



TELECOM CENTRES OF EXCELLENCE INDIA

TCOE INDIA ANNUAL REPORT (2024-25)

MEHRAULI, NEW DELHI - 110030



TCOE INDIA

ANNUAL REPORT (2024-25)

TELECOM CENTRES OF EXCELLENCE INDIA

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ABOUT TCOE INDIA:

Telecom Centres of Excellence India (TCOE India) have been set up by the Department of Telecommunications (DoT), Government of India in 2007, in a Public-Private Partnership (PPP) mode bringing together Academic Institutions, Telecom Industry, Entrepreneurs VCs, Angels and Government with the objective of creating an Ecosystem for sustainable growth of Information and Communications technology (ICT) in the country. TCOE India is established for promoting development of new technologies, to generate IPRs, incubate Innovations and promote entrepreneurship to position India as global leader in telecom innovation. The Purpose(s) of the Society is as follows:

- i) Realizing the objectives of the National Digital Communications Policy of the Government of India;
- ii) Creating an environment of innovation in Telecom through Scientific Research and Development
- iii) Creating Synergies among the academia, industry and research institutes for capacity building and development of a balanced telecom ecosystem
- iv) Think tank activities for policy regulation and governance advocacy in the field of telecom for the benefit of the common people
- v) Steering the Start-ups to become globally competitive by participating in Standards Development at the Telecommunications Standards Development Society, India ("TSDSI") in order to influence Global Standards;
- vi) Promoting new and emerging technology changes based on the priorities of the Government;

PRESENTLY SUPPORT DOT FOR FOLLOWING:-

- **DCIS SCHEME-**

DCIS Scheme launched by DoT to bridge the gap between R&D and commercialization. TCOE India aided 17 Beneficiaries in 2021 and presently supports 43 beneficiaries (start-ups and MSMEs) approved by Apex committee of DoT in 2022 and 66 beneficiaries in 2023. Currently 91 products are completed and are in the market with different levels of tractions.



DCIS SCHEME

- **TELECOM TECHNOLOGY DEVELOPMENT FUND (TTDF) SCHEME-**

TCOE India, along with C-DOT, is working as an Implementing Agency (IA) for USOF, DoT. Currently, 109 assigned projects are in progress. The Telecom Technology Development Fund (TTDF), launched by the Department of Telecommunications (DoT) and implemented through Digital Bharat Nidhi (DBN), aims to drive indigenous R&D and innovation in telecom technologies, especially for rural and remote deployment.

TCOE India has been closely involved in implementing the TTDF Scheme, which has approved over 120 projects with funding exceeding ₹500 crore across academic institutions, startups, MSMEs, and R&D organizations. The fund supports next-generation research in areas such as 6G, AI/ML for IoT, satellite and quantum communication, and secure networks, with a strong emphasis on commercialization, IPR generation, and industry collaboration.

- **SANGAM DIGITAL TWIN-**

TCOE India is working as an Implementing Agency for AI and DIU division of DoT. The first phase has been completed and the second phase proposal is under process at DoT. Digital Twin technology plays a transformative role by enabling the creation of virtual replicas of physical assets, which facilitate real-time monitoring, simulation, and data-driven analysis. This empowers stakeholders to conduct experimental iterations, implement adaptive feedback loops, and optimize operations for improved efficiency, resilience, and informed decision-making.



SANGAM DIGITAL TWIN

- **REIMBURSEMENT OF TESTING AND CERTIFICATION OF CHARGES FOR STARTUP AND MSMEs-**

Telecom Centres of Excellence India (TCOE India), as the implementing agency, is facilitating a reimbursement scheme to support Start-ups and Micro & Small Enterprises (MSEs) in the telecom sector. The initiative aims to promote indigenous innovation by reimbursing a part of the testing and certification charges incurred under mandatory or voluntary certification schemes. These expenses must be for tests conducted at TEC designated/recognized labs or NABL accredited labs (where TEC-designated LABs are unavailable). The scheme, approved by the Department of Telecommunications (DoT), will help ensure product credibility, enhance market access, and foster business growth for Start-ups and MSEs.

- **BHARAT 5G LAB PORTAL-**

TCOE India is working as an Implementing Agency (IA) for Telecommunications Consultants India Limited at the Department of Telecommunications (DoT). Hon'ble Prime Minister, Shri Narendra Modi, during the India Mobile Congress, awarded 100 "5G Use Case Labs" to educational institutions across the country to build competencies in 5G technologies for students and startup communities. These 100+ labs are connected through a dedicated digital network, forming the Bharat 5G Lab Portal.

The portal acts as a knowledge dissemination platform where institutions, students, and startups can test and develop 5G use cases. It is envisioned as a one-stop solution for all 5G/6G, IPR, and Quantum-related work—capturing academic R&D developments, industry standards, OEM innovations, startup/MSME contributions, and expert knowledge. It also hosts expert registration, 6G R&D proposal submissions, and IPR facilitation features.

As part of its initiatives, the Department of Telecommunications has announced a nationwide call for 6G R&D proposals on the integrated portal to accelerate research for developing India's 6G ecosystem. Additionally, the "Bridging Dreams and Funding" event showcased telecom products from 26 startups and MSMEs, providing investment opportunities and discussions on growth strategies. The Bharat 5G Portal aims to strengthen India's telecom capabilities, foster innovation, encourage collaboration, and promote knowledge-sharing across the entire sector.



