead of current 1:4 gives opportunity for those companies (especially the smaller ones) to get opportunity to benefit from PLI Scheme.
- **Longer gestation period of up to 2 years** (to start commercial operations), another 4 years for earning incentive post gestation period.
- **Higher Incentive is** recommended for the components to encourage investment. It is suggested that **PLI of 7-9 % should be considered** for attracting better investment
- In addition to PLI, **Special provision of ELI (Employment Linked Incentive)** for companies for adding new employees in their work force. Suggested ELI upto 50% (subject to ceiling of Rs 7500 per employee/month and an overall ceiling) of employee cost for first 3 years.

Addition of components in PLI

PLI Head	Recommended Components	Est Total Demand (incl Exports) - INR Cr	Est Import %	Important Items for SPECS & PLI.
Passive Components	Ferrites	1,697	70%	Max Investment Rs 500 Cr in 10 Units (Domestic manufacturing unit). Current Import Percentage is ~65% of Demand
	Magnets	691	70%	
Electromechanical components	Transformers (less than 1KVA)	2485	60%	Max Investment Rs 1000 Cr in 10-15 Units. Current Import Percentage is 55-60% of Demand
	Inductors	3,616	60%	
	Coils	987	60%	
	Relays	1194	70%	
	Switches	10987	70%	
	Micro Motors	2251	80%	
DISCREET SEMICONDUCTORS & ATMP	SSD & USB Storage	16021	90%	Max Investment Rs 1500 Cr in 8-10 Units. Current Import Percentage is >80% of Demand. Sensors are very critical. Higher investment possible

Raw Material	End Component
BOPP Film, Metalized Film, Lead Wire, Plastic Cans & Cases	Capacitors
Ferrite Powder and Raw Ferrites	Ferrites & Magnets
Lead Frame, Molding Components, Bonding Wire (Gold, Copper & Aluminium), Dice Adhesive, Etched and Formed Foil, Electrolytes, Tissue Paper	SSD & USB Storage, IR LED(for CCTV and other applications),

- More Components/raw materials in PLI eligible List needs to be added (in addition to the existing components covered under PLI round 2) . Raw material to be supplied to PLI holders for incentive.

FTWZ (Free Trade and Warehousing Zone)

Background:

- SEZ is for manufacturing and FTWZ (from 2016) is for trading
- FTWZ Territory - As per Section 53 of SEZ Act, 2006. It is a deemed foreign territory within the geography of India for the purpose of tariff and trade
- Currently, there are only a few FTWZ (Free Trade and Warehousing Zone. 8 approved, 3 operational), which is a special category of Special Economic Zone (SEZ), set up to create infrastructure to facilitate Global warehousing and trading of goods and services with freedom to carry out trade transactions.
- SEZs are funded by the government. There is no investment made by the Government in these FTWZs.

FTWZ (Free Trade and Warehousing Zone)

Background:

- The objective of FTWZ in India should be to make India a logistics hub, like the free zones in Dubai, Singapore, China, and the Netherlands (Rotterdam).
- Currently, there is a Dual risk of 'Exchange rate' as well as 'variation in the price' at which the warehoused components have to be sold.
- This is due to market dynamics (eg. Goods becoming obsolete, less or high demand) and order quantity-based pricing. The final selling prices could often be considerably lower or higher compared to the import price.
- The importer or exporters warehouses the goods in FTWZ. However at the time of exit or clearance, the value of the goods changes as per market situation, demand, supply, urgency of material, etc.
- In such a situation the valuation method is not clearly described in the law thereby leading to inconsistent calculations of the Customs duty, which impacts the trade considerably.

Action Recommended:

- In the current Customs Notification - No. Notification No. 94/2007 - Customs (N.T.) 10th day of October, 2007. and Notification No. 95/2007-Customs (N.T.) 10th day of October, 2007. , These rules have to be simplified.
- The Customs Valuation (Determination of Value of Imported Goods) Rules, 2007 and Customs Valuation (Determination of Value of Exported Goods) Rules, 2007 may be revised for determination of under the **Section 14 of Customs Act, 1962** i.e. based on the transaction value.
- This is important for keeping costs competitive and the supply chain efficient. **Duty on transaction value rather than on historical/market values**

Recommended Action:

- **Differentiation of FTWZ from SEZ is required.** SEZ is for manufacturing and FTWZ is for trading . There needs to be separate Rule set for FTWZ.
- **Instruction No 60** - Clarifies that FTWZ Unit can hold goods on account of Foreign Supplier and buyer and DTA Supplier and Buyer.
  - **It is proposed to insert as 2(ea) in the SEZ Rules**:
  - (ea) *"A 'client' means a person who utilizes the services of an FTWZ Unit as per its authorized operations and shall include an Indian Buyer, Indian Supplier, Foreign Buyer and Foreign Supplier.*
  - This would help in trading activity (attract the global trader in Telecom Component)
- **Proposed Rule 18(5) (It is proposed to insert)**
  - *The Units in Free Trade and Warehousing Zones in other Special Economic Zone, shall be allowed to hold the goods on its own account and, or on account of its Clients for dispatches as per the Client's instructions and shall be allowed for trading with or without labelling, packing or re-packing without any processing:*
  - This would help in trading activity- foreign currency intra traction (transaction on sale with repacking)

Recommended Action:

- **Proposed Proviso 22 (2) (It is proposed to insert)**
  - *Provided that in case of a Unit in a Free Trade and Warehousing Zone, the Unit shall maintain proper accounts, financial year wise, separately, for goods received on its own account and on account of each of its Clients. (Breaking of consignment to sell to other countries – currently not allowed)*

    This would help in no separate bond (port to FTWZ)
- **Proposed Proviso Rule 23 (It is proposed to insert)**
  - *Provided that supplies from the Domestic Tariff Area to a Unit in a Free Trade Warehousing Zone on its own account or on account of its client shall be eligible for export benefits as admissible under the Foreign Trade Policy. (consignment from different sources – imported and domestic currently can not club the transaction currently)*
  - **This would help in export benefit credit to unit(international trader)**

Recommended Action:

Rule 29 Trans-shipment Procedure **(It is proposed to insert) –** 29 (9).

Direct delivery to a Unit in a Free Trade and Warehousing Zone receiving the Goods, on its own account or on account of its clients shall be permitted from ports or airports or land customs stations or inland container depots or container freight station or other Special Economic Zones including all imports by courier or by post under the transshipment procedure as prescribed under the Goods Imported (Conditions of Transshipment), Regulations, 1995 as amended.

I. Provided that the bond-cum - LUT executed under rule 22 by the unit will also be used for the purpose of transshipment of goods imported by Unit or its client.
II. Provided that where the Goods are to be used by a Unit in a Free Trade and Warehousing Zone for its own use a Bill of Entry for Home Consumption shall be filed by the Unit with the Authorized Officer

- This would help in procedure to bring the goods
- Current delivery is not allowed (letter undertaking is been given to custom)

Recommended Action :

Rule 48 Procedure for Sale in Domestic Tariff Area — ***(It is proposed to insert)***

- *Provided where goods procured from Domestic Tariff Area by a Unit in a Free Trade and Warehousing Zone on its own account or on account of its client, are returned back to the Domestic Tariff Area supplier who originally supplied the goods, the said goods will be treated as back to town after recovery/ repayment of all export benefits availed by the Unit or Client.*

- This would help in ease of doing business in FTWZ (DTA unit and international traders)
- DTA is getting export benefit, but if any shipment has to be send back , returning of the good is not allowed currently , and the

*DTA unit Supplier - No IGST/export back to DTA

Recommended Action:

Addition of 'ship and debit' agreements: Currently the duty is calculated on a value at import only and not on the sale value

- **Ship and debit** is the term for an agreement where specific products are distributed (shipped) to customers at a lower price than usual. The difference claimed (debited) from the supplier to protect distributor margins.
- Ship and debit agreement enables suppliers to sell their goods at a uniform price
- Distributors can react to local market conditions and lower the price without the risk of losing their profit margin.
- Once the sale is made, distributors can debit the supplier who usually credits the amount back as a rebate.

