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Outcome Report International Bharat6G Symposium 2026

7–9 October 2026 | Yashobhoomi, Dwarka, New Delhi

Theme: “Shaping Global 6G through International Partnerships, Standards, Innovation and Trusted Ecosystems”



OUTCOME REPORT

International Bharat6G Symposium 2026

OCTOBER 8–9, 2026 | YASHOBHOOMI CONVENTION CENTRE, NEW DELHI, INDIA

"Shaping Global 6G through International Partnerships, Standards, Innovation and Trusted Ecosystems"

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Agenda

Wednesday, October 7, 2026: Global 6G Vision, Standards & Technology Leadership	
Time (HRS/IST)	Session
13:30 – 14:00	Networking and Registration
14:00 – 14:30	Keynote Address Mr. N. G. Subramaniam, Founding Chair, Bharat 6G Alliance, and Chairman, Tejas Networks
14:30 – 15:45	Session 1: Building the Foundations for 6G
15:45 – 16:00	Tea Break
16:00 – 17:00	Session 2: Global Standards - Aligning the World Towards IMT-2030
17:00 – 18:00	Session 3: Spectrum for IMT-2030 - Preparing for WRC-27 and Beyond
Thursday, October 8, 2026: Global 6G Vision, Standards & Technology Leadership	
Time (HRS/IST)	Session
12:00 – 13:00	Inauguration of 3 rd International Bharat6G Symposium 2026 by Chief Guest: Shri Jyotiraditya M. Scindia, Hon'ble Union Minister of Communications and Development of North Eastern Region, Government of India
14:00 – 15:00	Session 4: Global Trials & Testbeds Forum - From Research to Large-Scale International Pilots
15:00 – 16:00	Session 5: Global Technology Session - AI-Native, Sustainable and Secure 6G Networks
16:00 – 16:15	Tea Break
16:15 – 17:30	Session 6: Startups, Academia & Innovation Ecosystem - Building the Global Deep-Tech Innovation Pipeline
17:30 – 18:15	Fireside Chat (Scale Beyond Boundaries: Tech Enabling Viksit Bharat 2047) Prof. Abhay Karandikar, Member, NITI Aayog
18:30 onwards	Networking Dinner hosted by the Bharat 6G Alliance (by invitation only)
Friday, October 9, 2026: Global Use Cases, Industry Transformation & Partnerships	
Time (HRS/IST)	Session
09:30 – 10:00	Keynote Address: Dr. Shivkumar Kalyanaraman, ANRF Mr. Erik Ekudden, Ericsson
10:00 – 11:30	Session 7: Global Alliance Session - Leveraging Ecosystems for 6G Innovation
11:30 – 11:45	Tea Break
11:45 – 12:45	Session 8: Global Industry & Vertical Session I - Transforming Industries Through 6G
12:45-13:00	Valedictory Address by Chief Guest: Dr. Pemmasani Chandra Shekhar, Hon'ble Union Minister of State for Communications and Rural Development, Government of India
13:00 – 14:00	Visit to Exhibition and Lunch Break
14:00 – 15:15	Session 9: Global Industry & Vertical Session II - Unlocking the Potential of 6G
15:15 – 16:00	Valedictory Session: Global Roadmap Towards IMT-2030 and Beyond

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Union Minister of Communications Shri Jyotiraditya M. Scindia Inaugurates 3rd International Bharat 6G Symposium 2026

Bharat 6G Alliance Signs 5 MoUs and Unveils 9 White Papers on 6G Technology

Joint Report on the Progress of the New Delhi 6G Declaration Also Released

Posted On: 08 OCT 2026 9:32PM by PIB Delhi

The 3rd International Bharat 6G Symposium 2026, being organised by the Bharat 6G Alliance (B6GA) at Yashobhoomi, Dwarka, New Delhi, was inaugurated today by Shri Jyotiraditya M. Scindia, Union Minister for Communications and Development of North Eastern Region, Government of India.



Five New MoUs to Strengthen Global and Industry Collaboration

During the inaugural ceremony, the Bharat 6G Alliance exchanged MoUs with:

1. GSMA
2. one6G Association
3. GTI Alliance Ltd
4. 6G Industry Forum (6GIF)
5. VoICE

These collaborations further strengthen the Bharat 6G Alliance's engagement with leading global and industry stakeholders and reinforce India's commitment to international cooperation in research, innovation, standards, technology development and deployment for next-generation networks.

With these new collaborations, the Bharat 6G Alliance builds further upon its existing international and domestic partnerships. The Alliance already has 10 global and 2 domestic MoUs/Mol collaborations, taking its broader partnership network to 17 collaborations.



Executive Summary

The 3rd International Bharat 6G Symposium 2026 was organised by the Bharat 6G Alliance (B6GA), in association with the Department of Telecommunications (DoT), Government of India, from 7 to 9 October 2026 at Yashobhoomi, Dwarka, New Delhi, alongside India Mobile Congress 2026. Its theme was “*Shaping Global 6G through International Partnerships, Standards, Innovation and Trusted Ecosystems*”. The Symposium provided a platform for international dialogue on the technologies, standards, spectrum frameworks, use cases, partnerships and innovation pathways required for the next generation of mobile communications. It brought together policymakers, regulators, telecom service providers, equipment manufacturers, international alliances, standards development organisations, research institutions, start-ups and academia. Over three days it featured three (03) keynote addresses, nine (09) thematic sessions and a fireside chat, with more than 75 speakers, nearly half of them from overseas.

The symposium’s central message was that 6G must be shaped through international cooperation, globally interoperable standards, trusted and secure technologies, sustainable network design, and a strong pipeline from research to trials, intellectual property, products and deployment. India’s role was framed not only as a large market for advanced connectivity, but as a contributor to the technologies, standards, applications and innovation that will underpin global 6G.

The Symposium was inaugurated by **Shri Jyotiraditya M. Scindia, Hon’ble Union Minister of Communications and Development of North Eastern Region**, in the presence of **Shri Amit Agrawal, Secretary (Telecom), Department of Telecommunications** on 8 October 2026. During the inaugural ceremony, the Bharat 6G Alliance exchanged five (05) Memoranda of Understanding with leading international and industry organisations: GSMA, one6G Association, GTI Alliance, 6G Industry Forum (Taiwan) and VoICE. These agreements bring the Alliance’s international partnerships to 17. The Hon’ble Minister also released ten B6GA publications, comprising nine technical white papers and a joint international report on progress towards the New Delhi Declaration on 6G principles. Together, the MoUs and publications reaffirm India’s commitment to building 6G through international cooperation, shared knowledge and collaborative innovation.

The Symposium came at a decisive stage in the global 6G journey. 3GPP is moving from study to specification of the first 6G release, and ITU-R is concluding its preparations for the World Radiocommunication Conference 2027 (WRC-27). The 2024 edition set out the case for 6G, and the 2025 edition adopted the New Delhi Declaration on 6G principles. The 2026 edition moved the focus to implementation: standards contributions, migration choices, spectrum readiness, testbeds and trials, industry requirements and commercially sustainable business models.

Key outcomes of the Symposium:

- **International cooperation:** Five Memoranda of Understanding were exchanged with GSMA, one6G Association, GTI Alliance, 6G Industry Forum (Taiwan) and VoICE. This brings B6GA’s international partnerships to 17, in pursuit of “one 6G, one network, one standard”.
- **Knowledge outputs:** Ten publications were released. These were nine technical white papers covering technology roadmap, ISAC, FWA, optical technologies, spectrum, sustainability, cellular–Wi-Fi synergy, CNPN and security, together with a joint international report on progress towards the New Delhi Declaration.
- **Standards leadership:** There was broad consensus on a single global 6G standard with a lean migration path. Coordinated Indian contributions are needed before the Release 21 work item is approved in March 2027.
- **Spectrum readiness:** The 6–8 GHz range was identified as the priority mid-band for 6G. The Symposium called for regional consensus-building ahead of WRC-27 and a predictable, multi-year national spectrum roadmap.
- **Technology priorities:** The priority areas identified were AI-native networks, integrated sensing and communication, unified terrestrial and non-terrestrial networks, quantum-safe security and energy-efficient network design.

- **Innovation ecosystem:** The discussions stressed patient capital through ANRF and the ₹1 lakh crore RDI Fund, shared national testbeds on a hub-and-spoke model, market access for start-ups, and stronger industry–academia collaboration.
- **Industry adoption:** Sectors such as mining, automotive, healthcare, railways and maritime logistics need deterministic performance, trust, affordability and clear business value from 6G.

The valedictory session included DoT's curtain-raiser for the Emerging Science, Technology and Innovation Conclave (ESTIC) 2026. In the valedictory address by the Chief Guest, the Hon'ble Union Minister of State for Communications and Rural Development, **Dr. Chandra Shekhar Pemmasani** called for the international partnerships to be turned into joint research, shared testbeds and cross-border innovation. The Minister also asked that digital inclusion remain a core design requirement of 6G, as India moves from "*Digital India*" to "*Intelligent India*".

This report covers inauguration and major announcements first, followed by the technical deliberations on 7, 8 and 9 October 2026, and then consolidated outcomes and a proposed action agenda.

Ministry of Communications

Bharat 6G Alliance Strengthens Global Partnerships at 3rd International Bharat 6G Symposium 2026

Union MoS for Communications Dr. Chandra Sekhar Pemmasani addresses valedictory session; DoT highlights ESTIC 2026 and its focus on intelligent networks and quantum communication

समाचार संकेत: 09 OCT 2026 7:41PM by PIB Delhi

The 3rd International Bharat 6G Symposium 2026 concluded at Yashbhoomi, Dwarka, New Delhi, with a valedictory address by Dr. Chandra Sekhar Pemmasani, Union Minister of State for Communications and Rural Development. Organised by the Bharat 6G Alliance (B6GA) alongside India Mobile Congress 2026, the three-day event brought together global telecom leaders, policymakers, standards organisations, industry, academia and researchers to discuss the roadmap towards IMT-2030 and beyond.



Union Minister of State for Communications and Rural Development is his address congratulated the Bharat 6G Alliance for organizing the two-day 3rd International Bharat 6G Symposium 2026 and for inviting over 75 speakers, which included more than 30 international experts.



1. Background and Objectives

India has emerged as one of the world's most dynamic digital economies. It has more than 1.2 billion mobile connections, one of the fastest 5G rollouts globally and the highest mobile data consumption per user. Its strengths include an indigenously developed 4G technology stack, its position as the world's second-largest mobile handset manufacturer, and proven experience in delivering digital public infrastructure at population scale. Together, these place India well to contribute meaningfully to the next generation of mobile communications.