DR NEERAJ MITTAL SECRETARY (T) LAUNCHED 5G PORTAL

NEW DELHI: Dr. Neeraj Mittal, Chairman of the Digital Communications Commission and Secretary, Department of Telecommunications (DoT), Government of India, launched the "Bharat 5G Portal – an integrated portal" on the sidelines of Bharat Telecom 2024 – An Exclusive International Business Expo, organized by the Telecom Equipment and Services Export Promotion Council (TEPC) in collaboration with the Department of Telecommunications.

Speaking at the launch, Dr. Mittal highlighted India's rapid 5G rollout—one of the fastest in the world—and emphasized that India is already preparing for 6G. With the second-largest telecom network globally, India has impressed the world by developing indigenous 4G/5G technologies in record time. Dr. Mittal also underscored India's thriving startup ecosystem of over 100,000 startups, offering enormous opportunities for international collaboration in advanced telecom technologies.

He noted, "As our Hon'ble Prime Minister Shri Narendra Modi said, India continues to be the third largest tech start-up ecosystem globally. We need to create new business opportunities for Indian manufacturers by encouraging more startups to participate."

A special session titled "Bridging Dreams and Funding: Linking Venture Capital/Investors to the Future of Startups" was also inaugurated. The event featured presentations by 26 innovative telecom startups/MSMEs showcasing their products to potential investors. More than 10 venture capitalists and investors attended the session, engaging in discussions on how investment and international partnerships can scale up these innovations and strengthen India's position as a trusted technology partner.

MAJOR ACHIEVEMENTS & ONGOING INITIATIVES OF TCOE INDIA:

• 5G HACKATHON IN 2020 FOR DOT

Initiated 5G hackathon that has to be conducted in 3 Phase which can be described in short as phase 1 for shortlisting of 100 ideas for award of Rs. 1 lakhs each. Shortlisted top 30 prototypes. Awarded further Rs 5 Lakhs to top 10, Rs 4 Lakhs to rank 11-20 and Rs 3 Lakhs to rank 21-30. And finally shortlisting of top 3 5G tested solutions for award of Rs. 10 Lakhs each.



5G HACKATHON IN 2020 FOR DOT

• 5G & Beyond Hackathon 2023 – Department of Telecommunications (DoT)

TCOE India successfully conducted the 5G & Beyond Hackathon in 2023 on behalf of the Department of Telecommunications (DoT). A total of 53 innovative solutions were shortlisted and awarded ₹1 lakh each, fostering indigenous development and innovation in 5G and future telecom technologies.

• Vimarsh 2023 – 5G Hackathon for MHA/BPR&D

TCOE India conducted the Vimarsh 2023 5G Hackathon for the Ministry of Home Affairs (MHA) and the Bureau of Police Research and Development (BPR&D), addressing 9 critical problem statements. Winners were awarded ₹1.5 lakh each, with an additional ₹2.5 lakh allocated for productization support in collaboration with LSAs. Currently, 8 solutions are undergoing user trials with various Law Enforcement Agencies (LEAs).



**VIMARSH2023 5G HACKATHON FOR MHA/BPR&D IN 2023 FOR
MHA/BPR&D AT IIT MADRAS RESEARCH PARK 5G TESTBED**



**VIMARSH2023 5G HACKATHON FOR MHA/BPR&D IN 2023 FOR
MHA/BPR&D AT IIT MADRAS RESEARCH PARK 5G TESTBED**

• ITU-WTSA “AI BHARAT 5G/6G SANDBOX” HACKATHON 2024

The focus of the hackathon is on applying ITU standards to create applications that integrate AI/ML in networks. ITU published ITU-T Y.3172 which specifies an architectural framework for machine learning in future networks including IMT-2020. In addition, studying the important concept of Autonomous Networks, ITU published Recommendation ITU-T Y.3061 which provides requirements, architecture, components and related sequence diagrams that together comprise an architecture framework for autonomous networks.

ITU WTSA Hackathon aims to demonstrate the application of these ITU Recommendations on practical problems.

WTSA-ITU “AI Bharat 5G/6G Sandbox” Hackathon was launched by the Secretary(Telecom) on 7th august 2024 globally on two problem statements. Globally 12 participants were shortlisted for the physical coding event on 7-8 October 2024 with 14 national and international mentors. Hackathon was completed and USD 3700 was awarded as the prize money among the winners 24th October 2024.



ITU-WTSA “AI BHARAT 5G/6G SANDBOX” HACKATHON 2024

- **5G/6G HACKATHON FOR DOT 2024-**

Conducted a nationwide 5G/6G Hackathon at three locations simultaneously—Delhi, Hyderabad, and Bengaluru. A total of 15 winning teams were selected and awarded prize money. The winners also showcased their innovative solutions in the Aspire section for start-ups during IMC 2024.



5G/6G HACKATHON FOR DOT 2024

- **Baseline survey of MSME for readiness of Industry 4.0-**

Industry 4.0 represents a major shift in manufacturing, integrating advanced technologies such as Artificial Intelligence (AI), Internet of Things (IoT), and Cloud Computing to improve efficiency, productivity, and competitiveness. As the Indian manufacturing landscape evolves, assessing its readiness for Industry 4.0 is critical to identify gaps, set priorities, and guide strategic investments.

The survey specifically aimed to understand the challenges MSMEs face in adopting Industry 4.0 and advanced technologies. Covering 14 key sectors, it identified sector-specific needs and preferences, recognized the diverse MSME landscape, and proposed targeted support strategies to foster innovation and competitiveness.

Beyond addressing immediate barriers to digital transformation, the survey laid the foundation for developing cyber-physical systems, enabling seamless integration of sensors and devices through 5G and 6G networks. This approach aims to drive sustainable growth across sectors.