Subsidy under SPECS Scheme for Components

Background:

- SPECS (*Scheme for Promotion of Manufacturing of Electronic Components and Semiconductors (SPECS)*) to strengthen value chain for the manufacturing of electronic products has been very successful and has attracted several investments.
- The tenure of SPECS is concluding in March 2023.
- Proposed investment threshold of Rs. 75 Crores for "Mechanics" (including not only TELECOM EQUIPMENT but other high-volume areas such as Mobiles, consumer products, IT products etc.) is too high for component Industry.

Recommendations:

Extension and Expansion of SPECS Scheme

a. The current SPECS Scheme should be extended for receiving applications by **minimum One Year up to March 2024 and further provision for extension up to March 2025**

b. To achieve the target of US$ 24 bn for components, investment of US$ 8Bn is required. To incentivize this investment, we need **additional allocation of US$ 2 Bn (25% of $8Bn) or about INR 16,000 Crores under SPECS Scheme**. This amount may be budgeted over a period of next 4 years.

Recommended Action:

- **Category D under SPECS- Mechanics**
  a. The proposed investment threshold of Rs. 75 Crores for "Mechanics" is too high and will preclude domestic investments and perpetuate import dependence
  b. Category D, which covers Mechanics (Plastics & Metal Parts) for Electronic Applications can be changed to Rs 10 Crores which is realistic
- **Eligibility of specific, single use and critical inputs /raw materials for manufacture**
  a. Critical raw material by way of its quality and technology requirements which is specific to manufacturing a
  b. component (or component type) to be included in the list of eligible items covered under SPECS.

  The threshold for the raw material may be kept same as that for the component.
  c. Some good examples of such raw materials which can be added are:
    - Capacitor Grade BOPP Film and Metalized Film for Capacitors
    - Lead wire with electroplating, chemical deposition etc.

Recommended Action:

- **Differences in SPECS scheme vs ISM**
  - SPECS scheme allowed 25% subsidy on equipment & Utilities, While ISM scheme allows 50% subsidy on equipment, utilities & building.
  - Similar subsidy be extended to ATMP applicants who applied in the SPECS scheme.
  - Else, they will be at a disadvantage compared to new entrants and higher incentives being offered in other countries.

Specific recommendations for ATMP Units under SPECS

Background:

- PLI approvals for ATMP units were given by MEITY in October 2020 with first year threshold as follows:
  - Investment threshold as Rs. 25Cr. in the first year going up to Rs. 100 Cr. in 4 years
  - Revenue threshold at Rs. 100 Cr. going up to Rs. 600 Cr. in 5th years

Recommended Action:

- These should be modified considering gestation period to set up ATMP plant as 24 to 30 months.
- Need to be allowed longer gestation period of minimum 24 months for commencing production and the threshold for revenue for 1st year
- Output – Revenue threshold - INR 100 Cr. threshold in the first year be reduced to INR 25 Cr. going up to INR 50 Cr, INR 100 Cr, INR 200 Cr and INR 300 Cr in 2nd, 3rd, 4th and 5th yr respectively.

Incentivization of use of domestic components in Telecom Equipment

Background:

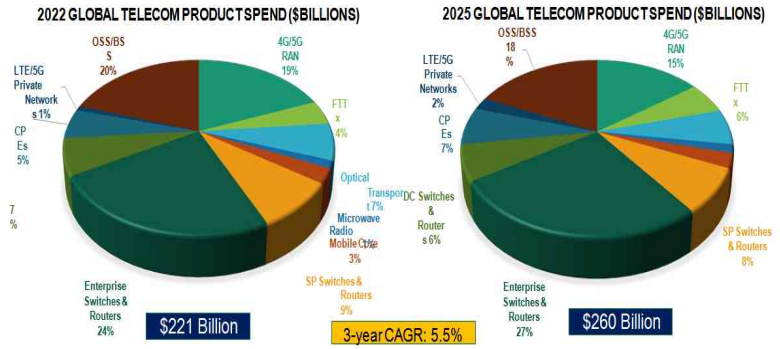
- Global companies do not include local components in their BoM even if these are available locally and they continue to list the foreign components only.
- This eliminates the opportunity for local component manufacturers to become suppliers.

Recommended Action:

- Preference to those equipment manufacturers who are using **at least 15-20% of local components** (locally manufactured and not those which are sourced from distribution companies) under Make in India. A separate class of supplier under MII.
- DCLI (Domestic components led incentive) scheme to provide additional incentive to PLI holders similar to DLI scheme.

New Opportunities in Telecom Equipment

Global Telecom Product Demand & Forecast



Estimated India Spend in 2022: $11 Billion

Estimated India Spend in 2025: $16 Billion

Majority of India's domestic requirements being met using imported equipment

Global ICT Market Forecast 2026

GLOBAL ICT MARKET forecasts FOR 2026				
Type of Market	Compound Annual Growth Rate % CAGR	Forecast Value in US $ Billion for 2026	Indian Forecast Pessimistic side 5% of Global and in Rs. Crores	Indian Forecast Pessimistic side 10% of Global in Rs. Crores
5G Industrial IOT Market	79.1	15.7	6492	12984
5G IoT Market	73.0	40.2	16623	33245
5G Security Market	44.3	5.2	2161	4322
5G Services Market	25.3	264.2	109266	218531
A2P (Application to Person) Messaging Market	3.2	75.1	31066	62132
Agriculture Analytics Market	12.2	1.6	650	1299
Artificial Intelligence (AI) Governance Market	65.5	1.0	420	840
Artificial Intelligence (AI) Market	39.7	309.6	128020	256039
Automotive Ethernet Market	20.9	5.6	2316	4631
Big Data Security Market	11	35.3	14597	29193
Blockchain IOT Market	45.1	2.4	996	1992
Blockchain Market	67.3	66.4	27464	54928
Blockchain supply market	53.2	3.3	1353	2706
Business Process Automation Market	12.2	19.6	8105	16209
Chatbot Market	23.5	10.5	4342	8684
Cloud (Bare Metal) Market	24.1	16.4	6781	13563
Cloud Computing Market	17.5	977.7	404286	808572
Cloud Professional Services	17.2	37.0	15300	30599
Cloud Security Management Market	14.4	9.0	3722	7443
Cloud TV Market	21.9	4.2	1737	3473

Global ICT Market Forecast 2026

Type of Market	*Annual Growth Rate CAGR*	*Forecast Value in US $ % Billion for 2026*	*Indian Forecast Pessimistic side 5% of Global and in Rs. Crores*	*Indian Forecast Pessimistic side 10% of Global in Rs. Crores*
Customer Communications Market	*11.2*	*2.2*	*910*	*1819*
Customer Journey Analytics Market	*20.3*	*25.1*	*10379*	*20758*
Customer Success Platforms Market	*20.4*	*2.5*	*1034*	*2068*
Data Center (Green) Market	*19.1*	*140.3*	*58014*	*116028*
Data Centric Security Market	*23.1*	*9.8*	*4052*	*8105*
Data Fabric Market	*26.3*	*4.2*	*1737*	*3473*
Data Visualization Tools Market	*11.6*	*10.2*	*4218*	*8435*
DDI Market	*15.9*	*0.8*	*346*	*691*
Digital Identity Solutions Market	*17.3*	*35.8*	*14794*	*29587*
Digital Workplace Market	*21.3*	*72.2*	*29855*	*59709*
Edge AI Software Market	*20.8*	*1.8*	*759*	*1518*
Email Encryption Market	*23.1*	*11.8*	*4879*	*9759*
Emotion Detection and Recogntion Market	*11.3*	*37.1*	*15341*	*30682*
Enterprise Architecture Tools Market	*4.4*	*1.3*	*531*	*1061*
Enterprise Asset Management Market	*8.7*	*5.5*	*2274*	*4549*
Enterprise Collaboration Market	*9.2*	*57.4*	*23717*	*47435*
Enterprise Mobility management Market	*25.1*	*63.6*	*26299*	*52597*
Environment, Health, and Safety (EHS) Market	*10.2*	*10.4*	*4319*	*8637*
Event Management Software Market	*10.0*	*6.4*	*2646*	*5293*
GNSS Simulator Market	*9.3*	*0.2*	*75*	*149*
IIoT Platform Market	*14.8*	*13.7*	*5665*	*11330*