The Bharat 6G Alliance brings together Indian industry, academia, research institutions and standards bodies to advance the Bharat 6G Vision of **affordable, ubiquitous and sustainable connectivity**. The Alliance works to position India as a leading contributor of 6G technologies, intellectual property and global standards, in partnership with the international community.

The International Bharat6G Symposium is the Alliance's flagship platform for global dialogue on 6G. The third edition was held at an important point in the IMT-2030 timeline. The ITU-R requirements for IMT-2030 have been finalised, 3GPP has fixed the timeline for the first 6G specifications, and WRC-27, to be held in Shanghai in October–November 2027, will shape the spectrum basis for 6G. The Symposium was therefore planned to turn shared principles into coordinated action across standards, spectrum, research, trials and commercialisation.

The Symposium was organised with the following objectives:

- To deliberate on the global roadmap towards IMT-2030 and the approaches needed for a single, globally interoperable 6G standard.
- To strengthen India's engagement with international 6G alliances, standards organisations and partner governments, and to turn partnership agreements into joint action.
- To examine 6G spectrum requirements and candidate bands, and to support evidence-based national and regional preparation for WRC-27.
- To explore key enabling technologies for AI-native, secure, resilient and sustainable 6G networks, including integrated sensing and communication and non-terrestrial networks.
- To connect research institutions, academia, start-ups and industry with testbeds, trials, funding mechanisms and pathways to commercialisation.
- To identify high-impact industry and societal use cases, along with viable business models for 6G adoption.
- To review progress against the principles of the New Delhi Declaration and promote a trusted, open, inclusive and sustainable global 6G ecosystem.
- To identify concrete follow-up activities for joint research, interoperability trials, standards contributions and knowledge exchange.

2. Inauguration and Major Announcements

The 3rd International Bharat 6G Symposium was inaugurated on 8 October 2026 at Yashobhoomi, Dwarka, New Delhi, by **Shri Jyotiraditya M. Scindia, Hon'ble Union Minister of Communications and Development of North Eastern Region** in the august presence of **Shri Amit Agrawal, Secretary (Telecom), Department of Telecommunications**. The inaugural proceedings opened with a welcome address by the Dr. Kumar Sivarajan, Vice-Chair, B6GA, followed by exchange of Memoranda of Understanding with five international and industry organisations and release of ten B6GA white papers and reports.



2.1 Exchange of Memoranda of Understanding

Five MoUs were exchanged with the following organisations, strengthening the basis for international cooperation and industry engagement:

- **GSMA**
- **one6G Association**
- **GTI Alliance Ltd.**
- **6G Industry Forum (6GIF), Taiwan; and**
- **VOICE**

The intended areas for follow-through include joint research, collaborative testbeds, interoperability trials, exchange of researchers and experts, knowledge-sharing, and coordinated contributions to the global 6G ecosystem.



2.2 Release of White Papers and Reports

The inaugural program included the release of following B6GA reports and Working Group white papers:

- **6G Technology Landscape Survey and Roadmap for R&D, Platforms and Trials in India**
- **Integrated Sensing and Communication (ISAC) for 6G: Technologies, Architectures, Applications, and Future Directions**
- **Fixed Wireless Access: Bharat's Broadband Backbone from 5G to 6G**
- **Role of Optical Technologies for 6G**
- **A Perspective on IMT Spectrum Readiness towards 2030 and Beyond**
- **Sustainable 6G: Designing Networks for a Carbon Net Zero Future**
- **Cellular and Wi-Fi Synergy: Global Pathways to Inclusive Connectivity**
- **Captive Non-Public Network (CNPN)**
- **Security for 6G, and**
- **Progress towards the 6G Principles of the New Delhi Declaration: Actions, Outcomes and Outlook**

2.3 Briefs on the Released White Papers and Reports

The following summaries capture the principal contribution and proposed follow-through of the ten publications associated with the symposium.

1. 6G Technology Landscape Survey and Roadmap for R&D, Platforms and Trials in India

The white paper surveys the global 6G technology landscape and India's preparedness for the transition from 5G-Advanced to IMT-2030. It reviews the standards roadmap, evolving network architecture and technologies including AI-native networking, integrated sensing and communication (ISAC), non-terrestrial networks (NTN), advanced radio systems and sustainable network design.

It proposes a coordinated national roadmap linking research and development with experimental platforms, proof-of-concept demonstrations, field trials, standards contributions and commercialisation. It calls for stronger alignment among government programs, industry, academia, start-ups and research institutions so that Indian R&D translates into indigenous products, intellectual property and contributions to global standards.



India 6G Alliance Strengthens Global Partnerships at the 3rd International India 6G Symposium 2026

Dr. Chandra Shekhar Pemmasani addressed the closing session; Department of Telecommunications informed about ESTIC 2026 and its emphasis on intelligent networks and quantum communications



2. Integrated Sensing and Communication (ISAC) for 6G: Technologies, Architectures, Applications, and Future Directions

The report examines ISAC, in which wireless networks use shared radio resources and infrastructure both to communicate and to sense their surroundings—for example, detecting the presence, location or movement of objects. It reviews air-interface and waveform design, antennas and RF front ends, network architecture, AI-native processing, performance evaluation, security and privacy, and the status of work in 3GPP, ITU, TSDSI and other standards forums.

The report recommends focusing Indian efforts on areas with clear potential, including RIS-assisted ISAC, disaster and environmental sensing, sensing along rail, highway and UAV corridors, and India-specific channel measurements. It calls for linking TTDF-funded projects to open standards questions, establishing shared test sites and datasets, adopting common evaluation methods, and addressing regulatory and privacy issues early.



3. Fixed Wireless Access: Bharat's Broadband Backbone from 5G to 6G

The white paper positions Fixed Wireless Access (FWA) as an important means of extending broadband to households and enterprises, particularly where fibre-to-the-premises is difficult or uneconomic. It draws on India's rapidly expanding FWA experience and highlights that FWA has distinct requirements: fixed-address service commitments, rooftop customer-premises equipment, sustained household traffic, uplink performance and careful management of radio and backhaul capacity.

The report recommends explicitly recognising FWA in broadband policy and 6G studies, including it in testbeds and trials, and carrying Indian deployment requirements into 3GPP, ITU-R and TSDSI. It also emphasises capacity- and backhaul-aware service planning, suitable spectrum—including upper mid-band opportunities—and the development of affordable, robust, India-designed customer-premises equipment. FWA is presented as a practical bridge between mobile-network innovation and inclusive broadband access.



4. Role of Optical Technologies for 6G

The white paper establishes optical technologies as a foundation for 6G, providing high-capacity transport, precise synchronisation, resilience and efficient data movement alongside radio access. Its scope includes fibre transport for the radio access network, fibre access and fixed-mobile convergence, LiFi and visible-light communication, free-space optical links, inter-satellite links, optical interconnects for AI infrastructure and quantum-ready optical networks.

It recommends strengthening fibre connectivity to mobile sites, improving restoration and route diversity, developing reliable timing and synchronisation, and validating optical wireless technologies under Indian field conditions. Indigenous research, shared testbeds, multi-band optical capacity, quantum-safe capabilities and participation in international standards are identified as important pathways to a robust, scalable and sustainable 6G infrastructure.



5. A Perspective on IMT Spectrum Readiness towards 2030 and Beyond

This report assesses India's future spectrum requirements against rapid growth in wireless data, 5G adoption, FWA and emerging AI-driven traffic. It highlights the importance of making adequate spectrum available in time to support the capacity, coverage and performance expected from IMT-2030 while maintaining reliable and affordable connectivity.

The report identifies the 6.425–8.4 GHz range as a strategically important mid-band opportunity and recommends pursuing appropriate international identification of additional spectrum at WRC-27, accelerating the use of bands already identified for IMT, examining complementary mid- and low-band resources, and undertaking time-bound spectrum refarming. It stresses evidence-based national positions, protection of incumbent services and sustained international engagement on spectrum policy.



6. Sustainable 6G: Designing Networks for a Carbon Net Zero Future

The white paper advocates embedding sustainability into 6G from the outset and assessing the full lifecycle impact of networks, including infrastructure, data centres, AI, energy supply, equipment and electronic waste. It recommends measuring outcomes through indicators such as electricity consumption and emissions per subscription, renewable-energy share, diesel use, embodied carbon and material circularity, rather than relying only on energy efficiency per bit.

Practical priorities include wider adoption of renewable energy and Green Energy Open Access, energy- and carbon-aware network optimisation, efficient AI operations, suitable battery storage and alternatives to diesel backup. The report also calls for repairable and modular equipment, reuse and recycling, and consistent sustainability measurement and reporting, supporting a 6G ecosystem that combines affordability and resilience with lower lifecycle emissions.



7. Cellular and Wi-Fi Synergy: Global Pathways to Inclusive Connectivity

The report examines how cellular and Wi-Fi can complement one another to extend meaningful and affordable connectivity. Cellular remains central to managed mobility and wide-area service, while Wi-Fi provides flexible local access in homes, enterprises, institutions and public venues. The paper supports selective coordination—such as trusted discovery, authentication, traffic steering and compatible multi-access—where measurable user, technical or commercial benefits can be demonstrated.

It highlights fibre backhaul, local connectivity clusters and viable public-access models as important enablers. For India, it recommends strengthening PM-WANI implementation with greater attention to active usage, service quality, uptime, transparent settlement and commercial sustainability. Technology-neutral policy, operator partnerships, voluntary interoperability and evidence-based pilots are proposed to align advanced mobile innovation with inclusive connectivity.



8. Captive Non-Public Network(CNPN): Strategic Enterprise Connectivity for the 5G-Advanced and 6G Era

This white paper positions Captive Non-Public Networks as strategic infrastructure for enterprises, public agencies and critical sectors requiring secure, reliable and customised connectivity within defined premises or operational areas. It considers network architecture, deployment and commercial models, spectrum options, coexistence, security and governance, and applications across manufacturing, mining, ports, airports, railways, utilities, healthcare, defence and rural clusters.

The report recommends enabling multiple deployment models—including operator-managed, leased, private, shared and hybrid arrangements—supported by predictable spectrum processes, standards-based interoperability and measurable pilot deployments. It also identifies CNPNs as practical environments for testing AI-native orchestration, edge intelligence, precise positioning, ISAC and terrestrial–non-terrestrial integration, while creating opportunities for indigenous applications and intellectual property.



9. Security for 6G

The report examines security and privacy challenges arising as 6G integrates AI, sensing, computing and ubiquitous connectivity. It covers cryptographic foundations and migration to post-quantum cryptography, radio access and core-network security, interface protection, authentication and authorisation, security-event collection and monitoring, and the security of AI systems and agents. It also considers the implications of sensing data and expanded network-data exposure for privacy and trust.