• INDIA MOBILE CONGRESS 2024-

India Mobile Congress (IMC), jointly organized by the Department of Telecommunications (DoT) and the Cellular Operators Association of India (COAI), is the largest telecom, media, and technology event in Asia. Over the years, IMC has become a premier platform for industry leaders, government bodies, academia, and innovators to engage in meaningful dialogue and showcase advancements in the TMT and ICT sectors. Recognized as India's foremost networking event in the digital space, IMC provides a unique opportunity to highlight transformative technologies and emerging solutions. During IMC 2024, held from 15th to 19th October at Pragati Maidan, New Delhi, TCOE India played a key role by organizing the ASPIRE Startup Pavilion, coordinating academia exhibits, and curating 5G Use Case demonstrations. These efforts aimed to promote collaboration across the ecosystem and spotlight India's growing capabilities in telecom innovation and digital transformation.



TCOE INDIA AT IMC 2024



TCOE INDIA AT IMC 2024 - ASPIRE PAVILION



TCOE INDIA AT IMC 2024 - INTELLIGENT VILLAGE

TCOE INDIA SUBCENTRES

1- CLASSICAL & QUANTUM COMMUNICATIONS , TELECOM CENTRES OF EXCELLENCE-INDIA, IITM RESEARCH PARK ,CHENNAI



The Telecom Centres of Excellence India (TCOE India) and IIT Madras have signed a landmark Memorandum of Understanding (MoU) which was announced in the presence of Shri Neeraj Mittal Secretary (T) of department of Telecommunication who inaugurated centre of excellence on "Classical and Quantum Communications for 6G" on 19th July at IITM Research Park, Chennai.

Press Release: Press Information Bureau

2-QUANTUM CENTER - VTU/VRIF, BANGALORE



The Telecom Centres of Excellence (TCOE) India and Visvesvaraya Technological University (VTU) – Visvesvaraya Research & Innovation Foundation (VRIF) signed a landmark Memorandum of Understanding (MoU) on 19th September 2024 to establish a Centre of Excellence (CoE) in Quantum Technology, along with associated 5G/6G technologies and other frontier areas of research and development. Headquartered at VTU-VRIF Bangalore, the CoE aims to accelerate India's progress in these critical sectors as part of the 100-day programme.

Press Release: Press Information Bureau

3-TELECOM NETWORK SECURITY , NFSU (CYBERSECURITY) GANDHINAGAR AND GOA -



The Telecom Centres of Excellence (TCOE) India, DoT and the National Forensic Sciences University (NFSU) have signed Memorandums of Understanding (MoUs) to enhance telecommunication security in India. The MoUs were formalized on July 25, 2024, in the presence of Padma Shri Awardee Dr. J.M. Vyas, Vice Chancellor of NFSU, with Shri Neeraj Mittal, Secretary, DoT, attending virtually. The agreements were signed by Shri Ravi and Robert Jerard, DDG (SRI), DoT, with Prof. (Dr.) S.O. Junare, Campus Director, NFSU-Gandhinagar, for the establishment of a Centre of Excellence (CoE) in Telecom Security, and with Prof. (Dr.) Naveen Kumar Chaudhary, Campus Director, NFSU-Goa, for setting up a Malware Lab. This collaboration aims to strengthen telecom security infrastructure, focusing on research, development, and capacity building in critical areas such as the 5G protocol stack and its security framework. The event was attended by senior officials from DoT, BSNL, TCOE India, and academic representatives from NFSU.

4-MITS, GWALIOR - CENTER OF EXCELLENCE IN INTEGRATED SENSING AND COMMUNICATION



Madhav Institute of Technology & Science (MITS), Gwalior, and the Telecom Centres of Excellence (TCOE) India have signed a Memorandum of Understanding (MoU) to foster collaboration in academic research and entrepreneurship in the telecom sector. This partnership aims to drive innovation, enhance skill development, and create new opportunities for the youth of Madhya Pradesh.

TCOE INDIA SUBCENTRES



**6G R&D (NextGen Communication Center),
IIT Madras**



**Quantum Center, IISc Bangalore -
Established in VTU/VRIF, Bangalore**



**Telecom Network Security , NFSU
(Cybersecurity) Gandhinagar
and Goa**



**Madhav Institute of Technology & Science
(MITS), Gwalior
Deemed University
Madhya Pradesh, India**



**National Centre for Communication
Security (NCCS) Bangalore
for Establishment CoE on Telecom
Security Centre at NFSU, Gandhinagar**

CSR ACTIVITY PARTNER



**AEGIS
GRAHAM BELL
AWARDS**

**MEMORANDUM OF UNDERSTANDING BETWEEN TELECOM CENTRES OF INDIA
(TCOE INDIA)
AND AEGIS KNOWLEDGE TRUST,
AEGIS GRAHAM BELL AWARDS (AGBA)**

DCIS SUCCESS STORIES

LIVNSENSE GREENOPS PVT. LTD.

Founder(s): Avnish Kumar, Pratyusha Chakraborty

Product: GreenOps™ – AI-Driven Industrial Sustainability Platform

Domain: AI for Industry, Industrial IoT, Decarbonization, Sustainability



Overview:

GreenOps™, developed by LivNSense, is a cutting-edge AI-driven SaaS platform designed to help high-emission industries achieve net-zero goals while optimizing operational efficiency. Focused on sectors like cement, steel, and chemicals, GreenOps™ integrates AI, IoT, and real-time analytics to reduce carbon emissions, conserve energy, and deliver measurable sustainability outcomes.