Based on the requirement of different Telecom equipment product in various sectors, these products may be devided in two categories:

Product areas where India already has good domestic base and this needs to be encouraged and scaled-up using policies such as PMI, Export promotion etc	New product areas that we should encourage product development, via funding, grants etc.
o 4G Equipment: Core and eNodeB	o 5G & 6G Equipment: Core and gNodeB
o Optical Equipment: DWDM, OTN, SDH	o Swicthing Equipment: L2 & L3 Switches for DC
o Swicthing Equipment: L2 & L3 Switches	o Routing Equipment: IP-MPLS or MPLS-TP beyong 4 Tb
o Access Products FTTX: OLT & ONT	
o Radio Equipment: WiFi & other SDR	
o Satellite based communication sytems: Modems	
o Routing Equipment: IP-MPLS, SDWAN or MPLS-TP	
o Enterprise Equipment: PBX and IP Phones	
o Surveillance Equipment: Cameras & Software	
o Fiber Optical Cable	

Recommendations
New Telecom Equipment Opportunities

Recommendations for enabling significant oppoitunities of domestic product required for India requirements and exports as well are broadly categorized under following headings:

- *Market Access,*
- *Open New Opportunities*
- *Testing & Standardization*
- *Build Champions*

- *International accreditation:*

India should have reciprocal arrangement with other nations in accepting certificates of conformance issued by other countries. This will help the Indian OEMs to save hefty costs of retesting, time and effort.

- *Trusted products :*

Enhance the scope to include all telecom products including those used in enterprise networks where domestic control exists and call them trusted sources. All public procurement to happen from trusted sources.

- *Consortium*

Consortium based development and approach can be game changer for Indian Global branding

1. Market Access

Government Support is required to ensure Market Access at domestic turf

- *DOT to notify the PMI order with Class – I list of products having sufficient capacity and competition*
- *Guidelines in PMI order to take care of false declaration in tenders and GEM by bidders*
- *DOT/ TEC must come up with SOP to investigate VA complaints and action against defaulters*
- *To make ministries aware about MII policy, DPIIT may be asked to publish domestic and foreign procurement for each FY in consultation with each line ministry*
- *DPIIT may be requested to publish SOP to handle Exemptions by other line ministry without consulting Nodal Ministry*
- *PSU who are doing a SI job must also ensure compliance to PMI Order*
- *Telcos should be motivated to buy Domestic in line with National Digital Communication Policy*
- *Mega projects including those funded by multilateral agencies to be Included in PMI framework*
- *Class – I products must be made mandatory in LOC and other grand in aid projects funded by Indian Govt.*

2. Open New Opportunities

- *Identify Low hanging fruits & reserve them for domestic designs only*
  - *Simple communication subsystems like L2, L3 switches, IP-MPLS Routers, Wi Fi routers, DWDM/OTN products, VoIP based communication systems, IP Phones, NMS, GIS based fibre inventory, work force management tools, Billing solutions, accounting solutions, Smart Meters, Smart poles, Smart city applications, Smart parking, Surveillance, Camera systems, Video Conferencing, and all essentially software intensive where India has strength are low hanging fruits These products must be reserved for only domestic designed equipment manufacturers.*
- *Mission critical and security sensitive projects should be implemented using only domestic Products:*
- *Bharatnet Phase 3 should be reserved for domestic products:*
  - *DOT must reserve the Bhartnet Phase 3 for domestic Class – I manufacturers for both state-led and central-led implementation*
  - *DOT must communicate the specs for all the equipment well in advance so that domestic OEM can align the design and availability of product as per specs*
  - *Confirmation to Standard Technical Specification defined in TEC GR*
  - *Compliance to PMI is very important*
- *Reserve issue of spectrum for specific CNPN for domestic designed products*

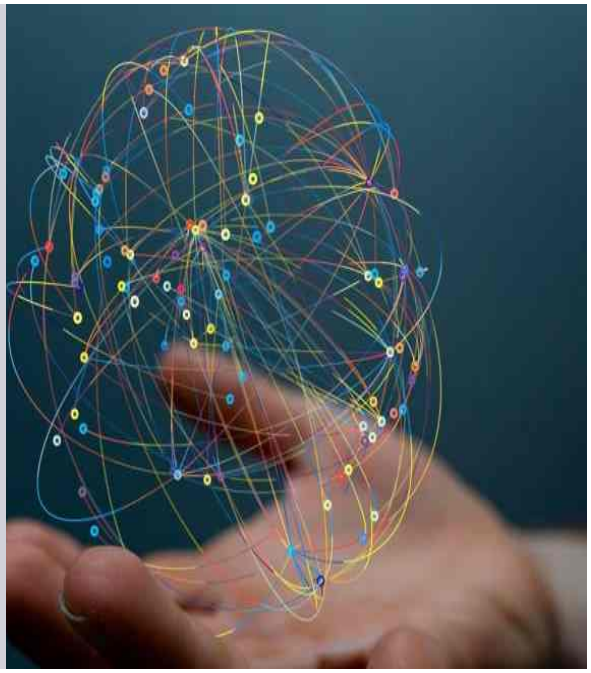
3. Testing & Standardization

- *Common National Telecom Standard:*
  - *TEC GR must be a common national standard to be followed for all Telecom products across different ministry may need specialized or secure communication. For the same TEC must involve other ministries and PSU in Sub-DCC and DCC meeting of GR.*
- *Handling Standard Essential Patents*
  - *DOT must set up a cell at DOT in consultation with Ministry of Commerce, MEA, DPIIT, Finance, Law to make guidelines, negotiate globally, take up the disputes for Indian design led domestic companies rather than leaving it to individual companies. Sovern Paten Fund may also be created to support that*
- *International accreditation:*
  - *India should have reciprocal arrangement with other nations in accepting certificates of conformance issued by other countries. This will help the Indian OEMs to save hefty costs of retesting, time and effort*
- *Trusted products :*
  - *Enhance the scope to include all telecom products including those used in enterprise networks where domestic control exists and call them trusted sources. All public procurement to happen from trusted sources.*

4. Build Champions

- *Consolidate Technology*
  - *Select two or maximum three companies per technology, focus on them and help them become product champions (ODM) rather than extending sub optimal support to many companies.*
  - *Encourage other design companies to adopt those technologies and productize.*
  - *Product champions should be adequately and regularly funded rather than intermittently so that they build complete ecosystem of products for their given market.*
- *Monetize technologies developed on public money.*
  - *Technologies developed in Govt labs should be opened like "open source" at least for Indian design companies for adoption.*
  - *A mechanism can be set up to pay some for a royalty on sales that goes to inventors as a motivation for them to help successful commercialization.*
  - *There are technologies developed by CDOT, CDAC, Sameer, IITs and IISc that need to be monetized.*

Thank You



GOVERNING COUNCIL 2023-24

VoICE GC 2023-24			
S. No.	Name	Company	Status
1	T S Ramu	Lekha Wireless	Chairman
2	Rajesh Tuli	Coral Telecom	Co-Chairman
3	Puneet Aggarwal	VVDN	Vice Chairman
4	Kumaran Venkatesh (Venki)	Astrome	Co Vice Chairman
5	Jitendra Chaudhury	HFCL	Secretary
6	Anjan Das	STL	Co Secretary
7	Prashant Jain	Tejas	Treasurer
8	Ravi Burman	Sensorise	Media PR & Member
9	Kannan Gaddam	Big Cat Wireless	Member
10	B K Raghu	Nivetti	Member
11	Raj Kumar Upadhyaya	CDOT	Member
12	Himamshu Khasnis	Signalchip & Signaltron	Member
13	Arnob Roy	Tejas (Saankya)	Member
14	Rahil	SSTPL	Member
15	Vimal Kumar'	TCS	Member