The report calls for security-by-design, stronger protection of network messages and interfaces, effective monitoring and early detection of malicious activity, and research and standardisation on issues relevant to India, including hybrid post-quantum cryptography, NTN, sensing, consent management and AI security. It highlights continued engagement through 3GPP and TSDSI so that security and privacy requirements are built into 6G architecture rather than added after deployment.



10. Progress towards the 6G Principles of the New Delhi Declaration: Actions, Outcomes and Outlook

This joint international report reviews progress against the nine principles of the New Delhi Declaration, endorsed at the 2nd International Bharat6G Symposium in October 2025. The principles call for a trusted, secure, resilient, open, interoperable, affordable, sustainable and inclusive 6G ecosystem, supported by global standards, viable business models, terrestrial–non-terrestrial integration, diverse spectrum and supply chains, and skills development.

The report records partner contributions in standards development, security by design, AI-native networks, resilience, open technologies, testbeds, trials, intellectual property and researcher training. It also identifies a gap between reporting activities and demonstrating shared outcomes, such as adopted standards, interoperability and sustainable deployments. It calls for joint standards priorities, shared measurement frameworks, cross-border trials and reciprocal access to testbeds, providing a practical basis for translating the Declaration's principles into implementation.



3. Day 1 — 7 October 2026: Global 6G Vision, Standards and Technology Leadership

The first day focused on the technical and strategic foundations of 6G. The program covered the transition from 5G-Advanced to 6G, global standards, spectrum planning for IMT-2030 and WRC-27, and the role of research, testbeds and emerging network capabilities.

3.1 Keynote Address by Mr. N. G. Subramaniam, Founding Chair of Bharat 6G Alliance

The keynote by Mr. N. G. Subramaniam, Founding Chair of B6GA and Chairman of Tejas Networks, formed part of the strategic framing of the symposium. The overall discussions reinforced the need to link research priorities to standardisation, trials, intellectual property, product development and adoption.



In his keynote address, Mr. N. G. Subramaniam reflected on the lessons learned from 5G deployments and set out a strategic vision for 6G centered on artificial intelligence, network intelligence, and commercial sustainability. Drawing on research across global telecom enterprises, Mr. Subramaniam noted that while mobile broadband expansion succeeded, complex promises like private 5G, network slicing, and millimeter wave largely failed to meet expectations due to operational friction across multi-generational networks. Moving forward, he emphasized that 6G must be inherently AI-native—shifting from raw data transmission to semantic, intent-based communication—and designed to rebalance operator revenues by boosting the enterprise market share to 30–40%. A 6G network should inherently understand the business value of what it carries, and operators' capex, opex and monetisation problems must be solved in parallel with the technology.

Mr. Subramaniam also outlined the progress of the Bharat 6G Alliance, highlighting India's vision of affordability, ubiquity and sustainability, supported by strong government backing, growing industry participation and increasing contributions to global standards. He described the roadmap from research and standards development to

testbeds, trials, manufacturing and commercial deployment by 2030. Particular emphasis was placed on creating sustainable revenue opportunities through AI-enabled services, edge computing, digital twins, platform-based offerings and industry-specific applications. He noted that AI-driven network operations are already demonstrating significant efficiency gains and that Bharat 6G Alliance members are piloting new monetization models in sectors such as agriculture, healthcare and education.

He also outlined Tejas Networks' 6G work, with 65% of its people in R&D: a converged AI-native baseband and core, 256+ port massive MIMO radios for 6G spectrum, a 640 W extreme MIMO radio with 1,024 antenna elements, ISAC and NTN, AI-RAN algorithms for channel estimation, energy saving and handover optimisation, AI agents for configuration, observability, diagnostics and self-healing, terabit-scale low-latency AI data-centre switches and optical products, and edge compute integrated with a 6G backhaul portfolio.

Concluding his address, he called for a 6G network that releases capacity gains, consumes less power and uses AI models as lean and energy-efficient as they are smart — “a network that does not just connect the world, but truly thinks with it”. Innovation, self-reliance and monetisation are the key elements of India's 6G mission, to be developed inclusively with inputs from many countries, especially the Global South. The follow-up priorities:

- identify priority 5G-Advanced capabilities that should be carried forward into 6G research and trials;
- strengthen Indian participation in ITU and 3GPP work, supported by coordinated technical contributions;
- align spectrum studies and national preparation with the international WRC-27 process; and
- connect R&D programmes with validation platforms, field trials and commercialisation pathways.



3.2 Session 1: Building the Foundations for 6G

(Objective: By leveraging the latest opportunities enabled by 5G and 5G-Advanced technologies, the Indian ecosystem can create innovative consumer and enterprise services and build the foundations for the transition to 6G, enabling the next wave of digital transformation and growth.)

The session brought together the technology heads of India's three private telecom operators, global and Indian equipment vendors, academia and C-DOT to discuss how the 5G and 5G-Advanced foundation should be maximised, and how 6G should be shaped around monetisable use cases, cost-effective architecture and Indian priorities.

The session examined how capabilities emerging from 5G-Advanced can provide a bridge to 6G. Topics included AI/ML-enabled network functions, advanced radio technologies, integrated sensing and communications, positioning, non-terrestrial networks, automation and energy efficiency. A key consideration was how to convert technical capabilities into useful, scalable and commercially viable services for consumers, enterprises and society.



Session Chair:

- Mr. Alok Shukla, Advisor (Technology), Department of Telecommunications, Government of India

Session Speakers:

- Mr. Randeep Singh Sekhon, Bharti Airtel
- Mr. Shyam Mardikar, Reliance Jio
- Prof. Bhaskar Ramamurthi, IIT Madras
- Mr. Jagbir Singh, Vodafone Idea

- Mr. Magnus Ewerbring, Ericsson
- Dr. Kumar Sivarajan, Bharat 6G Alliance (Tejas Networks)
- Dr. Rajkumar Upadhyay, C-DOT
- Ms. Priya Narayanan, Nokia

Discussion Highlights:

- **Setting the Frame:**
Opening the session, Session Chair noted that the ITU-R IMT-2030 framework and the 5G-Advanced ecosystem: AI, advanced MIMO, extended reality, sensing, positioning, network automation and non-terrestrial networks — are laying the foundation for the next generation. Connectivity should follow the person, the machine and the mission, with minimum assured connectivity anytime, anywhere, and with terrestrial networks as the backbone complemented by non-geostationary satellite constellations in an integrated network offering the same device, standards and service experience.
He described 6G as a virtuous cycle in which technology creates use cases, use cases create value, value creates revenue, revenue enables investment and investment drives the next generation of innovation. Commercial sustainability must therefore be designed in from the beginning, always asking “what problem are we solving, for whom, and who will pay?”. Leadership in 6G will come from completing the entire innovation chain — research, testbeds, trials, standards, IPR, products and global deployment — through an open, interoperable and globally scalable ecosystem, so that no country has to choose between innovation and inclusion.
- **Maximising 5G as the Platform for 6G:**
Industry leaders highlighted that maximizing 5G is an essential prerequisite for 6G, comparing 5G to a “semi-final” that dictates readiness for the 6G “final.” While 5G coverage is now ubiquitous across India, early deployments focused primarily on speed and capacity, with differentiated enterprise and consumer services only recently taking off. Presenters identified key technological shifts reshaping the landscape, including direct-to-device satellite convergence, the rise of AI agents, and the emergence of physical AI. Over the next two to three years, operator priorities must focus on expanding resilient nationwide fiber networks, deploying autonomous network operations, running early trials for spatial sensing, and advancing business innovation like network slicing to monetize differentiated traffic flows under supportive regulatory frameworks.
- **From Capacity to Capability: AI, Compute, and New Users of the Network**
The discussion highlighted a fundamental transition from network coverage (2G/3G) and capacity (4G/5G) toward capability, positioning compute and connectivity as complementary halves of modern digital infrastructure. As user interfaces evolve from command lines and touch toward voice, intent-based interaction, and vernacular AI, network demands are shifting drastically. Furthermore, future 6G users will increasingly be non-human—specifically agentic AI and physical AI (drones, robots, and autonomous vehicles)—requiring architectural changes such as edge intelligence, semantic communication, agent orchestration, and closed-loop learning across devices, RAN, and core.



- Uplink Capacity, Coverage and Non-Terrestrial Networks**
 The discussion underscored the importance of designing networks and devices to support AI-driven uplink traffic, including multi-camera video and real-time control applications. Integrated terrestrial and non-terrestrial networks, direct-to-device satellite connectivity and high-altitude platforms were highlighted as potential enablers of ubiquitous connectivity and coverage in underserved areas.
- Integrated Sensing, Positioning and Digital Twins**
 Integrated Sensing and Communication (ISAC), centimetre-level positioning and edge AI were identified as promising enablers of new 6G services. Potential applications included two-wheeler collision avoidance, intelligent transportation, urban and metro planning, lake-encroachment monitoring and context-aware assistance. Reconfigurable intelligent surfaces were also discussed as a means of improving coverage and making higher-frequency deployments more cost-effective.
- Commercial Sustainability and Value Creation**
 Speakers stressed that commercial viability must be embedded in 6G development from the outset, with clear identification of user needs, value propositions and revenue models. Network slicing and differentiated connectivity offer opportunities for new services, while simpler and cost-effective specifications, affordable chipsets and software-upgradable infrastructure could reduce deployment costs. The discussion also highlighted the need for telecom operators to capture a greater share of the value generated by digital services.
- Indigenous Capabilities and the Indian 6G Ecosystem**
 The session reaffirmed India's ambition to develop indigenous 6G technologies, building on domestic 4G and 5G capabilities. Priorities included increasing domestic value addition in telecom equipment, strengthening chip and component design, contributing to global standards and intellectual property, and leveraging national R&D funding programmes. Funding avenues include 104 6G projects under DoT's TTDF, along with DST, MeitY, ANRF and the ₹1 lakh crore RDI scheme. The importance of aligning global standardisation efforts with India's requirements while ensuring international interoperability was emphasised.
- Security, Privacy and Trust by Design**

Security and trust were identified as foundational requirements for 6G. AI-enabled applications involving sensitive personal information, including digital health replicas, will require robust privacy protection, network resilience and user confidence. Security considerations must therefore be integrated across devices, networks, computing platforms and AI systems from the design stage.



3.3 Session 2: Global Standards: Aligning the World Towards IMT-2030

(Objective: Discuss the evolving global standards roadmap towards IMT-2030, key technology priorities and approaches to achieving global interoperability and ecosystem readiness.)