Key Features:

- Real-Time Emissions & Energy Monitoring-

Uses 160+ science-based AI models to track and optimize industrial energy usage and emissions in real time.

- Predictive Analytics & AI Insights-

Detects operational inefficiencies and equipment failures before they occur, reducing costs and downtime.

- Custom Industry Use Cases-

Includes targeted applications such as water conservation (Jind, Haryana – AMRUT 2.0), waste heat recovery, and cement process optimization.

- Seamless Integration-

Fully compatible with ERP systems, IoT devices, and Azure Cloud for scalability and industrial deployment.

Impact Highlights:

- 15–30% reduction in energy usage
- Up to 20% reduction in carbon emissions
- Millions of liters of water saved in urban deployment under AMRUT 2.0 (Jind), impacting 20,000+ lives

Awards & Recognition:

- Top 100 Global Startups – World Future Energy Summit, Abu Dhabi
- Winner – Microsoft x Synapses Tech Sector Decarbonisation Challenge
- Tech30 – YourStory's list of most promising Indian startups (2024)
- Top 10 Startups – IIT Madras Sangam 2024 (Pitch Fest)
- Showcased – ADNOC HSSE Forum, TAQA's HSSE Leads Forum
- ESA 2024 Winner – New Energy Company Showcase
- Selected Startup – Bharat Pitchthon 3.0, Amity AI Incubator, and ADNOC Safety Day
- Recognized by NCCBM – Contribution to AFR-based decarbonization in cement industry
- Top 20 AI Companies globally on F6S (out of 1.9 million startups)

Testimonial:

“At LivNSense, our research journey is fueled by a commitment to combat climate change. With the help of the DCIS scheme, our platform GreenOps™ is empowering industries to take real-time, AI-guided actions towards decarbonization—building a greener and more sustainable industrial future.”

AROVR INNOVATIONS PVT. LTD.

Founder: Hitesh Kumare Pasa

Product/Innovation: Augmented Reality Experiences for Cultural Heritage Sites

Domain: Augmented Reality, Digital Tourism, Cultural Preservation



Innovation Summary:

AROVR is transforming how India experiences its rich cultural heritage. Leveraging Augmented Reality (AR), AROVR allows tourists and students to relive ancient history at archaeological and cultural sites through smartphones, HoloLens, and Jio Glass devices. Visitors can witness 3D reconstructions of long-lost architecture and scenes superimposed on actual sites like Konark Sun Temple or Udayagiri & Khandagiri Caves, creating an engaging and educational journey through time. Multilingual audio guides accompany the visual experience, making it inclusive and accessible. This immersive technology not only enhances tourism but also promotes heritage education and preservation. By blending cutting-edge AR with historical storytelling, AROVR is revolutionizing cultural engagement for all age groups.



Key Features:

- On-Site Augmented Reality Visuals showcasing reconstructed monuments and historical scenes.
- Multilingual Audio Guides to cater to a global audience.
- Wearable Compatibility: Works seamlessly with smartphones, AR glasses (e.g., Jio Glass), and HoloLens.

Milestones Achieved:

- Successfully implemented AR experience at Konark Temple under the DoT's DCIS scheme.
- Completed site-specific AR content for Khandagiri and Udayagiri Caves.
- Advanced development of AR experience integration with smart glasses.

TCOE & DCIS Support:

"The support from the TCOE and DCIS Scheme has been instrumental in bringing our vision to life. The funding and mentorship enabled us to execute a high-impact digital tourism project at national heritage sites. We still hold ₹46 lakhs in grant funding to continue expanding this cultural innovation."

Impact:

- Enriching visitor engagement at historical sites using cutting-edge AR.
- Promoting Digital India in tourism through immersive technology.
- Supporting heritage conservation by reimagining storytelling for the modern audience.

PRAYOGIK TECHNOLOGIES

Technology: Thermoelectric Generator (TMSG-DC)

USP: First in India, second worldwide to commercialize portable, skid-based thermoelectric generators that work 24×7 in extreme climates (−40°C to +60°C) without moving parts or solar dependency.



Key Highlights:

- 40% more cost-effective than existing solutions
- Compact, low-maintenance, no GCS needed
- 50% lighter, quick installation, 25+ years lifespan
- Generates continuous electricity even in harsh off-grid environments

Recognitions:

- Winner – India Clean Air Challenge (Social Alpha)
- Finalist – ASME ISHOW India 2022 & 2023
- Exhibitor – MWC Barcelona & Las Vegas 2023
- Selected for Dubai Expo 2020 (India Innovation Hub)
- Represented in Slush 2022, Seoul Challenge, Innovex Taiwan

IP Portfolio:

- Patent granted, 1 Copyright, 2 Trademarks filed

Prayogik exemplifies innovation in clean, off-grid power—contributing to India's energy sustainability goals.



SMPS ELECTRIC CONTROL PVT. LTD.

Technology: Smart Hybrid CCU (Centralized Control Unit)

USP: Real-time innovation—an integrated BTS power supply system combining solar, grid, battery, and DG set for uninterrupted telecom tower power.



Key Highlights:

- Designed for deployment in BSNL's BharatNet Project
- Filed 1 patent and 2 trademarks
- Fully developed and site-ready portable nanogrid
- Enables reliable telecom connectivity in remote areas



Impact of DCIS Scheme:

With this grant support only, we could develop and successfully complete our product innovation

BENLYCOS – BLOOM: REVOLUTIONIZING MOBILE CONNECTIVITY THROUGH BONDED 4G SOLUTIONS

Technology: Advanced 4G bonding router

USP: Portable, battery-powered connectivity solution optimized for field use—offering stable internet even in remote or high-interference environments.