VoICE Expert Group 2023-24		
S. No.	Name	Company
1	Kumaran Venkatesh (Venki)	Astrome
2	Kannan Gaddam	Big Cat Wireless
3	Raj Kumar Upadhyaya	CDOT
4	Kushal Sakthivel	Chipspirit
5	Rajesh Tuli	Coral Telecom
6	Maloy Pancholi	DM Vista Electronics
7	Jitendra Chaudhury	HFCL
8	Rishi Ghare	India Networks
9	Yogesh Behl	Infinity Labs
10	Shobana U	Innogle
11	Rajesh Rai	ITI
12	Dhruv Kansal	Kenstel
13	TS Ramu	Lekha Wireless
14	Hardik Soni	Nav Tech Wireless
15	Abhijit Chaudhury	Niral Networks
16	BK Raghu	Nivetti
17	Chandra Kumar Chettiar	Optimus Logic
18	Manish	Resonous
19	Ravi Burman	Sensorise
20	Himamshu Khasnis	Signalchip & Signaltron
21	Sanjeev Sehgal	Sparsh
22	Rahil	SSTPL
23	Anjan Das	STL
24	T Sekaran	TCIL
25	Vimal Kumar'	TCS
26	Prashant Jain	Tejas
27	Arnob Roy	Tejas (Saankya)
28	Puneet Aggarwal	VVDN

Membership 2023-24:

There were 87 paid VoICE members as on 31.03.2024.

VoICE Paid Member for 2023_24
1. IACUITY TELCO SOLUTIONS PRIVATE LIMITED (XALTED INFORMATION SYSTEMS)
2. A5G NETWORKS PRIVATE LIMITED
3. AMANTYA TECHNOLOGIES PRIVATE LIMITE D
4. ASTROME TECHNOLOGIES PRIVATE LIMITED
5. ASTROMEDA SPACE PRIVATE LIMITED
6. AVALON TECHNOLOGY AND SERVICES PRIVATE LIMTED
7. BIGCAT WIRELESS PRIVATE LIMITED
8. CENTRE FOR DEVELOPMENT of TELEMATICS (CDOT)
9. CHIPSPIRIT TECHNOLOGIES PRIVATE LIMITED
10. CIENTRA TECHSOLUTION PRIVATE LIMITED
11. CLOUDPHOTONIX (INDIA) PRIVATE LIMITED
12. CORAL TELECOM LIMITED
13. COSGRID SYSTEMS PRIVATE LIMITED
14. DESIGN AND MANUFACTURING VISTA ELEC
15. DI3 INFOTECH LLP
16. DYOTIS TECHNOLOGIES PRIVATE LIMITED
17. EASIOFY SOLUTIONS PRIVATE LIMITED
18. ECHELON EDGE PRIVATE LIMITED
19. EVERESTIMS TECHNOLOGIES PRIVATE LIMTED
20. FINAARA TECHNOLOGIES
21. FOLLOWG GLOBAL PRIVATE LIMTED
22. GALORE NETWORKS PRIVATE LIMITED
23. GIGAYASA WIRELESS PRIVATE LIMITED
24. HFCL LIMITED
25. I D R B T
26. INDIO NETWORKS PRIVATE LIMITED
27. INFINITY LABS LIMITED
28. INNOGLE TECHNOLOGIES PRIVATE LIMITED
29. INNOMINDS SOFTWARE PRIVATE LIMITED
30. ITI LIMITED
31. KENSTEL NETWORKS PRIVATE LIMITED
32. LAVELLE NETWORKS PRIVATE LIMITED
33. LEKHA WIRELESS SOLUTIONS PVT LTD
34. LEPTON SOFTWARE EXPORT RESEARCH PRIVATE LIMITED
35. LINKEZ TECHNOLOGIES PRIVATE LIMITED
36. LIVNSENSE TECHNOLOGIES PRIVATE LIMITED
37. LYNK AMBUPOD PRIVATE LIMITED
38. MASHMARI CONSULTANTS PRIVATE LIMITED
39. MATRE COMSEC TECHNOLOGIES PRIVATE LIMITED
40. MATRIX SHELL TECHNOLOGIES PRIVATE LIMITED
41. MCLABS PRIVATE LIMITED

42. MEDAARA HEALTHCARE TECHNOLOGIES PRIVATE LIMITED
43. MERITECH SOFTWARE PRIVATE LIMITED
44. MENTHOSA SOLUTIONS PRIVATE LIMITED
45. NABSTRACT TECHNOLOGIES PRIVATE LIMITED
46. NAV WIRELESS TECHNOLOGIES PRIVATE LIMITED
47. NIMBLE VISION PRIVATE LIMITED
48. NIRAL NETWORKS PRIVATE LIMITEDD
49. NIVETTI SYSTEMS PRIVATE LIMITED
50. NMSWORKS SOFTWARE PRIVATE LIMITED
51. NUBEWELL NETWORKS PRIVATE LIMITED
52. OPTIMUSLOGIC SYSTEMS INDIA PRIVATE LIMITED
53. OPTM MEDIA SOLUTIONS PRIVATE LIMITED
54. PRECISION ELECTRONICS LIMITED
55. PRIYARAJA ELECTRONICS LIMITED
56. PROPHAZE TECHNOLOGIES PRIVATE LIMITED
57. QUNU LABS PRIVATE LIMITED
58. RESONOUS TECHNOLOGIES PRIVATE LIMITED
59. ROSMERTA TECHNOLOGIES LIMITED
60. SAANKHYA LABS PRIVATE LIMITED
61. SAMRIDDHI AUTOMATIONS PRIVATE LIMITED
62. SANCHAR TELESYSTEMS LIMITED
63. SCYTALE ALPHA PRIVATE LIMITED
64. SENSEGIZ TECHNOLOGIES PRIVATE LIMITED
65. SENSORISE SMART SOLUTIONS PRIVATE LIMITED
66. SHAURRYA TELESERVICES PRIVATE LIMITED
67. SIGNALCHIP INNOVATIONS PRIVATE LIMITED
68. SIGNALTRON SYSTEMS PRIVATE LIMITED
69. SMPS ELECTRIC CONTROL PRIVATE LIMITED
70. SNS SOFT TECH PRIVATE LIMITED
71. SOOKTHA CONSULTING PRIVATE LIMITED
72. SPARKYO TECHNOLOGY PRIVATE LIMITED (SYOOK)
73. STERLITE TECHNOLOGIES LIMITED
74. SUSAN FUTURE TECHNOLOGIES
75. TATA CONSULTANCY SERVICES LIMITED
76. TELCOLEARN SERVICES PRIVATE LIMITED
77. Telecommunications Consultants India Limited (TCIL)
78. TEJAS NETWORKS LIMITED
79. TIDAL WAVE TECHNOLOGIES PVT LTD
80. VELMENNI RESEARCH & DEVELOPMENT PRIVATE LIMITED
81. VVDN TECHNOLOGIES PRIVATE LIMITED
82. WISIG NETWORKS PRIVATE LIMITED
83. WIRELESS 4 SCALE LABORATORY PRIVATE LIMITED
84. XS INFOSOL PRIVATE LIMITED
85. XTEN NETWORKS INDIA PRIVATE LIMITED
86. WATERBOT ONLINE SOLUTIONS PRIVATE LIMITED
87. REBACA TECHNOLOGIES PRIVATE LIMITED

सत्यमेव जयते

CERTIFICATE OF REGISTRATION

UNDER SOCIETIES REGISTRATION ACT XXI OF 1860

Registration No # **329 / 2022**

I hereby certify **""VOICE OF INDIAN COMMUNICATION TECHNOLOGY ENTERPRISES "** located at:- **1005 10/F Indraprakash Building 21 Barakhamba Road, NEW DELHI** been registered UNDER SOCIETIES REGISTRATION ACT XXI OF 1860.