The standards discussion addressed the importance of coordination among ITU, 3GPP, regional and national research programmes, industry alliances and other stakeholders. Global interoperability should remain a central design objective, while allowing countries and regions to contribute distinctive innovations and use cases. Early engagement in standards development is important for ensuring that research and technology proposals can influence future specifications.



Session Chair:

- Mr. Anil Kumar Bhardwaj, DDG (SE), Department of Telecommunications, Government of India

Session Speakers:

- Dr. Younsun Kim, 3GPP RAN Chair, Samsung
- Mr. Etienne Chaponniere, Qualcomm
- Mr. Harbaksh Singh Kahlon, Bharti Airtel (OneWeb)
- Mr. Satish Jamadagni, TSDSI
- Mr. Masaaki Koga, KDDI
- Dr. Ulrich Dropmann, Nokia
- Mr. Takehiro Nakamura, NTT DOCOMO

Discussion Highlights:

The session reviewed where 3GPP stands on the first 6G specifications, the major open decisions — above all migration — and what operators and vendors expect the standard to deliver.

- **Chair's Framing:** With the IMT-2030 requirements frozen, the challenge is keeping every region at one table. Regional needs differ and operators keep asking about return on investment, so the standard must make 6G pervasive and deliver use cases that repay investment.
- **Status and Timeline of 6G Standardisation:** 3GPP has fixed the timeline for the first 6G release. The work item will be approved in March 2027, the functional freeze is due in December 2028 and the final (ASN.1) freeze in March 2029. The 6G radio will not be backward-compatible with 5G, and commercial launches are expected from late 2029 to 2030.
- **Migration: The Key Open Decision:** Migration from 5G is the biggest unresolved question, and the decision has slipped to the December 2026 plenary. Speakers urged a single, lean migration path, with panelist favouring multi-radio spectrum sharing (MRSS), to avoid the fragmentation caused by 5G's many options.
- **AI as the New Interface and Traffic Driver:** AI is set to become the new user interface and a major, uplink-heavy source of traffic. Speakers called for on-device processing, AI-native RAN functions, guaranteed latency, intent-aware quality of service and an uplink-first design: networks built for AI as well as run by AI.
- **Operator Expectations: Lessons from 5G and Asks for 6G:** 5G left operators with costly FWA, stalled private 5G and unmonetised millimetre wave. They want 6G deployed selectively as an evolution of 5G: an upgradable core, software-upgradable radios, lower energy use, essential day-one features only, and wide mid-band spectrum in 6–8 GHz.
- **Open Questions on AI Standardisation and Governance:** The discussion raised important questions concerning the scope and governance of AI within 6G standards. These included demonstrating deterministic performance of AI-based RAN functions, transparency of training datasets for AI-enabled codecs, the role of standards in agentic core architectures, and risks associated with deadline-driven standardisation. The discussion underscored the need to balance innovation and implementation flexibility with reliability, accountability and interoperability.



- **Expanding Indian Leadership in 3GPP:** The panel highlighted India's rapidly growing footprint within global telecommunications standards bodies. Participation by TSDSI member organizations in 3GPP expanded significantly from 16 in September 2017 to 54 in September 2026—more than tripling over nine years. This increased engagement spans Indian telecom operators, equipment vendors, start-ups, government entities, and academic institutions participating across 3GPP RAN, SA, and CT working groups.
- **Capacity, Capability, and Economy:** In closing, speakers debated whether global standardization should prioritize network capacity, capability, or economy. Most panellists agreed that capability and capacity are the technical attributes specified within the standard that enable operators to create new monetizable services. Economy and return on investment act as the natural result of global manufacturing scale, lean standardization, and software-upgradable infrastructure, ensuring technical capabilities directly generate sustainable operator revenue.

3.4 Session 3: Spectrum for IMT-2030: Preparing for WRC-27 and Beyond

(Objective: To examine global and regional spectrum strategies, identify candidate frequency bands, and align technical, regulatory, and policy frameworks for IMT-2030 including WRC-27.)

Spectrum planning emerged as a strategic enabler for 6G. Continued technical studies, compatibility assessments, evidence-based policy discussions and coordination with international processes will be important in evaluating candidate bands and preparing positions for WRC-27. Spectrum choices should consider capacity, coverage, deployment economics, coexistence with incumbent services and the needs of diverse geographies.



Session Chair:

- Dr. (Ms.) Revathi Mannepalli, Joint Wireless Advisor, Ministry of Communications, Government of India

Session Speakers:

- Ms. Luciana Camargos, GSMA
- Dr. Ravi Gandhi, Reliance Jio
- Mr. Hardeep Saini, Qualcomm APAC
- Mr. Jishnu A., Tejas Networks
- Mr. Ashwani Kumar, Nokia
- Mr. Ravi Lakhotia, Vodafone Idea

Discussion Highlights:

The session examined how much spectrum 6G will need, the candidate bands under study for WRC-27, India's position in regional preparations, and the timeline and policy conditions operators and vendors need for investment.

- **India's Spectrum Position and the WRC-27 Agenda:** The opening remarks of the Session Chair that India has already made IMT spectrum available in the FDD and TDD bands and, since WRC-23, has identified spectrum for 6G with Cabinet approval: the upper 6 GHz band (6425–7125 MHz, about 700 MHz contiguous) and 67 MHz of the L-band (1427–1518 MHz), with the band plan yet to be decided. WRC-27 will be held in Shanghai in October–November 2027. Under agenda item 1.7 on IMT identification, handled by ITU-R WP 5D, whose final meeting was concluding the CPM text, the candidate bands are 4400–4800 MHz, 7125–8400 MHz and 14.8–15.35 GHz, with attention converging on the mid-band. Panellists conveyed their best wishes to the Chair as India's nominee for Director of the ITU Radiocommunication Bureau.

- **How Much Spectrum Does 6G Need?:** Studies point to 2–2.5 GHz of mid-band spectrum on average, and 3–3.5 GHz in India’s dense cities, starting at 200 MHz per operator and rising to 400 MHz. Operators warned that the bands identified so far fall short, and that a capacity crunch is likely between 2028 and 2030.
- **Candidate Bands and Coexistence:** 6–8 GHz emerged as the “golden range” for Bharat 6G. Of more than 106 sharing studies on 7–8 GHz, results for satellite uplinks are largely positive while satellite downlinks remain contested. The way forward is to reconcile the studies and agree least restrictive technical conditions for coexistence.
- **India’s Position and Regional Alignment:** The upper 6 GHz decision was called the bedrock of India’s 6G success. India was urged to build a large Asia-Pacific bloc through APG and to secure a footnote recording its upper 6 GHz use at WRC-27, which is already being pursued.
- **Uplink and Band Arrangements:** With the uplink becoming the limiting link, a decoupled uplink, such as pairing with the 1400–1500 MHz band, is under consideration, alongside low-band spectrum for deep indoor coverage and IoT.
- **Timeline, Quantity and Visibility:** The emerging timeline is consultation in 2028 after WRC-27, auction in 2029 and deployment around 2030, with commercial chipsets expected before end-2029. Operators and vendors asked for a predictable multi-year spectrum policy, and the Chair committed to making trial spectrum available.
- **Pricing and Policy Asks:** The asks were spectrum in the right quantity, bands and price; auctions judged by coverage and economic value, not receipts alone; minimal administrative allocation of prime bands; and large contiguous blocks for sensing.
- **Direct-to-Device and Non-Terrestrial Networks:** Satellite direct-to-device service must complement terrestrial networks without interfering with them, and needs harmonised international rules under WRC-27 agenda item 1.13. Satellites cannot close the usage gap driven by affordability and skills.



Bharat 6G Alliance Expands Global Partnerships

By Aditya Lenka - October 10, 2026

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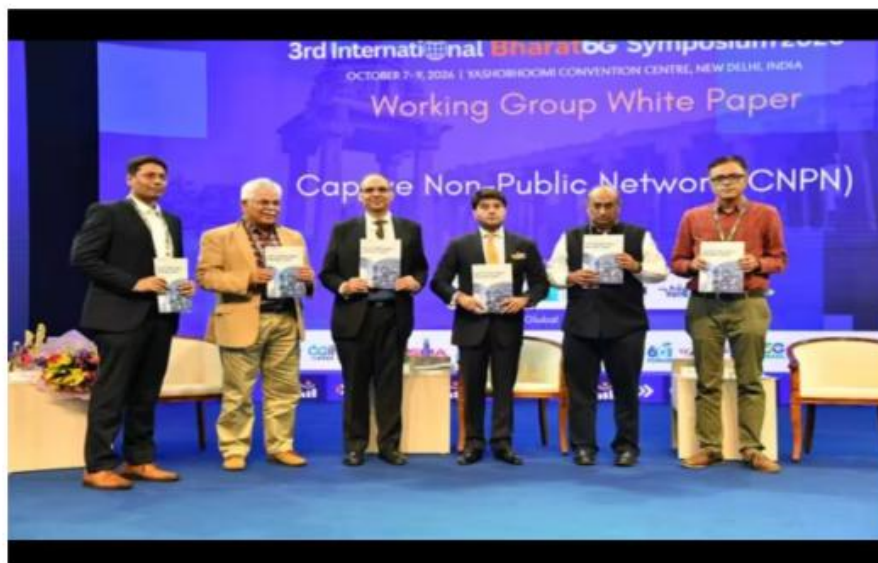


IMC 2026: Bharat 6G Alliance inks MoUs with GSMA, one6G, GTI, 6GIF & VoICE

Additional white papers covered optical technologies, spectrum readiness toward 2030, sustainable carbon-net-zero network architectures, cellular-Wi-Fi synergy, captive non-public networks, and 6G network security frameworks.



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Updated On Oct 9, 2026 at 07:57 AM IST



NEW DELHI: Union Minister for Communications Jyotiraditya Scindia on Thursday inaugurated the 3rd International Bharat 6G Symposium 2026 at the ongoing India Mobile Congress (IMC 2026).

4. Day 2 — 8 October 2026: Research, Trials, Technology and Partnerships

Following the inauguration, the program addressed the practical steps needed to move from research towards deployable 6G capabilities, with emphasis on global trials and testbeds, AI-native networks, sustainability, security, innovation ecosystems and the relationship between technology and national development priorities.

4.1 Session 4: Global Trials and Testbeds: From Research to Large-Scale International Pilots

(Objective: Discuss the testbeds, pilots and collaborative trial platforms required to accelerate the transition from research to large-scale 6G deployment and international validation.)

Testbeds and trials are critical for validating performance, interoperability, reliability, security and real-world value before large-scale deployment. Internationally aligned test environments can help compare technologies across different spectrum conditions, network architectures and use cases. India can build on its scale and diverse deployment environments to support meaningful validation.