Key Highlights:

- Portable, lightweight design with rechargeable battery
- V-mount support for easy field use
- Unified cloud dashboard for remote monitoring
- Ideal for broadcasting, news gathering, security, and event management



Impact of DCIS Scheme:

Under the Digital Communication Innovation Square (DCIS), Benlycos received critical support to:

- Translate field challenges into product innovation
- Build a resilient, user-centric digital infrastructure
- Strengthen India's goal for self-reliant telecom technologies

KESAVA YATHEEMDRA INFOTECH RESEARCH PVT. LTD.

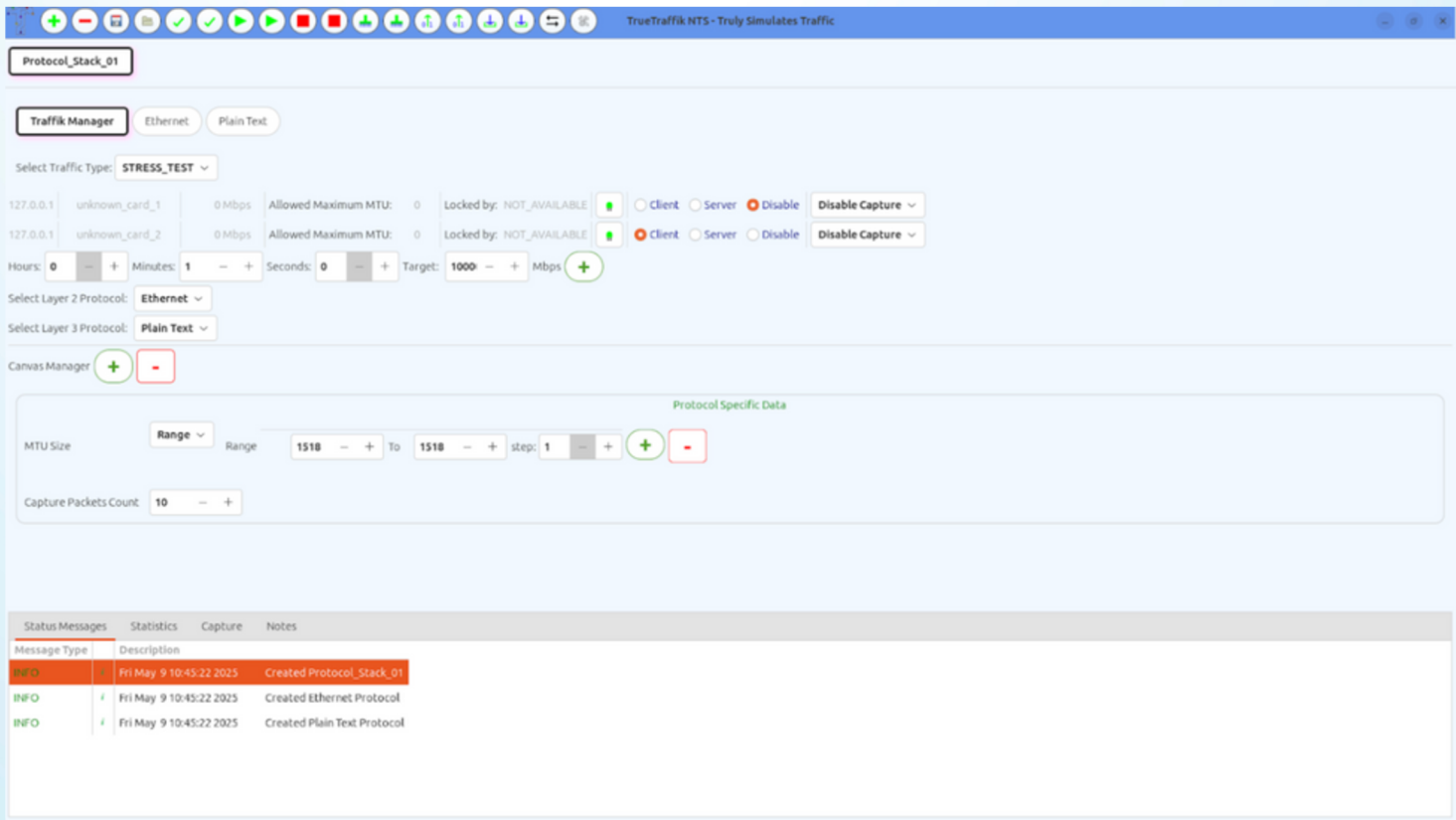
Company: Kesava Yatheemdra Infotech Research Pvt. Ltd.

Technology: TrueTraffik

USP: A high-performance network traffic simulator with support for optimized OSPF and BGP modules.

Key Highlights:

- Developed and optimized core routing protocol modules (OSPF, BGP)
- Focused on simulating real-time network traffic scenarios efficiently



Impact of TCOE Support:

“Despite delays in processing, the project benefited from the structured innovation ecosystem.”

OPTIMUSLOGIC SYSTEMS INDIA PVT. LTD.

Product: Optimus Rhino 5G Smartphones

USP: India's first indigenously designed 5G and 4G smartphones tailored for armed forces, BSNL, and rural India.