Given under my hand at Delhi on this **6th** day of **May 2022.**

Working Area: DELHI

Fee of Rs. 50/- Paid

The Registrar Firm & Society SDM(HQ) Distt. New Delhi

(Registrar New Delhi)

REGISTRAR OF SOCIETIES
DISTRICT New Delhi
GOVT. OF NCT OF DELHI

1. This document certifies registration under the Society Registration Act, 1860. However, any Govt. Department or any other Association/person may kindly make necessary verification (on their own) of the assets and liabilities of the society before entering into any contract/assignment with them.
2. The Society is not allowed to use translated and abbreviated/acronym version of its names.
3. The Society will use their name with prefixes, etc. as has been mentioned in this letter.
4. The Society will show its name along with the caption below that it is governed by private Body/Society where used.
5. The name may not be used for any commercial purpose or trade or business or profession, certification/affiliation/recognition to other organization etc.

CERTIFIED COPY

The Registrar Firm & Society SDM(HQ) Distt. New Delhi

आयकर विभाग
INCOME TAX DEPARTMENT

भारत सरकार
GOVT. OF INDIA

Oct 17, 2022

Ref.No.:883039306111751171/TAN/NEW

TO,
VOICE OF INDIAN COMMUNICATION TECHNOLOGY ENTERPRISES
1005 10//F
INDRAPRAKASH BUILDING
21 BARAKHAMBA ROAD
NEW DELHI
NEW DELHI-110001
DELHI
TEL. NO.:-0

Sir/Madam,
Sub : Allotment of Tax Deduction Account Number (TAN)
as per the Income Tax Act,1961.

Kindly refer to your application (Form 49B) dated Oct 07, 2022 for the allotment of Tax Deduction Account Number. In this connection, the following TAN has been issued to you/your organisation:

DELV25601C

Please quote the same in all TDS challans,TDS Certificates,TDS returns,Tax Collection at Source(TCS) returns as well as other documents pertaining to such transactions.

Quoting of TAN on all TDS returns and challans for payment of TDS is necessary to ensure credit of TDS paid by you and faster processing of TDS returns.

The above TAN should also be used as Tax Collections at Source Account Number under section 206CA.

Kindly note that it is mandatory to quote TAN while furnishing TDS returns, including e-TDS returns. e-TDS returns wi not be accepted if TAN is not quoted.

This supersedes all the Tax Deduction / Collection Account Number, alloted to you earlier.

Income Tax Department

This is a computer-generated letter. Hence, signature is not required.

Caution : Income Tax Department does not send e-mails regarding refunds and does not seek any taxpayer information like user name, password, details of ATM, bank accounts, credit cards, etc. Taxpayers are advised not to part with such information on the basis of emails.

(Amended)

सत्यमेव जयते

Government of India

Form GST REG-06

[See Rule 10(1)]

Registration Certificate

Registration Number :09AADTV7611F1ZC

1.	Legal Name	VOICE OF INDIAN COMMUNICATION TECHNOLOGY ENTERPRISES			
2.	Trade Name, if any	VOICE OF INDIAN COMMUNICATION TECHNOLOGY ENTERPRISES			
3.	Additional trade names, if any				
4.	Constitution of Business	Society/ Club/ Trust/ AOP			
5.	Address of Principal Place of Business	Building No./Flat No.: E-2 Name Of Premises/Building: VNK MERCHANDISE PVT LTD Road/Street: BLOCK E Locality/Sub Locality: Sector 63 City/Town/Village: Noida District: Gautambuddha Nagar State: Uttar Pradesh PIN Code: 201301			
6.	Date of Liability				
7.	Date of Validity	From	24/08/2022	To	Not Applicable
8.	Type of Registration	Regular			
9.	Particulars of Approving				
Signature					

Name	
Designation	
Jurisdictional Office	
Date of issue of Certificate	08/05/2024

Note: The registration certificate is required to be prominently displayed at all places of Business/Office(s) in the State.

This is a system generated digitally signed Registration Certificate issued based on the deemed approval of application on 08/05/2024 .

Goods and Services Tax

FORM NO. 10AC

(See rule 17A/11AA/2C)

Order for provisional approval

1	PAN	AADTV7611F
2	Name	VOICE OF INDIAN COMMUNICATION TECHNOLOGY ENTERPRISES
2a	Address	
	Flat/Door/Building	C-128
	Name of premises/Building/Village	MANSAROVAR GARDEN
	Road/Street/Post Office	Mansarover Garden S.O
	Area/Locality	Mansarover Garden
	Town/City/District	WEST DELHI
	State	Delhi
	Country	INDIA
	Pin Code/Zip Code	110015
3	Document Identification Number	AADTV7611FF2023101
4	Application Number	103960700310323
5	Unique Registration Number	AADTV7611FF20231
6	Section/sub-section/clause/sub-clause/proviso in which provisional approval is being granted	12-Clause (iv) of first proviso to sub-section (5) of section 80G
7	Date of provisional approval	07-04-2023
8	Assessment year or years for which the trust or institution is provisionally approved	From 07-04-2023 to AY 2025-2026
9	Order for provisional approval:	
	a. After considering the application of the applicant and the material available on record, the applicant is hereby granted provisional approval with effect from the assessment year mentioned at serial no 8 above subject to the conditions mentioned in row number 10.	
	b. The taxability, or otherwise, of the income of the applicant would be separately considered as per the provisions of the Income Tax Act, 1961.	
	c. This order is liable to be withdrawn by the prescribed authority if it is subsequently found that the activities of the applicant are not genuine or if they are not carried out in accordance with all or any of the conditions subject to which it is granted, if it is found that the applicant has obtained the provisional approval by fraud or misrepresentation of facts or it is found that the assessee has violated any condition prescribed in the Income Tax Act, 1961.	
10	The approval is granted subject to the following conditions:-	
	a. The registration granted under section 12AB or approval granted under clause (23C) of section 10 has not been cancelled by the Principal Commissioner or Commissioner for specified violations as mentioned in sub-section (4) of section 12AB or under fifteenth proviso to clause (23C) of section 10.	
	b. The form for approval in Form No. 10A has been duly filled in by providing all the information or document and no false or incorrect information or documents have been provided.	
	c. The institution or fund shall apply for approval within 6 months of commencement of the activities or at least 6 months prior to the expiry of period of provisional approval, whichever is earlier.	
	d. The registration granted under section 12AB or approval granted under clause (23C) of section 10 has not been cancelled by the Principal Commissioner or Commissioner as authorised by the Board for non-compliance of conditions mentioned in rule 2C or rule 17A of the Income- tax Rules, 1962.	
	Name and Designation of the Approving Authority	Principal Commissioner of Income Tax/ Commissioner of Income Tax (Digitally signed)

FORM NO. 10AC

(See rule 17A/11AA/2C)