Session Chair:

- Mr. Magnus Ewerbring, Ericsson

Session Speakers:

- Dr. Ashutosh Dutta, IEEE Future Networks and Johns Hopkins University

- Mr. Vivek Roy, 5G-ACIA (Siemens)
- Prof. R. K. Ganti, IIT Madras
- Mr. Prakash Ramasetty, C-DOT
- Mr. Mombasawala Mohmedsaeed, Keysight Technologies

Discussion Highlights:

The chair framed the session around the need for testbeds at every stage, from early academic research through standards verification and real devices to industry-specific trials and invited each panelist to give their viewpoint.

Panelists emphasized that hardware and network testbeds are indispensable at every maturity stage—from early algorithm validation to full end-to-end operational verification—since live network dynamics cannot be replicated by simulation alone. Discussions focused on expanding testbed capabilities to address AI/ML training data generation, non-terrestrial networks (NTN), high-frequency channel modeling, digital twins, operational technology (OT) integration, and international testbed democratization.

- **Academic Testbeds & Real-World Data:** Fundamental academic research requires dedicated end-to-end hardware testbeds (covering RAN, core, and L2/L3 layers) to bridge the gap between theoretical simulation and practical deployment. Beyond algorithm testing, academic testbeds provide researchers with essential, unconstrained network data required for AI/ML model training—data that commercial network operators rarely expose.
- **Industry Focus Areas for 6G Testing:** Commercial testbed investments are concentrating on six high-priority domains: Non-Terrestrial Networks (NTN) and direct-to-device connectivity; AI-native RAN optimization (such as CSI compression); high-frequency spectrum devices (FR3, 8–12 GHz, and upper 6 GHz) facing non-linear power efficiency challenges; emulator-based digital twins (e.g., RaySIM) for site-specific network conditioning; advanced security; and Integrated Sensing and Communication (ISAC) validation across UAVs, traffic corridors, and factory automation.
- **Global Standards Verification & Democratization:** Robust pre-deployment testing and global testbed access remain vital for identifying protocol flaws early across standards bodies (3GPP, ITU). Initiatives expanding global testbed access (such as open IEEE innovation testbeds and university grants) democratize hands-on technical training and ensure regional deployment requirements are fed directly into 3GPP specifications.
- **Addressing Industrial OT & Telecom Friction:** Industrial 5G/6G testbeds demonstrate that technical bottlenecks frequently stem from operational technology (OT) integration rather than raw cellular performance—such as protocol incompatibilities between IPv6-native cellular core networks and IPv4-native industrial systems. Testbeds are crucial for evaluating true sector-specific needs, selecting appropriate wireless technologies, and validating dedicated industrial spectrum models.

- India's Catalyst Role and Hub-and-Spoke Vision:** Multi-institutional testbed initiatives unite academia, startups, policy leaders, and funding agencies to transform early research into commercial products. To scale 6G testing nationally and serve global supply chains ("make for the world"), consensus favors a hub-and-spoke testbed model that links major research hubs with regional academic and startup clusters across India.



4.2 Session 5: Global Technology Session: AI-Native, Sustainable and Secure 6G Networks

(Objective: Explore key enabling technologies for AI-native, sustainable and secure 6G networks and services.)

The session explored enabling technologies across three pillars of 6G: AI-native architectures, environmental sustainability, and hardware-level security and resilience. The panel established that 6G must evolve from simple performance monitoring to autonomous, intent-driven closed-loop control, while repurposing spare RAN compute into a distributed edge-AI infrastructure. Key discussions addressed over-the-air AI-RAN implementations, 3GPP standardization timelines (toward Release-21), Non-Terrestrial Network (NTN) unification, quantum physical-layer hardware co-design, multi-metric performance testing, and situational-aware resilient network design.

Session Chair:

- Prof. Rohit Budhiraja, IIT Kanpur

Session Speakers:

- Prof. Mahesh Marina, University of Edinburgh, UK
- Prof. Nandana Rajatheva, University of Oulu, Finland
- Prof. Rahim Tafazolli, University of Surrey, UK
- Prof. Kaveh Delfanazari, University of Glasgow, UK
- Dr. Ankit Gupta, Viavi Solutions
- Dr. P. Hanumantha Rao, SAMEER
- Prof. Tommy Svensson, Chalmers University of Technology, Sweden

Discussion Highlights:

- **AI for the Network: From Monitoring to Autonomous and Safe Control**
The session described AI-driven network management as evolving in three stages: monitoring and analytics, AI-assisted optimisation with human engineers in the loop, and fully autonomous, safe closed-loop control. Autonomous control needs safe policy exploration, explainable decisions with quantified uncertainty, and alignment with operator goals such as QoE, coverage, energy and cost. Multi-agent AI tested against RAN digital twins was proposed as the way to achieve this.
- **The Network for AI: Towards a Shared Distributed AI-RAN Platform**
It was shown that RAN compute infrastructure can also serve as a distributed AI compute platform. The approach involves measuring unused compute at cell sites, sharing it safely with AI workloads, hosting edge AI services, and orchestrating communication and compute jointly from device to core.
- **AI-RAN Proven Over the Air**
Over-the-air testbed work covered all three AI-RAN areas: AI-for-RAN (neural channel estimation, learning-based scheduling, low-power UE design), AI-and-RAN (shared GPU compute platforms) and AI-on-RAN (real-time perception digital twins and LLM edge services).



- AI-RAN and 3GPP Standardisation: The Road to Release 21**

The standardisation path was outlined. Release 18 covered studies of AI/ML for CSI, beam management and positioning. Release 19 introduced the first normative AI/ML features. Release 20 adds two-sided CSI compression and the 6G study on an AI-native air interface. Release 21 will bring the first 6G specifications, with the freeze no earlier than March 2029. 3GPP standardises signalling, lifecycle management, data and testing rather than the AI models themselves, which leaves industry alliances to develop the rest of the ecosystem.

- Key Questions Raised for Collaboration**

Four open questions were put to the panel:

1. Standardise or implement: Which AI functions need 3GPP signalling (two-sided CSI, UE models) and which stay vendor-side?
2. Data for AI: Can B6GA and the AI-RAN Alliance build open, India-representative over-the-air datasets?
3. Compute economics: When does accelerated RAN beat CPU on cost and power for affordable deployments?
4. Open platforms: Could OCUDU and Aerial anchor a joint India–Finland AI-RAN testbed for indigenous RAN?

- Non-Terrestrial Networks in 6G**

NTN was seen as essential in 6G for three reasons: closing the digital divide through universal coverage, adding resilience to terrestrial networks and subsea cables, and serving wider social, economic and security needs. Since no single technology suits every environment, the discussion called for a unified “network of networks” in which satellites and UAVs act as network slices of one system, which goes beyond interworking or integration. Direct-to-handheld connectivity was identified as the most

transformative step, though spectrum and uplink link-budget constraints remain major challenges. It was also observed that CPUs may be sufficient for many AI-RAN tasks.

- **Quantum Engineering for 6G Hardware**

The discussion stressed that AI can optimise network operation but cannot overcome physical-layer limits such as losses, heat, power consumption and signal integrity at higher frequencies. Hardware-software co-design across materials, devices, circuits and architecture is therefore needed. Quantum engineering can contribute new device architectures and greater precision. Quantum key distribution can add security alongside post-quantum cryptography, though it cannot replace it. Ultra-low-power coherent on-chip sources, such as superconducting lasers operating below one volt, can provide hardware foundations for ISAC.

- **Testing AI-Native Networks**

In 6G, performance cannot be captured by a single metric. KPIs will need to be assessed at several levels: AI-centric, communication-centric and resource-centric, including how LLM-based network functions are evaluated. Industry work on testing and standardising the data that AI models rely on was highlighted, along with methods for testing proprietary black-box AI models.

- **Panel Discussion on AI-RAN Compute**

The panel noted that AI-RAN compute deployed deep at the cell-site edge adds capital cost, which operational gains must offset. The scope of AI for RAN therefore depends on where the compute sits. Some tasks can run on CPUs or on remote compute, so the choice comes down to cost-benefit analysis, with no single answer. Operators investing in AI-native infrastructure could benefit both from AI improving the network and from the network serving as decentralised AI infrastructure.



4.3 Session 6: Startups, Academia & Innovation Ecosystem: Building the Global Deep-Tech Innovation Pipeline

(Objective: Discuss policies, partnerships, funding mechanisms and standards engagement needed to strengthen the Indian and global 6G start-up ecosystem.)

Session Chair:

- Prof. Gerard Parr, UK-India Future Networks Initiative (UKI-FNI)

Session Speakers:

- Mr. Himanshu Khatri, Axiro Semiconductor
- Mr. Ramu T. S., Lekha Wireless
- Mr. Himanshu Khasnis, Signalchip
- Ms. Alla Goldner, Federated Telecoms Hub (FTH), UK
- Dr. Chitranjan Singh, Ananant Systems
- Dr. Aditya Chaudhuri, Advaya Networks
- Mr. Abhijit Chaudhary, Niral Networks



Discussion Highlights:

The session looked at how startups, academia and research institutions can together build a strong deep-tech innovation pipeline for 6G. Its objective was to discuss the policies, partnerships, funding mechanisms and standards engagement needed to strengthen the 6G startup ecosystem in India and globally. The panel combined

industry and academic perspectives: Indian deep-tech companies working on semiconductors, RF and baseband chips, DSP and AI inference IP, end-to-end wireless systems and private networks, together with a UK research consortium active in 6G standardisation and an academic incubation leader.

- **Non-Terrestrial Networks for Last-Mile Connectivity**

Direct-to-device connectivity from satellites to mobile phones was seen as a major opportunity. It can solve the last-mile problem in remote areas, interiors and at sea, where terrestrial coverage is lacking.

- **AI-Nativity and ISAC as Differentiators**

AI-nativity and integrated sensing and communication (ISAC) were identified as what will set 6G apart from earlier generations, which were limited to communication. Sensing opens up new use cases and new revenue models for operators.

- **AI-Native Design as the Real Change in 6G**

Sensing, NTN and AI can already be implemented with 5G-Advanced, and NTN and ISAC standardisation builds on it. The real difference in 6G is AI-native design, since AI is only an add-on in 5G-Advanced. Because AI is evolving so quickly, both the biggest opportunity and the biggest risk lie in how well the standard anticipates the way AI will be integrated into networks a few years from now.