Key Highlights:

- Cleared armed forces trials via ECIL consortium
- Developed India's most economical ₹3,000 smartphone for 700MHz LTE (BSNL, Army, Railways)
- Advanced variant "Rhino SE" offers offline AI, end-to-end encryption, and secure communication platform for DRDO and high-risk institutions



Impact of TCOE Support:

"DCIS and TCOE support transformed OptimusLogic from a startup to a global brand. IMC2022 exposure and trials with Army, Railways, and BSNL fast-tracked our market readiness."

SUPERCEUTICALS

Product: SC-AN – Multi-parameter portable diagnostic system

USP: 125+ real-time blood tests in minutes using only a few drops of blood, supported by AI-based health assistant “CureCatalyst” and tech-enabled “Jann Swastha Kendras.”



Key Highlights:

- Over 6,000 patients served across rural and semi-urban India
- SC-AN reached TRL-8, CureCatalyst moved to lab validation with KLE Hospital and BITS Pilani
- Selected by NSRCEL-IIM Bangalore, Dell Entrepreneur Challenge, and TTDF-Intelligent Village
- Invited to global platforms including SLUSH
- Expanded into B2C with integrated clinics offering diagnostics + teleconsultation



Impact of TCOE Support:

“DCIS support enabled us to validate SC-AN in rural environments and streamline our telecom-integrated diagnostics roadmap. TCOE mentorship enhanced visibility, credibility, and opened policy-level and strategic partnership doors.”

ELENA GEO SYSTEMS

Product: NavIC-based Timing Equipment (NavIC Clock)

USP: Ultra-precise 10ns synchronization using ISRO's NavIC atomic clock network, offering reliable timing across India in IST format.



Key Highlights:

- Developed under DCIS-1 with support from DoT and TCOE India
- Built on ELNMC1A module, providing high-precision, table-top synchronized time
- Multiple form factors enable use across domains—from military to critical infrastructure
- Demonstrated clear superiority of NavIC over GPS in satellite-based timing applications



Impact of TCOE Support:

“DCIS support has been transformative for Elena Geo. With timely financial backing and strategic mentorship, we moved from concept to deployment. The exposure and recognition provided by TCOE accelerated our innovation and industry credibility.”

NIMBLE VISION

Product: Ni – The Water Saviour

Focus: Real-time, AI-driven water conservation and infrastructure automation using IoT, Vision Tech, and Smart Analytics.



Problem Solved:

Ni brings actionable awareness and automation to India's water infrastructure—monitoring usage, detecting leaks, ensuring quality, and optimizing urban sewage systems. It directly supports UN SDGs 6, 9, 11, and 12, making water management smarter, cleaner, and more accountable.

Key Impact:

- 8 billion litres of water conserved in 6 years
- Patent granted in 2023: Indian water infrastructure innovation (No. 202241026021)
- Deployed across smart cities, industries, and utilities
- Empowering stakeholders with real-time insights and automated controls

Awards & Recognitions:

Smart City Expo Award (2021)

ASME Innovation Award, USA (2023)

UN Water Change Maker Top 500 (2023)

IIT Palakkad & HDFC Parivartan Innovation Awards (2024)

15+ national recognitions including Niti Aayog, MoHUA, AWS, and Qualcomm



TCOE & DCIS Impact:

“The grants and strategic connections facilitated by DCIS and TCOE India helped Nimble Vision scale faster, bringing credibility and partnerships to the forefront of our water conservation mission.”

CHIPSPIRIT TECHNOLOGIES PVT LTD

Product: Hardware Data Diode (HDD)

Founder: Mohan Kumar Jindal

Domain: High-grade cybersecurity hardware for secure data transfer



Innovation Summary:

Chipspirit's Hardware Data Diode is a 100% hardware-based, software-free unidirectional data transfer system, offering unmatched security for critical and sensitive environments. Designed with zero OS layers, it prevents any form of reverse data leakage—ensuring air-gap-level protection in:

- Nuclear power plants
- Military and government installations
- Financial and stock trading systems
- Water treatment and utility infrastructure

Key Achievements:

- Successfully sold to CERT-In
- Patent filed for its proprietary hardware architecture
- Currently developing an enhanced version with TCP/IP protocol capabilities for broader use-cases



TCOE & DCIS Support:

“TCOE’s DCIS program not only provided critical early-stage funding but also enabled us to exhibit our product at multiple national events—giving us valuable marketing exposure and credibility in India’s cyber-tech landscape.”

NIBIAA DEVICES PVT. LTD.

Product: Helium LoRaWAN Data-Only Hotspot

Founder: Aeroshil Nameirakpam

Domain: IoT, Smart Infrastructure, Connectivity



Innovation Summary:

Nibiaa Devices has developed India's first "Made-in-India" Helium LoRaWAN Data-only Gateway, a cutting-edge, enterprise-grade IoT solution for decentralized and private wireless networks. Unlike traditional gateways, this hotspot excludes mining functions, focusing purely on secure, high-performance data transmission for scalable and regulatory-compliant deployments.

The device supports multiple IoT platforms including Helium Console, The Things Network (TTN), and ChirpStack, making it ideal for smart cities, agriculture, logistics, and environmental monitoring. Designed with multi-band regional support, TLS encryption, remote management, and IP67/IP68 variants, it is future-proof and enterprise-ready.

Key Use Cases & Projects:

- Water Treatment Monitoring – Live pilot with Andaman Public Works Dept. & Dr. B.R. Ambedkar Institute of Technology using LoRaWAN-based water quality and quantity sensors.
- Disaster-Resilient Communication – Peer-to-peer LoRa mesh tracking and text-messaging solution for military personnel in landslide-prone zones, integrating NavIC, GPS, GLONASS, and Galileo.
- Smart Drip Irrigation – Real-time sensor-driven irrigation automation project with SELCO Foundation via Nibiaa Plex platform, conserving water and enhancing crop yield.