Order for provisional registration

1	PAN	AADTV7611F
2	Name	VOICE OF INDIAN COMMUNICATION TECHNOLOGY ENTERPRISES
2a	Address	
	Flat/Door/Building	C-128
	Name of premises/Building/Village	MANSAROVAR GARDEN
	Road/Street/Post Office	Mansarover Garden S.O
	Area/Locality	Mansarover Garden
	Town/City/District	WEST DELHI
	State	Delhi
	Country	INDIA
	Pin Code/Zip Code	110015
3	Document Identification Number	AADTV7611FE2022101
4	Application Number	103774870310323
5	Unique Registration Number	AADTV7611FE20221
6	Section/sub-section/clause/sub-clause/proviso in which provisional registration is being granted	02-Sub clause (vi) of clause (ac) of sub-section (1) of section 12A
7	Date of provisional registration	07-04-2023
8	Assessment year or years for which the trust or institution is provisionally registered	From AY 2023-24 to AY 2025-2026
9	Order for provisional registration:	
	a. After considering the application of the applicant and the material available on record, the applicant is hereby granted provisional registration with effect from the assessment year mentioned at serial no 8 above subject to the conditions mentioned in row number 10.	
	b. The taxability, or otherwise, of the income of the applicant would be separately considered as per the provisions of the Income Tax Act, 1961.	
	c. This order is liable to be withdrawn by the prescribed authority if it is subsequently found that the activities of the applicant are not genuine or if they are not carried out in accordance with all or any of the conditions subject to which it is granted, if it is found that the applicant has obtained the provisional registration by fraud or misrepresentation of facts or it is found that the assessee has violated any condition prescribed in the Income Tax Act, 1961.	
10	The registration is granted subject to the following conditions:-	
	a. Any income derived from property held under trust, wholly or in part for charitable or religious purposes, shall not be applied, other than for the objects of the trust or institution.	
	b. The trust or institution shall not have income from profits and gains of business which is not incidental to the attainment of its objectives.	
	c. Separate books of account shall be maintained by such trust or institution in respect of the business which is incidental to the attainment of its objectives.	
	d. The trust or institution shall not apply any part of its income from the property held under a trust for private religious purposes, which does not enure for the benefit of the public.	
	e. The trust or institution established for charitable purpose created or established after the commencement of this Act, shall not apply any part of its income for the benefit of any particular religious community or caste.	
	f. No non-genuine activity shall be carried out by the trust or institution.	
	g. No such activity shall be carried on by the trust or institution which is not in accordance with all or any of the conditions subject to which it was registered.	
	h. The trust or institution shall comply with the requirement of any other law, as referred to in item (B) of sub-clause (i) of clause (b) of sub-section (1) of section 12AB.	
	i. The form for registration in Form No 10A has been duly filled in by providing all the information or documents and no false or incorrect information or documents have been provided.	
	j. The trust or institution shall apply for registration within 6 months of commencement of the activities or at least 6 months prior to the expiry of period of provisional registration, whichever is earlier.	
	k. Where the trust or institution has adopted or undertaken modifications of the objects which do not conform to the conditions of registration, the trust or institution shall make an application in the prescribed form and manner to the Principal Commissioner or Commissioner, for registration of the trust or institution, within a period of thirty days from the date of the said adoption or modification.	
	Name and Designation of the Registration Granting Authority	Principal Commissioner of Income Tax/ Commissioner of Income Tax (Digitally signed)

R S ROY & ASSOCIATES
CHARTERED ACCOUNTANTS
N-92,Kirti Nagar, New Delhi-110015
Call on : +91 9811029129, +91 9818476277
E-mail : rsroyca@gmail.com • rsroyassociates@rediffmail.com

UDIN: 24096368BKCJEZ9451

Independent Auditor's Report

To,
The Members
Voice Of Indian Communication
Technology Enterprises(VOICE)
Plot No 128 1st Floor BLK-C
Mansarowar Garden, Delhi 110015

Report on the Financial Statements

We have audited the accompanying financial statements of Voice Of Indian Communication Technology Enterprises("the society"),which comprise the Balance Sheet as at 31 March 2024, the Statement of Income and Expenditureand the Receipt and Payment Accountfor the period then ended.

Management's Responsibility for the Financial Statements

The Managementof society is responsible for the preparation of these financial statements that give a true and fair view of the financial position, financial performance in accordance with the accounting principles generally accepted in India. This responsibility also includes the maintenance of adequate accounting records in accordance with the provision of the Act for safeguarding of the assets of the society and for preventing and detecting the frauds and other irregularities• selection and application of appropriate accounting policies• making judgments and estimates that are reasonable and prudent• and design, implementation and maintenance of adequate internal financial controls, that were operating effectively for ensuring the accuracy and completeness of the accounting records, relevant to the preparation and presentation of the financial statements that give a true and fair view and are free from material misstatement, whetherdue to fraud or error

In preparing the financial statements, management is responsible for assessing the entity's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless management either intends to liquidate the entity or to cease operations, or has no realistic alternative but to do so.

Auditor's Responsibility

Our responsibility is to express an opinion on these financial statements based on our audit. We have taken into account the provisions of the Society Act, the accounting and auditing standards issued by ICAI and matters which are required to be included in the audit report under the provisions of the above Act and the Rules made thereunder. Those Standards require that we comply with ethical requirements and plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The proceduresselected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal financial control relevant to the society preparation of the financial statements that give true and fair view

R S ROY & ASSOCIATES
CHARTERED ACCOUNTANTS
N-92,Kirti Nagar, New Delhi-110015
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in order to design audit procedures that are appropriate in the circumstances. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of the accounting estimates made by management, as well as evaluating the overall presentation of the financial statements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion on the financial statements.

Opinion

In our opinion and to the best of our information and according to the explanations given to us, the aforesaid financial statements, give the information required by the Act in the manner so required and give a true and fair view in conformity with the accounting principles generally accepted in India•

a) in the case of the Balance Sheet, of the state of affairs of the Society as at March 31, 2024•
b) in the case of the Income and Expenditure Accounts, of the Excess of Income Over Expenditure for the year ended on that date• and
c) in the case of the Receipt and Payment Accounts, of the Receipt and payment for the year ended on that date.

we report that:

a) We have sought and obtained all the information and explanations which to the best of our knowledge and belief were necessary for the purposes of our audit.

b) In our opinion proper books of account as required by law have been kept by the Society so far as it appears from our examination of those books.

c) The Balance Sheet, the Statement of Income and Expenditure Account and Receipt and Payment Account dealt with by this Report are in agreement with the books of account.

For R S Roy & Associates
Chartered Accountants
(Firm Reg. No. 015770N)

(CA. Ram Savera Roy)
F.C.A
Partner
Membership No. 096368

Place: New Delhi
Dated: 08.08.2024

VOICE OF INDIAN COMMUNICATION TECHNOLOGY ENTERPRISES

Registration No # 329 /2022

Registered Office : PLOT NO 128 1ST FLOOR BLK-C, MANSAROWAR GARDEN, DELHI 110015, https://www.voiceofindiancomm.com

Email :- rkbhatnagar.dg.voice@gmail.com, Phone :-+91 93508 36103

Balance Sheet as on 31.03.2024

LIABILITIES	AMOUNTS (Rs)		ASSETS	AMOUNTS (Rs)	
Society Fund			Due From Members		2,98,772.40
Opening Balance	35,67,951.11				
Addition During the Year	10,68,558.23	46,36,509.34	Loan & Advances		
			Advance to Supplier	6,234.00	
Sundry Creditors			Goods & Service Tax	11,09,085.00	
TEPC		1,57,986.00	Tax Deducted at Sources	10,76,210.00	21,91,529.00
Advance From Members			Cash in Hand	12,960.00	
(As per Annexure I)		2,16,519.00	Cash with Bank	28,33,393.94	28,46,353.94
Provisions					
Provision for Audit Fees					
(Net of TDS)	2,70,000.00				
TDS Payable	55,641.00	3,25,641.00			
Total		**53,36,655.34**	**Total**		**53,36,655.34**

See accompanying notes to the financial statements -

As per our report of even date attached

For R S Roy and Associates

Chartered Accountants

FRN:-015770N

For VOICE OF INDIAN COMMUNICATION TECHNOLOGY ENTERPRISES

-Sd-	-Sd-	-Sd-	-Sd-	-Sd-
	Rakesh Kumar		JITENDER	
Ram Savera Roy	Bhatnagar	T.S RAMU	CHOUDHARY	Prashant Jain
Partner				
Membership No 096368	Director General	Chairman	Secretary	Treasurer

UDIN:-24096368BKCJEZ9451

Place : Delhi

Date : 08-AUGUST-2024

VOICE OF INDIAN COMMUNICATION TECHNOLOGY ENTERPRISES

Registration No # 329 /2022

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Income and Expenditure Account for the Year ending on 31.03.2024

EXPENDITURE	AMOUNTS (Rs)	INCOME	AMOUNTS (Rs)
Seminar & Conference Expenses	42,65,933.45	Receipt from Members	95,05,344.92
Honorarium Expenses	30,00,000.00		
Salary Expenses	3,76,000.00		
Activity Report Printing Expenses	3,19,450.00	Bank Interest	2,84,043.00
Audit Fees	3,00,000.00	Misc Receipts	3,146.10
Photography Expenses	49,000.00		
Printing & Stationery	15,540.00		
Software Expenses	20,000.00		
Bank Charges	99.59		
Computer Expenses	3,450.00		
Courier Expenses	7,867.00		
Conveyance Expenses	1,98,545.10		
Travelling Expenses	1,66,030.10		
Interest on TDS	8.00		
Meeting Expenses	906.00		
Misc Expenses	1,146.24		
Round off	0.31		
Excess of Income over Expenditure	10,68,558.23		
Total	**97,92,534.02**	**Total**	**97,92,534.02**