- **6G as an Intelligent Network**

6G was framed as being about intelligence rather than more speed. The opportunities identified were:

- AI across the RAN, the core and devices to optimise cost, power and performance
- ISAC for autonomous systems such as industrial robotics
- convergence of terrestrial, non-terrestrial and optical networks to deliver lower-cost ubiquitous connectivity

- **Bridging the Digital Divide and the Commercial Case Beyond RAN**

About 250 million people in India lack broadband and 25,000 villages remain unconnected, and 6G should help close this gap through fixed wireless access and NTN. Because of backward compatibility, AI is also needed in current networks. Telcos spend about USD 40–45 billion a year on RAN but close to a trillion dollars across the whole network, including handsets, chips, OSS/BSS, opex and towers. With around 800 operators worldwide, not all of whom will move to 6G, the commercial approach must look beyond RAN.

- **Enterprise and Private Networks: From Automation to Autonomy**

Enterprise and private networks were highlighted as a key opportunity, with industry moving from industrial automation to industrial autonomy. This requires the network and applications to work together. ISAC can locate devices such as autonomous mobile robots indoors without GPS, and AI can be applied across the core, RAN and use cases.

- **Convergence of 5G-Advanced and 6G: Upstream Opportunities**

NTN, high-altitude platforms and AI, whether native or add-on, are expected to arrive together across 5G-Advanced and 6G. Upstream opportunities include new RF bands, transceivers, direct-to-device algorithms, new baseband features, and AI-assisted beamforming and CSI. Standards debates on single-sided versus two-sided AI models were expected to shape the next five years.

- **Threats to the 6G Ecosystem**

The biggest threat identified was operators' sense that 5G has not delivered positive returns. This could delay acceptance of a new standard and new equipment, since operators prefer incremental upgrades to disruptive change. A second threat is the lack of consensus on frequency bands, with countries taking different approaches between the 6–8 GHz range and FR3 (8–15 GHz).



4.4 Fireside Chat: “Scale Beyond Boundaries: Tech Enabling Viksit Bharat 2047”

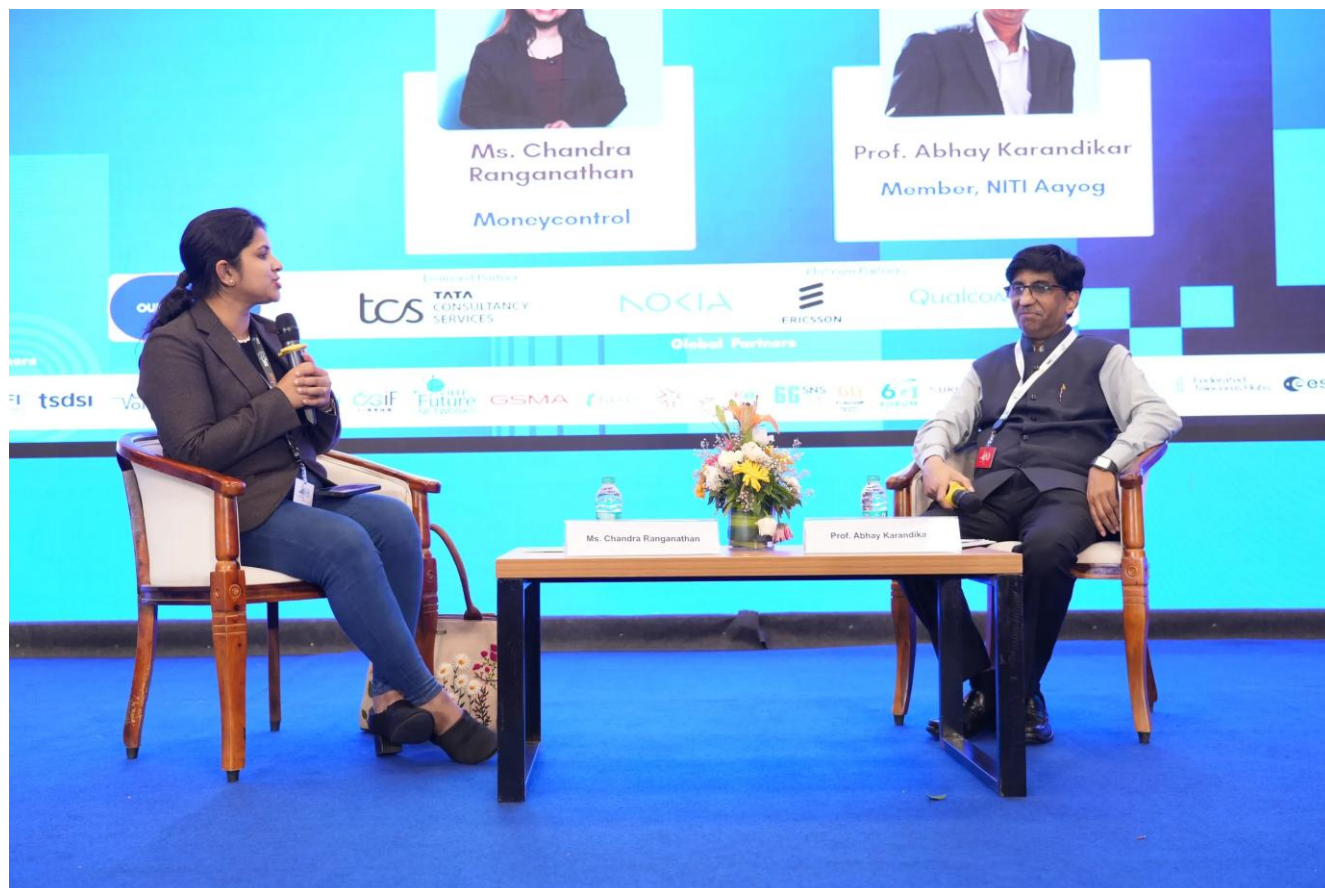
Speaker:

- Prof. Abhay Karandikar, Member, NITI Aayog

Moderator:

- Ms. Chandra Ranganathan, Moneycontrol

Prof. Karandikar was introduced as a pioneer of frugal 5G, a former Director of IIT Kanpur and former Secretary of the Department of Science and Technology, where he led initiatives on deep tech, quantum and research.



Discussion Highlights:

- **A Defining Moment for Indian Technology**
Fast-moving global technology, combined with bold national initiatives such as the Anusandhan National Research Foundation and the ₹1 trillion RDI fund, has created a unique window for India. Mobile is the country's primary gateway to broadband, and India now leads the world in per-user data consumption.
- **Shaping Global Standards**
Having followed others in earlier generations, India now helps shape global standards, with its contributions reflected in IMT-2020 and 3GPP Release 17. This sets the stage for a stronger role and a larger IP share in 6G.



- 6G as the Backbone of Digital Public Infrastructure**
 6G was described as a converged fabric linking AI, terrestrial, satellite, aerial and sensor networks. Layered with AI and India's digital public infrastructure, it could support citizen services at an unmatched scale.
- Seamless Connectivity Through Integration**
 Satellite, cellular and Wi-Fi each have a role, and 6G should bring them together to deliver universal coverage and seamless mobility.
- Self-Reliance with Global Partnership**
 Technology sovereignty is essential to reduce supply-chain risk. Self-reliance, however, means building national capability and securing a fair share of global value while continuing to work with trusted partners, not working in isolation.
- Patient Capital for Deep Tech**
 The RDI fund will invest through specialised fund managers to channel long-term capital into deep tech, an area that currently attracts only a small fraction of venture funding.
- From Research Excellence to Market Impact**
 India's research output is now among the world's highest, but conversion into products is lagging. Closing this gap requires stronger translational research, closer industry-academia collaboration, government procurement that supports startups, shared testing infrastructure and flexible innovation hubs.
- Raising Private R&D Investment**
 India spends under 1% of GDP on R&D. Private-sector participation is growing but still trails leading innovation economies by a wide margin.
- Quantum: The Next Frontier**
 Quantum communication and sensing offer near-term opportunities. Given the scale of India's digital payments, the financial sector should lead the adoption of quantum-safe security.
- Key Takeaways from Audience Interaction**

The discussion reaffirmed India's commitment to international collaboration. It identified standards education as an unmet need, and saw the government's role as removing barriers and enabling startups through its own procurement rather than mandating private-sector purchases.

5. Day 3 — 9 October 2026: Global Use Cases, Industry Transformation and Valedictory Session

The third day focused on international alliances, industry and vertical-sector requirements, and the roadmap towards IMT-2030 and beyond. The programme provided an opportunity to connect regional ecosystems and industry experience with the longer-term global 6G development cycle.

5.1 Keynote Address: Dr. Shivkumar Kalyanaraman, CEO, ANRF

Dr. Shiv Kalyanaraman, CEO, Anusandhan National Research Foundation (ANRF) delivered a keynote address on “**ANRF & RDI Vision: Catalyzing India’s Rise as a Research and Innovation Powerhouse**” where he outlined the statutory body’s mandate to transform India’s R&D ecosystem. Presided over by the Prime Minister on its Governing Board, ANRF combines foundational grant-in-aid support with private-sector growth capital. Its long-term goal is to make India a research and innovation powerhouse and a research partner for the world, catalysing an ecosystem rather than acting only as a funding agency.



Dr. Kalyanaraman detailed the two core financial engines driving this transformation: **ANRF Core** (indicatively ₹50,000 crore) supports foundational, mission-mode and partnership research on a grant-in-aid basis, from basic R&D to prototype. The **Research, Development and Innovation (RDI) Fund (₹1 lakh crore)**, approved by the Union Cabinet on 1 July 2025 and launched by the Prime Minister on 3 November 2025, supports translation and scale-up with the private sector through patient capital — debt, equity or hybrid, and explicitly not grants. Priority sunrise sectors include energy security and transition, deep technology (quantum, robotics, space), AI applied to Indian problems in agriculture, health and education, biotechnology and biomanufacturing, the digital economy, and technologies whose indigenisation is strategically important. Capacity is being built through the hub-and-spoke Partnerships for Accelerated Innovation and Research (PAIR), with 18 networks supported across 32 states and UTs, and 20 Prime Minister Professorships. Vertical missions cover EVs, advanced materials, MedTech, AI

for Science and Engineering and critical raw materials, with drones and water upcoming; **a specific telecom and 6G program with DoT is under consideration**. Translational Research and Innovation (ATRI) centres move technologies from TRL 4 to TRL 7 across the “valley of death”, with at least 20% industry cost-sharing.

He described the RDI Fund as the rocket and ANRF Core’s fundamental research and accelerator programs as its fuel, and invited industry and global partners to collaborate in an “all of government, all of society” approach.