Recognitions & Grants:

- Startup Maharathi Award, Defence & Space Tech, Startup Mahakumbh 2025 (₹5 Lakhs)
- Runner-up, NER Hackathon 2025, Guwahati (₹2 Lakhs)
- DCIS Grant, DoT-TCOE (₹25 Lakhs)
- BIRAC BIG 19th Call (₹50 Lakhs)
- Startup India Seed Fund (₹15 Lakhs)
- DeWi Alliance Grant (USD 10,000)
- XR Grant Challenge, MeitY-Meta (₹20 Lakhs)
- Other key selections: STPI Guwahati, Land Accelerator, AIC-SMUTBI, KIIT-TBI, IIM-B NSRCEL



IP Highlights:

- Patent Filed: Blockchain-Enabled IoT System for End-to-End Supply Chain Traceability and Transparency

TCOE & DCIS Support:

"The DCIS scheme and TCOE's guidance empowered us to bring a national-first product to life—the 'Helium LoRaWAN Hotspot.' The grant and ecosystem support enabled us to lead India's entry into decentralized IoT infrastructure. We are deeply thankful for this opportunity to contribute to the Atmanirbhar Bharat mission through indigenous innovation."

ASTROME TECHNOLOGIES PVT. LTD.

Product: GigaMesh

Founder: Dr. Neha Satak

Domain: Wireless Connectivity, mm-Wave, E-Band, Telecom Infrastructure



Innovation Summary:

Astrome has pioneered GigaMesh, the world's first auto-aligned, multi-point E-band radio, built to revolutionize high-speed internet access in regions where fiber is cost-prohibitive or difficult to deploy. Using mm-wave wireless technology, GigaMesh significantly reduces capital and operational costs while delivering fiber-grade performance. Its core advantage lies in electronic beam steering and plug-and-play installation, making it ideal for rural, defense, and urban last-mile connectivity.

This deep-tech innovation is a strategic substitute for fiber in India's digital expansion plans, especially in remote and border areas where infrastructure deployment is a logistical challenge.

Key Features:

- First-of-its-kind auto-aligned, multi-point mm-wave (E-band) radio.
- Replaces fiber with high-capacity, low-latency wireless links.
- Advanced beam steering and next-gen lens development underway.

Awards & Recognitions:

- Pandit Deendayal Upadhyaya Telecom Excellence Award 2024 – Ministry of Telecommunication, GoI.
- Certificate of Appreciation by Defence Minister of India – Aero India 2025.
- Global Innovation Recognition by ITU – International Telecommunication Union.
- Applauded by PM Narendra Modi for contributions to the Indian deep-tech and space-tech ecosystem.



Strategic Impact:

- Empowering Digital Bharat by enabling cost-effective, high-speed backhaul in underserved areas.
- Supporting defense communication by deploying indigenous mm-wave technology for secure, fast wireless data transfer.

TCOE & DCIS Support:

"We received tremendous support from the TCOE and DCIS scheme. This backing played a critical role in helping us achieve complete product realization for GigaMesh. The trust and guidance provided by the team helped accelerate our journey from idea to deployment."

TCOE INDIA GENERAL BODY MEMBERS:-

Company Name	Website	Email
Aheesa Digital Innovations Pvt Ltd	https://www.aheesa.com/	sridharan.mani@heesa.com
Chipspirit Technologies Pvt Ltd	https://chipspirit.com/	marketing@chipspirit.com
Wisig Network Private Limited	http://www.wisig.com/	contactus@wisig.com
Kaizen Secure Voiz Pvt Ltd	http://www.kaizenvoiz.com/	finance@kaizenvoiz.com
NIT Rourkela	https://www.nitrkl.ac.in/	psingh@nitrkl.ac.in
PBR Visvodaya Institute of Technology & Science	https://pbrvits.ac.in	vijay.g@visvodayata.ac.in
BKC Aggregators Private Limited	https://bkcaggregators.com/	bk@weathersysbk.com
Dparth Tech Advisory Pvt Ltd	https://dparthtechnologies.com/	rohitrivastava@dparthtechnologies.
Cateina Technologies Pvt Ltd	https://www.coredata.co.in	rajish@cateina.com
Coredata Networks Pvt Ltd	https://www.coredata.co.in	deepak@coredata.co.in
Fibmesh Private Limited	https://www.fibmesh.com	vikram@fibmesh.com
Coral Telecom Limited	https://www.coraltele.com/	rajeshtuli@coraltele.com
Hetrogenous Communication Technologies Private Limited	https://www.hetrogenus.com/	anush@hetrogenous.com
Echelon Edge Private Limited	https://echelonedge.com	anshul.trivedi@echelonedge.com
Hnnoix India Private Limited	https://www.hnnoix.com/	hbansal@hnnoix.com
Additional Skill Acquisition Programme (ASAP Kerala)	https://asapkerala.gov/	laiju@asapkerala.gov.in=
NetLife Network Private Limited	https://netlife.co.in/	yashispconsultant@gmail.com