See accompanying notes to the financial statements

As per our report of even date attached

For R S Roy and Associates

Chartered Accountants

FRN:-015770N

For VOICE OF INDIAN COMMUNICATION TECHNOLOGY ENTERPRISES

-Sd-	-Sd-	-Sd-	-Sd-	-Sd-
	Rakesh Kumar		JITENDER	
Ram Savera Roy	Bhatnagar	T.S RAMU	CHOUDHARY	Prashant Jain
Partner				
Membership No 096368	Director General	Chairman	Secretary	Treasurer

UDIN:-24096368BKCJEZ9451

Place : Delhi

Date : 08-AUGUST-2024

VOICE OF INDIAN COMMUNICATION TECHNOLOGY ENTERPRISES

Registration No # 329 /2022

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Receipt and Payment Account for the year ending on 31.03.2024

RECEIPT	AMOUNTS (Rs)	PAYMENT	AMOUNTS (Rs)
Opening Cash	1,891.14	Seminar & Conference Expenses	42,62,179.45
Opening Bank	29,52,491.89	Honorarium Expenses	29,80,000.00
Receipt from Members	94,85,906.08	Salary Expenses	4,26,000.00
		Activity Report Printing Expenses	3,18,809.00
		Audit Fees	2,40,000.00
		Photography Expenses	49,000.00
Bank Interest	2,84,043.00	Printing & Stationery	15,540.00
Misc Receipts	3,146.10	Software Expenses	26,210.00
		Bank Charges	99.59
		Computer Expenses	3,450.00
		Courier Expenses	7,867.00
		Conveyance Expenses	2,04,165.10
		Travelling Expenses	1,66,030.10
		Interest on TDS	8.00
		Meeting Expenses	906.00
		Misc Expenses	1,146.24
		Round off	0.31
		Goods & Service Tax	7,76,359.48
		Tax Deducted at Source	4,03,354.00
		Closing Cash	12,960.00
		Closing Bank	28,33,393.94
Total	1,27,27,478.21	Total	1,27,27,478.21

As per our report of even date attached

For R S Roy and Associates

Chartered Accountants

FRN:-015770N

For VOICE OF INDIAN COMMUNICATION TECHNOLOGY ENTERPRISES

-

-Sd-	-Sd-	-Sd-	-Sd-	-Sd-
	Rakesh Kumar		JITENDER	
Ram Savera Roy	Bhatnagar	T.S RAMU	CHOUDHARY	Prashant Jain
Partner				
Membership No 096368	Director General	Chairman	Secretary	Treasurer

UDIN:-24096368BKCJEZ9451

Place : Delhi

Date : 08-AUGUST-2024

VOICE OF INDIAN COMMUNICATION TECHNOLOGY ENTERPRISES

Registration No # 329 /2022

Registered Office : PLOT NO 128 1ST FLOOR BLK-C, MANSAROWAR GARDEN, DELHI 110015, https://www.voiceofindiancomm.com

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Notes to the financial statements for the year ending on 31.03.2024

Notes to the financial statements

1. Society Registration :- The "VOICE OF INDIAN COMMUNICATION TECHNOLOGY ENTERPRISES" is Non profit Society registered with Registrar of Society District New Delhi (Govt. of NCT of Delhi) vide Registration No # 329/2022 on 6th Day of May 2022 under Society Registration Act XXI of 1860. The Society is Registered with Income tax Department vide Unique Registration Number AADTV7611FE20221 Dated 07th Day of April 2023 under Section/sub-section/clause/sub-clause/proviso 02-Sub clause (vi) of clause (ac) of sub-section (1) of section 12A in which provisional registration is being granted for the period From AY 2023-24 to AY 2025-2026. The Society is also Registered with Income tax Department vide Unique Registration Number AADTV7611FF20231 Dated 07th Day of April 2023 under Section/sub-section/clause/sub-clause/proviso 12-Clause (iv) of first proviso to sub-section (5) of section 80G in which provisional registration is being granted for the period From 07-04-2023 to AY 2025-2026.
2. Basis of accounting and preparation of financial statements :-The financial statements have been prepared on accrual basis under the historical cost convention.
3. Revenue Recognition: -Income are recognised on issue of invoice by the society and confirmation of receipts thereof by the Members. All income and expenses are accounted for on accrual basis. Interest income is accounted for on gross basis.

See accompanying notes to the financial statements

As per our report of even date attached

For R S Roy and Associates

Chartered Accountants

FRN:-015770N

For VOICE OF INDIAN COMMUNICATION TECHNOLOGY ENTERPRISES

-Sd-	-Sd-	-Sd-	-Sd-	-Sd-
	Rakesh Kumar		JITENDER	
Ram Savera Roy	Bhatnagar	T.S RAMU	CHOUDHARY	Prashant Jain
Partner				
Membership No 096368	Director General	Chairman	Secretary	Treasurer

UDIN:-

Place : Delhi

Date :

S. No.	5G Use Cases that Multiple VoICE members can support independently or in Consortium Mode
1	AI & AUTOMATION TOOLS
2	ARMED FORCES
3	AUTOMATED VEHICLES
4	BANKING and FINANCIAL SERVICES
5	Bharatnet End to End Solutions
6	BORDER AREA COMMUNICATION
7	BROADCAST NETWORKS
8	CAMPUS Cellular Blanket Coverage
9	CCTV Systems
10	Construction Sites
11	Controlled internet access for students
12	CROWD MANAGEMENT
13	DIGITAL TWIN
14	DISASTER MANAGEMENT
15	DRONE COMMUNICATION
16	DRONE Communication, MONTORING & INSPECTIONS
17	EDGE COMPUTING
18	EDUCATION FACILITIES & 5G LABS
19	Encryption, Secured Networks
20	ENTERTAINMENT
21	Fleet tracking
22	Healthcare
23	INDOOR & Outdoor FARM MONITORING
24	Indoor and Outdoor High-Speed Network Access EDUCATION/ TOWNSHIPS/ SOCIETIES/ FACTORIES
25	Infrastructure Monitoring with IoT sensors
26	Intelligent Villages
27	Internet connectivity to legacy machines
28	Inventory management and capacity planning
29	IoT sensors to track classroom attendance, study room availability
30	LIVE VIEWS & BROADCASTING
31	Location tracking of life-saving Missions & equipment
32	Management of Hospital machines, drugs, supplies, and medical waste
33	MINING
34	NANO SATELLITES 5G IOT
35	NETWORK IN A 5G BOX
36	OCEAN & Water Ways communication
37	OIL AND GAS sector
38	POLICE COMMUNICATION NETWORKS
39	POWER Sector
40	Proactive & Preventive maintenance through IoT sensors
41	POWER Sector
42	Proactive & Preventive maintenance through IoT sensors
43	PUBLIC TRANSPORT
44	Quantum Communication

45	RAILWAYS 4G
46	RAILWAYS 5G
47	Real-time weather, traffic, and safety updates to vehicles in route
48	Research 6G
49	ROBOT Remote Controlling
50	Safe retrieval of stolen vehicles
51	Secure and controlled internet access for residents
52	Secure and reliable guest access
53	Secure cross-campus service for both staff and patients
54	Securely segment staff and students networks
55	SMART AGRICULTURE
56	Smart Aquaculture
57	Smart Animal Husbandary
58	Smart Battery & Power
59	SMART EDUCATION
60	SMART ENERGY
61	SMART FACTORIES
62	SMART HOMES
63	SMART LIGHTING
64	SMART HOMES
65	SMART METRO NETWORK
66	SMART RAILWAY NETWORK
67	SMART REFINERY
68	SMART STEEL PLANTS
69	SMART TOURISM
70	SMART TRAFFIC MANAGEMENT
71	SMART TRANSPORTATION
72	Standardisation, Test Facilities
73	Time-stamping : Shipped Received Products
74	VEHICLE MOUNTED 5G COMMUNICATION NETWORK
75	Vehicle-to-vehicle communication
76	Video surveillance and traffic cameras
77	WiFi Cloud based

List of VoICE players in each of above 77 5G use cases can be obtained if follwing link is used.