5.2 Keynote Address: Mr. Erik Ekudden, SVP and CTO, Ericsson

Mr. Erik Ekudden delivered a keynote address on “AI-native 6G driving the society for the next decade”, where he highlighted that while 6G standardization is progressing toward 2029-2030, the industry must already be planning for the needs of 2035 and beyond. He stressed that value creation is happening today through AI-powered 5G, differentiated connectivity, network APIs, and autonomous network capabilities, which will form the foundation of AI-native 6G. He described the future network as an “Intelligent Fabric” that seamlessly connects digital and physical AI systems, enabling tailored experiences, ubiquitous connectivity, enhanced sensing, compute services, and support for emerging applications such as extended reality, autonomous vehicles, drones, humanoid robots, and physical AI. Emphasizing the rise of agentic AI traffic, he noted the growing demand for enhanced uplink performance, bounded-latency services, and dynamic treatment of application flows. He also underlined the importance of flexible compute placement across devices, edge, and cloud infrastructures to support diverse AI workloads. Concluding his keynote, Mr. Ekudden emphasized that 5G standalone capabilities and network APIs must evolve and carry forward into 6G, positioning the Intelligent Fabric as a key platform for the future AI economy, while encouraging operators to capitalize on 5G and AI opportunities without waiting for 6G deployment.



5.3 Session 7: Global Alliance Session: Leveraging Ecosystems for 6G Innovation

(Objective: Leverage regional ecosystems and prepare them for successful adoption of 6G technologies. Identify the right use cases for each region, drive innovation with a long-term perspective towards 2029–2032.)

The session brought together the Alliance's international MoU partners, where the participation by representatives of international alliances and program underlined that no single country or organisation can develop the global 6G ecosystem in isolation. Cooperation across Europe, North America, Asia and other regions can help align research priorities, share lessons, identify complementary use cases and support interoperability. Regional priorities should inform a shared global framework rather than lead to fragmented technology ecosystems.

Session Chair:

- Dr. Kumar Sivarajan, Vice Chair, Bharat 6G Alliance

Session Speakers:

- Dr. Colin Willcock, Chairman of the Board, SNS JU and 6G-IA
- Dr. Havish Koorapaty, Vice-President, Standards and Industry Initiatives, Americas, Ericsson; Co-Chair, Next G Alliance Steering Group
- Mr. Javan Erfanian, Senior Director of Strategy, GTI Alliance; Chair, 6G Architecture WG, one6G Association
- Ms. Anita Doehler, CEO, NGMN Alliance
- Mr. Jasper Pandza, UK Department for Digital, Culture, Media & Sport (DCMS)
- Dr. Dileepa Marasinghe, AI-RAN Research Manager, 6G Flagship, University of Oulu
- Mr. John David Kim, Head of 6G Partnership Forum, APAC, GSMA
- Mr. Jerry Jae Yeol Kim, Executive Committee Vice Chair, 6G Forum (LG Uplus)
- Mr. Takehiro Nakamura, Leader, 6G Promotion Project, XGMF (NTT DOCOMO)



Discussion Highlights:

- **A Single Global 6G Standard:** Alliances from all regions converged on one global 6G standard to avoid fragmentation. It would deliver access to global markets, economies of scale, lower costs, interoperability and faster innovation, and large research programmes are already feeding thousands of contributions into 3GPP to support it.
- **Building 6G on 5G:** 5G is still scaling and is still mostly non-standalone, so returns from 5G remain the economic foundation for 6G. 6G should evolve from the 5G architecture rather than reset it. The lessons of 5G point to one global foundation, a cumulative path, scale by design and commercial models defined before deployment.
- **Use Cases, Verticals and Monetisation:** Use cases must add clear value beyond 5G-Advanced and help close the digital divide. Speakers called for stronger engagement with industry sectors, market development and an AI-driven service economy to make 6G commercially viable.
- **Security, Resilience and Trust:** Governments and industry are aligning on 6G security and resilience principles: monitoring and authentication, secure interfaces, secure AI, quantum-safe cryptography, safe failover, resilient positioning and timing, and openness and interoperability.
- **Spectrum Harmonisation:** New mid-band spectrum that can hold multiple blocks of about 200–400 MHz is essential. Securing 6.425–7.125 GHz and 7.125–8.4 GHz for 6G around 2030, with global harmonisation, was identified as necessary.



- **Testbeds, Trials and Ecosystem Readiness:** Collaborative testbeds, open laboratories, technology validation and international trials were highlighted as essential for assessing technology maturity, validating interoperability and accelerating commercial readiness. Engagement among operators, vendors, research institutions, startups and vertical industries can help translate research into deployable solutions and strengthen the global 6G ecosystem.

- **International Partnerships and Strategic Cooperation:** The session highlighted the expanding network of international partnerships involving the Bharat 6G Alliance and global 6G organisations across Europe, North America, the United Kingdom, Finland, Japan and the Republic of Korea. Memoranda of Understanding, joint research initiatives, technical exchanges and industry alliances provide mechanisms for sharing expertise, aligning roadmaps and exploring collaborative opportunities in standardisation, spectrum, security, testing and commercialisation.

5.4 Session 8: Global Industry & Vertical Session I: Transforming Industries through 6G

(Objective: To bring together global industry and vertical stakeholders to share experiences from 5G adoption and explore how 6G can transform industrial processes and create new growth opportunities across diverse sectors.)

Session Chair:

- Mr. Ashok Kumar, DDG (SRI), Department of Telecommunications, Government of India (the session was initially moderated by Mr. Radhakant Das, TCS)

Session Speakers:

- Dr. Yujia Gao, NUHS, Singapore
- Mr. Paul Geoghegan, Net Feasa
- Mr. Rajesh Tuli, Coral Telecom
- Mr. Radhakant Das, TCS
- Mr. Sandeep Sharma, Tech Mahindra
- Mr. Rakesh Kumar Bhatnagar, VOICE

The industry sessions considered how experience from 5G adoption can inform the use of 6G in industrial and other vertical settings. Potential areas for continued exploration include advanced manufacturing, enterprise connectivity, automation, logistics, healthcare and other applications requiring combinations of connectivity, sensing, computing, reliability and security. Use-case development should be led by real operational needs and supported by measurable benefits.

Discussion Highlights:

The moderator framed the session with a factory in which a 6G network not only connects robots but senses their movement, predicts collisions and coordinates actions in real time through integrated sensing, AI-native networking and ultra-reliable low-latency links — making 6G about intelligence rather than speed and latency alone.





Across key sectors, global contributors illustrated how 6G and emerging technologies can deliver mission-critical outcomes:

- **Healthcare:** Demonstrating that the network itself serves as critical medical infrastructure, discussions highlighted the evolution of private networks to support 3D surgical holograms and real-time AI inference, emphasizing 6G's need for native compute placement, dynamic slicing between clinical and logistics workloads, and prioritized bandwidth for connected emergency vehicles.
- **Mission-Critical & Rail Safety:** Panels showcased how AI-native 6G and Integrated Sensing and Communication (ISAC) can optimize heavy-uplink video channels and automatically detect track hazards, such as wildlife intrusions along transport corridors, complementing national safety and public protection frameworks.
- **Maritime & Supply Chain Resilience:** Experts highlighted the critical need for ubiquitous Non-Terrestrial Network (NTN) coverage to connect millions of unserved shipping containers globally, stressing that 6G resilience must prioritize automated, machine-to-machine emergency alerts—such as overheating cargo or battery fires—over standard voice and data traffic.
- **Digital Twins & Open Architecture:** Industry leaders advocated for federated, parameter-based "twins of twins" across industrial and telecom domains, calling for open governance frameworks and real-time decision-making capabilities to be established immediately without waiting for full 6G deployment.

- **Indigenous Startups & Market Access:** Small business consortia highlighted breakthrough domestic implementations—including thousands of verified deployment sites and rural digital initiatives delivering rapid health diagnostic results to remote villages—while identifying guaranteed commercial market access as the single most critical enabler for telecom startups.



5.5 Session 9: Global Industry & Vertical Session II: Unlocking the Potential of 6G

(Objective: To bring together leading industry and vertical stakeholders to share experiences from 5G adoption and identify the technologies and capabilities needed to unlock the transformative potential of 6G.)

Session Chair:

- Prof. Dinesh Bharadia, Klein Gilhausen Chancellor's Endowed Chair and Director, Wireless Communication, Sensing and Networking Group, UC San Diego

Session Speakers:

- Mr. Jayanta Dey, Executive President, 5G Business, HFCL
- Mr. Amit Randive, Digital Solutions Division, Epiroc India Customer Centre
- Mr. Jaikishan Agnihotri, Global Head of Connectivity and Head of Software-Defined Vehicles, India, Volvo Group
- Dr. Magnus Frodigh, Vice President and Head of Ericsson Research
- Mr. Ankit Bose, Head of AI, NASSCOM
- Mr. Bennette Simon John, Head of Innovation, Automotive Connectivity, Bosch Global Software Technologies



Discussion Highlights:

The Session Chair opened with the framing that “6G is not the next generation of telecom. It is the fabric for the next generation of sensing, intelligence and autonomy, for everything”, in which the network becomes a platform

for AI, a safety system for machines and a sensor. The session was organised around three questions — what industry needs from the network, what is blocking it, and who has to move and who pays — through three discussion blocks on trust, vehicles and AI, and scale, followed by audience questions and a closing round of one action for 2030.

Use-Case Framework:

The Session Chair mapped industry use cases to the IMT-2030 framework. **AI-native networks** span AI for RAN efficiency, edge AI offered together with connectivity as a single service with performance guarantees, agentic AI through network APIs, and distributed AI from vehicle to cloud with models trained for Indian roads. **Robots and autonomy** span autonomous heavy machinery, autonomous trucks on confined sites, cooperative mobility and V2X, and robot fleets with digital twins, requiring deterministic performance, position with confidence bounds and safe degradation. **ISAC** spans sensing at road junctions, proximity detection in mines as an independent second safety layer, high-integrity positioning moving towards centimetre level, and campus and drone sensing.

Trust Before Speed:

6G is needed to move from “connected” to “coordinated” mining, with network positioning potentially replacing physical barricading around autonomous machines. Heavy equipment and mining stakeholders stressed that safety-critical environments require bounded latency (~20 ms), extreme message reliability (99.9999%), high-integrity decimeter-level positioning, and predictable network degradation over raw bandwidth. Real-time network digital twins and standardized exposure APIs (such as CAMARA) were highlighted as essential tools to expose operational parameters directly to industrial control systems.

Vehicles, Roads and Distributed AI:

6G must help with uptime, energy efficiency and scaling over the air, and its most important capability is deterministic real-time connectivity: “6G will not be remembered for higher speed but for the business value it has delivered.” The panelist cautioned that buyers will not pay for connectivity without a use case, especially when 5G standard-essential patent royalties can run to about ₹5,000 per vehicle, making affordability essential. Safety-critical use at 100–160 km/h across cell handovers and highway coverage gaps requires reliability guarantees and a **liability framework** for when compute or communication fails. The panelist identified V2X and cooperative driving, including ISAC at intersections, and ubiquitous connectivity for trucks travelling across India as Indian priorities, and is working with regulators through 5GAA’s India working group.