Company Name	Website	Email
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Sri Sivasubramaniya Nadar College	https://www.ssn.edu.in/	kaythryp@ssn.edu.in
ICB Applied Science	https://icbappliedscience.com/	icbappliedscience@gmail.com
Nirma University	https://nirmauni.ac.in/	yogesh.trivedi@nirmauni.ac.in
Superceuticals Private Limited	www.superceuticals.in	rrachnna@superceuticals.in
Arovr Innovations Private Limited	www.ar-o-vr.in	kanha.hitesh@gmail.com
Cientra TechSolution Pvt Ltd	www.cientra.com	sandip.kadtane@cientra.com
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Optimuslogic systems India Pvt ltd	https://www.optimuslogic.in/	ck@optimuselectronics.com
Qunu labs	https://www.qnulabs.com	rajesh@qnulabs.com
R2E Technologies	https://r2e.in/	connect@r2e.in
SMPS Electric Control Pvt ltd	https://smpselectric.in/	smpselectric@gmail.com
NIBIAA Devices Private Limited	https://www.nibiaa.com/	aeroshil@nibiaa.com
Arishti Info Labs	https://arishti.com/	ronak@arishti.com

Company Name	Website	Email
Dweepi Innovations Private Limited	http://www.dweepi.com	contact@dweepi.com
Xiotz Private Limited	http://xiotz.com/	saler@xlotz.com
Innotrat Labs	http://www.innotrat.com/	satyabarta.mohanty@gmail.com
Astrome Technologies Pvt Ltd	https://astrome.co/	neha@astrome.co
Mindful Gurukul Private Limited	http://www.skitii.com/	Chiragjain@mindfulgurukul.com
Birla Institute of tech and science	https://www.bits-pilani.ac.in/index.as	sandeep.joshi@pilani.bits-pilani.ac.in
Ayati Devices Private Limited	http://www.ayatidevices.com	nishant.kathpal@ayatidevices.com
Innovation Communication System	https://icsglobal.biz/	bhaskar.c@icsglobal.biz
Champion Semiconductor LLP	http://www.geocon.in	varun.gupta@championsemi.com
Neelgreev System Private Limited	http://www.neelgreev.com	pavan.pogula@neelgreev.com
KDR Soft Solutions	https://susanfuturetechnologies.com	suresh@susanfuturetechnologies.com
SSS Grameen Private Limited	http://www.sssgrameen.in	info@s3gs.in
Innogle Technologies	http://www.innogle.com	shobana.u@innogle.com
Sensegiz Technologies Private Limited	http://www.sensegiz.com	abhishek@sensegiz.com
Cimware Private Limited	https://cimware.in	rajiv@cimware.in
Readypod Technologies	https://www.readypods.com/	mannabathula@readypods.com

Company Name	Website	Email
Livnsense Greenops Pvt Ltd	https://livnsense.com	kumar@livnsense.com
Sooktha Consulting Private Limited	https://www.sooktha.com	Ambarish.a@sooktha.com
Menthosa Solutions Private Limited	https://menthosa.com/company	director@menthosa.com
Bigcat Wireless Private Limited	https://www.bigcatwireless.com/	kannan@bigcatwireless.com

DCIS BENEFICIARIES



ARISHTI INFO LABS



ASTROME

ASTROMEDA

Autosys



BENLYCOS



CDspace

CEQU
VISION BEYOND LITERAL



cientra



COSGrid
NETWORKS



DigiCred
Trust and Verify



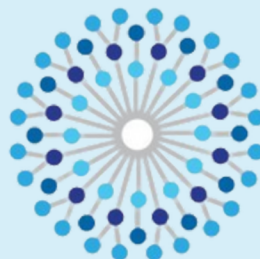
ELENA GEO SYSTEMS



evelabs
liberate thoughts



VYORIUS



i2SAGE
sustainable livelihood

INNOGLE

INVINCIBLE
NETWORKS

KENSTEL

TrueTraffik
TRULY SIMULATES TRAFFIC

TTDF PROJECTS



Accelerated Research on 6G Ecosystem under TTDF 109 Projects Assigned to TCOE India



TTDF/6G/212



TTDF/6G/512
TTDF/6G/542



TTDF/6G/76
TTDF/6G/246
TTDF/6G/360



TTDF/6G/333



TTDF/6G/317



TTDF/6G/401
TTDF/6G/387
TTDF/6G/390



TTDF/6G/214



TTDF/6G/220
TTDF/6G/402



TTDF/6G/19
TTDF/6G/135
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TTDF/6G/310
TTDF/6G/424
TTDF/6G/473
TTDF/6G/68



TTDF/6G/123
TTDF/6G/114



TTDF/6G/65
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TTDF/6G/352



TTDF/6G/284



TTDF/6G/439



TTDF/6G/291



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TTDF/6G/209
TTDF/6G/537



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TTDF/6G/309



TTDF/6G/494



TTDF/6G/296
TTDF/6G/505



TTDF/6G/86
TTDF/6G/161
TTDF/6G/443



TTDF/6G/354



TTDF/6G/491



TTDF/6G/162



TTDF/6G/532

TTDF PROJECTS



Accelerated Research on 6G Ecosystem under TTDF 109 Projects Assigned to TCOE India



TTDF/6G/490



TTDF/6G/152



TTDF/6G/124



TTDF/6G/144
TTDF/6G/314



TTDF/6G/517



TTDF/6G/273



TTDF/6G/432
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TTDF/6G/489



TTDF/6G/533



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TTDF/6G/422



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TTDF/6G/410



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TTDF/6G/172



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TTDF/6G/255



TTDF/6G/335



TTDF/6G/66



TTDF/6G/111



TTDF/6G/361
TTDF/6G/202



2022/ TTDF/01/711

SUPPORTED BY



सत्यमेव जयते
Department of Telecommunications
Ministry of Communications
Government of India



संचार मंत्रालय
MINISTRY OF COMMUNICATIONS





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