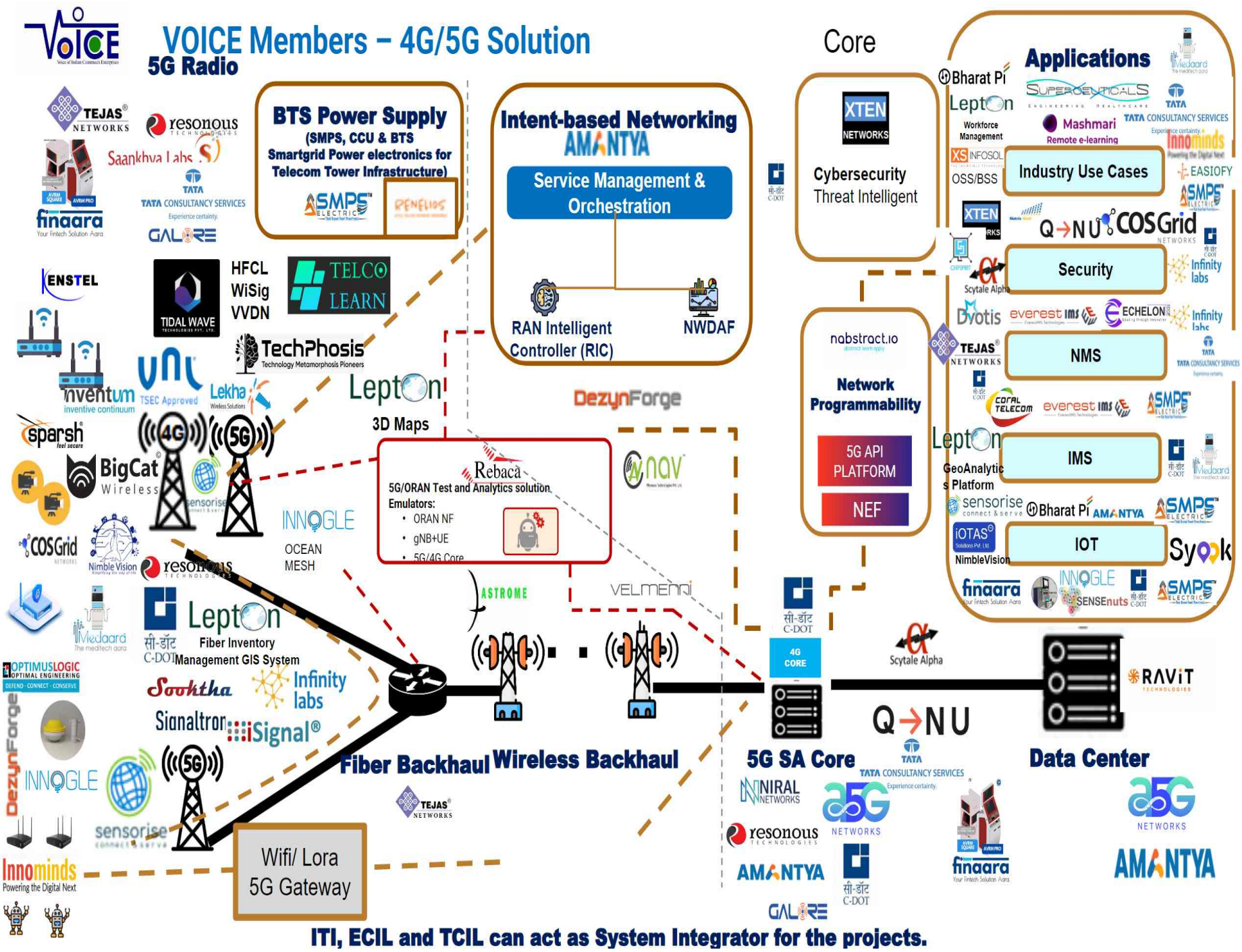
https://docs.google.com/presentation/d/1hjH2FpMGiYoV-n_zgI_ffIAcPEtSQ6VH5PYf6aOIZ6Y/edit?pli=1#slide=id.p1

Last Page of Annual Report will get updated dynamically if one uses following Link on 4G 5G End to End Consortium based soluition Provider

https://docs.google.com/presentation/d/1hjH2FpMGiYoV-n_zgI_ffIAcPEtSQ6VH5PYf6aOIZ6Y/edit?pli=1#slide=id.p1

VoICE MEMBERS IN 4G 5G SOLUTIONS

5G / 4G OPEN RAN	5G SA CORE	APPLICATIONS						5G DEVICES	5G ANTENNAS	BACKHAUL & Lifi ETC	OTHERS
		INDUSTRY USE CASES	SECURITY	NMS	IMS	IOT	LAB, TESTING, TRAINING				
TCS (TATA CONSULTANCY SERVICES)	TCS (TATA CONSULTANCY SERVICES)	TCS	Qnu LABS	DYOTIS	CORAL TELECOM	SENSORISE	VAAN MEGAM NETWORKS	OPTIMUS LOGIC	TELIMART	ASTROME	SPARSH FOR Surveillance CamerAS
CDOT	CDOT	LEPTON	TAQBIT LABS	TEJAS NETWORKS	LEPTON	FIAARA	MATRIX SHELL	KENSTEL	DEZYN FORGE	NAV WIRELESS	HFCL FOR FWT
GALORE	GALORE	MASHMARI	CDOT	EVEREST IMS	EVEREST IMS	SYOOK	REBACA	INNOMINDS		VELMENNI	UTL FOR FWT
TEJAS Networks	TEJAS Networks	XSINFOSOL	COSGRID	INFINITY LABS	SENSORISE	SENSEGIZ	TELCO LEARN				SENSORISE FOR SIMS
RESONOUS	RESONOUS	SENSORISE	SKYTALE ALPHA	TCS (TATA CONSULTANCY SERVICES)	BHARAT PI	INNOGLE					LEPTON FOR GIS AND DIGITAL TWINS
SIGNALTRON	NIRAL Networks	AMBUPOD	INFINITY LABS	CDOT	CDOT	CDOT					
SIGNALCHIP	AMANTYA	FINAARA	DEZYN FORGE	ECHELON	MATRECOMM	CORAL TELECOM					
LEKHA WIRELESS	A5G NETWORKS	INNOMINDS		MATRCOMM	UTL	MATRCOMM					
SOOKTHA		EASIOFY				NIMBLE VISION					
iSIGNAL		BHARAT PI				SMPS POWER					
TIDAL WAVE		MATRECOMM				INNOMINDS					
SHYAM VNL		IOTAS SOLUTIONS									
TECHPHOSIS		SUPERCEUTICALS									
VVDN											
BIG CAT WIRELESS											
HFCL											
UTL											


VOICE Members – 4G/5G Solution
5G Radio
BTS Power Supply
(SMPS, CCU & BTS
Smartgrid Power electronics for
Telecom Tower Infrastructure)
Intent-based Networking
AMANTYA
Service Management &
Orchestration
RAN Intelligent
Controller (RIC)
NWDAF
Core
Cybersecurity
Threat Intelligent
Network
Programmability
5G API
PLATFORM
NEF
Applications
Industry Use Cases
Security
NMS
IMS
IOT
Rebaca
5G/ORAN Test and Analytics solution
Emulators:
ORAN NF
gNB+UE
5G/4G Core
DezynForge
3D Maps
OCEAN
MESH
Fiber Inventory
Management GIS System
4G
CORE
Scytale Alpha
Q→NU
RAVIT
Fiber Backhaul
Wireless Backhaul
5G SA Core
Data Center
Wifi/ Lora
5G Gateway
ITI, ECIL and TCIL can act as System Integrator for the projects.