Building on 5G: FWA, ISAC and Open Stacks:

Key operational successes—such as Fixed Wireless Access (FWA)—offer immediate bridges to 6G across enterprise, mining, and automotive domains. Pre-standard ISAC applications, open-source reference stacks, unified management across Wi-Fi and cellular, and seamless plug-and-play integration between enterprise IT and telecom stacks (including agentic AI) were identified as vital stepping stones.

Urgency and the Complete System:

Dr. Frodigh pointed to a lack of urgency: the value of digitalisation has grown enormously with AI, and much can already be done on 5G standalone, with automated ports, mines and 5G-based surgery in operation. Realising it needs a complete system — devices with sensors and actuators, networks, distributed compute, APIs, AI models, skills and process change — and networks that are easy to consume through machine-readable, programmable APIs for agents. Some 6G improvements will arrive quickly in software, but new frequencies, radios and antennas need hardware and typically a five-year rollout; 6G will work smoothly with 5G, and while sensing on 5G already detects drones and cars in trials, 6G will have sensing built in.

Skills and the API Economy:

Realizing the commercial potential of 6G requires standardized, developer-friendly network APIs, accessible edge compute, and risk-aligned testbeds. To address the talent transition between traditional telecom and IT, industry bodies highlighted the urgent need to build converged telecom-AI engineering skill sets to drive production-ready deployments.

From Pilot to Scale: One Action for 2030:

Panelists agreed that the technology is largely ready but devices, ownership, skills and business models are not. The panelists summed up that the challenge is ecosystem alignment — “the winner will be the one who collaborates at scale; partnership is the new leadership.” Their single actions for 2030 were: build policy and business models alongside capability; government-led multi-stakeholder groups focused on trust; verticals becoming customers of networks and stating their requirements so operators can see returns; ecosystem alignment and patience with AI deployment; affordability and regulatory coordination, such as rules for intrinsically safe networks in underground coal mines; and making 6G industry-ready from day one on trust, security, reliability and graceful degradation.



Bharat 6G Alliance strengthens global partnerships at third International Bharat 6G Symposium 2026

by tele.net
12 Oct 2026 10:45 IST



The third International Bharat 6G Symposium 2026 concluded at Yashobhoomi, Dwarka, New Delhi, with a valedictory address by the union minister of state for communications and rural development. Organised by the Bharat 6G Alliance (B6GA) alongside India Mobile Congress 2026, the three-day event brought together global telecom leaders, policymakers, standards organisations, industry, academia and researchers to discuss the roadmap towards IMT-2030 and beyond.

The minister in his address congratulated the Bharat 6G Alliance for organising the two-day third International Bharat 6G Symposium 2026 and for inviting over 75 speakers, which included more than 30 international experts.



6.0 DoT Curtain-Raiser for ESTIC 2026

Following Session 7, **Dr. Chandra Shekhar Pemmasani**, Hon'ble Union Minister of State for Communications and Rural Development, was welcomed by Dr. Kumar Sivarajan, Vice Chairman, Bharat 6G Alliance who thanked him for his constant support to the Bharat 6G Alliance. The Department of Telecommunications then presented a curtain raiser for the **Emerging Science, Technology & Innovation Conclave (ESTIC) 2026**, to be held on **27–29 October 2026** and inaugurated by the Hon'ble Prime Minister. The associated thematic session, “Intelligent Networks and Quantum Communication,” was presented as an opportunity to discuss technologies shaping future digital infrastructure and secure communications. Organized under the guidance of the Principal Scientific Adviser and coordinated by CSIR, ESTIC 2026 brings together 13 ministries and departments across 12 thematic tracks, with up to 150 deep-tech start-ups and exhibitors and up to 600 posters. **DoT leads the thematic track “Intelligent Networks and Quantum Communications”**. Plenary speakers include Nobel laureates Prof. Joachim Frank, Sir Richard Roberts and Dr. Konstantin Novoselov.



The Director General of the Bharat 6G Alliance briefed the Minister that the symposium comprised nine sessions, a fireside chat and three keynote addresses; that ten reports had been released at the inauguration; and that the five new MoUs brought the Alliance's partners to 17, in pursuit of “one 6G, one network, one standard”.

7.0 Valedictory Address by the Chief Guest

In his valedictory address at the 3rd International Bharat 6G Symposium, **Dr. Chandra Shekhar Pemmasani**, Hon'ble Union Minister of State for Communications and Rural Development, emphasized that 6G will fundamentally connect people, machines, and intelligence—stressing that no nation can build this next-generation ecosystem alone. Highlighting the expansion of the Bharat 6G Alliance through 17 international partnership agreements, he underscored that formal MoUs must translate into active joint research, shared testbeds, and cross-border innovation. With technical foundations being established ahead of critical spectrum decisions at WRC-27, he urged global partners to align with the New Delhi Declaration to ensure 6G is architected with security, openness, resilience, and sustainability built in by design rather than added as an afterthought.

The Minister highlighted India's dramatic transformation from a technology adopter to a global standards shaper. Indian technical contributions to 3GPP surged from under 200 in 2020 to nearly 3,000 in 2025, supported by over 7,700 patents filed by Bharat 6G Alliance members and 104 government-funded 6G research projects. Having successfully developed an indigenous 4G technology stack, India proves that national self-reliance and global collaboration are complementary. India brings unique strengths to the global 6G ecosystem: massive scale (1.2+ billion mobile connections), a deep talent pool, world-class manufacturing as the second-largest mobile producer, competitive affordability, and unparalleled deployment experience in large-scale digital public infrastructure.



Looking forward, Dr. Pemmasani called for digital inclusion to remain a core design requirement so that 6G narrows rather than widens the digital divide. By integrating terrestrial and non-terrestrial (satellite) networks, 6G

can extend meaningful connectivity to the most remote villages, islands, and maritime regions. Aligning with the national vision of *Viksit Bharat by 2047*, India is transitioning from "Digital India" to "Intelligent India." The address concluded with a call to action for the international telecom community to collaboratively shape global standards, validate secure architectures, and ensure that the benefits of 6G reach everyone, everywhere.

The follow-up priorities includes:

- convert the five MoUs into annual work plans, joint activities and measurable outputs;
- identify use cases and pilots with international partners and relevant Indian industry sectors;
- coordinate B6GA member contributions to global standards and spectrum processes;
- use the New Delhi Declaration progress report as a basis for tracking practical implementation of 6G principles; and
- connect work on intelligent networks and quantum communication with relevant research, industry and policy forums.



8.0 Concluding Session

- Mr. Anil Kumar Bhardwaj, DDG (SE), DoT
- Dr. Mallik Tatipamula, Ericsson
- Dr. Ulrich Dropmann, Nokia
- Dr. Kumar Sivarajan, Bharat 6G Alliance
- Mr. Rajesh Kumar Pathak, Bharat 6G Alliance



The 3rd International Bharat 6G Symposium 2026 marked a transition from vision to the standards phase. Where the 2024 edition set out the conceptual case for 6G and the 2025 edition produced the New Delhi Declaration on 6G principles, the 2026 edition was held as 3GPP moves from study to specification and as WP 5D concludes its preparations for WRC-27. The symposium reported for the first time on progress against the Declaration, grew the Alliance's international partnerships to 17, and placed the focus squarely on implementation: standards contributions, migration choices, spectrum readiness, industry requirements and the business case.

Four themes are likely to shape the year ahead. First, India's influence on the first 6G release will depend on timely, coordinated contributions before the Release 21 work item begins in March 2027, building on its sharp rise in 3GPP contributions. Second, the outcome of WRC-27 in Shanghai, and India's ability to build regional consensus on the 6–8 GHz range, will determine the spectrum foundation for 6G. Third, the global community's call for "one 6G" — a single standard, a lean migration path and no forklift upgrades — must be matched by commercial models and vertical requirements defined before deployment. Fourth, new funding through ANRF and the RDI Fund, together with joint programmes with Europe and the UK, offers a path from research to products at scale. With more than 75 speakers, nearly half from overseas, asking how to build 6G together, India is positioned

not only as a large 6G market but as a shaper of the technologies, standards and applications that will define global 6G — moving, in the Minister’s words, from “Digital India” to “Intelligent India”.

The 3rd International Bharat 6G Symposium 2026 reinforced the importance of building 6G through international partnerships, globally aligned standards, trusted technology, innovation and practical use cases. The exchange of MoUs and release of B6GA publications provide an institutional foundation for sustained cooperation. The next step is to convert the deliberations into concrete activities: joint research, interoperable testbeds, trials, standards contributions, spectrum studies and a stronger innovation pipeline.

B6GA can play a coordinating role by assigning focal points, agreeing measurable deliverables with partners, and reviewing progress periodically. A disciplined follow-through process will help ensure that the symposium’s outcomes contribute to India’s role in shaping a globally interoperable, inclusive, secure and sustainable 6G ecosystem.





Union Minister of Communications Shri Jyotiraditya M. Scindia Inaugurates 3rd International Bharat 6G Symposium 2026

Bharat 6G Alliance Signs 5 MoUs and Unveils 9 White Papers on 6G Technology

Joint Report on the Progress of the New Delhi 6G Declaration Also Released

Posted On: 08 OCT 2026 9:32PM by PIB Delhi

The 3rd International Bharat 6G Symposium 2026, being organised by the Bharat 6G Alliance (B6GA) at Yashobhoomi, Dwarka, New Delhi, was inaugurated today by Shri Jyotiraditya M. Scindia, Union Minister for Communications and Development of North Eastern Region, Government of India.



The Symposium brings together policymakers, global technology alliances, telecom operators, industry leaders, academia, research institutions and other stakeholders from across the world to advance collaboration towards the development of next-generation communication technologies and India's 6G ambitions.

The inauguration marked a significant milestone in India's journey towards building a globally competitive, indigenous and trusted 6G ecosystem, with the exchange of five new Memoranda of Understanding (MoUs) and the release of nine Working Group white papers by the Bharat 6G Alliance.

Five New MoUs to Strengthen Global and Industry Collaboration

During the Inaugural ceremony, the Bharat 6G Alliance exchanged MoUs with:

1. GSMA
2. one5G Association
3. GTT Alliance Ltd
4. 6G Industry Forum (6GIF)
5. VoICE

These collaborations further strengthen the Bharat 6G Alliance's engagement with leading global and industry stakeholders and reinforce India's commitment to international cooperation in research, innovation, standards, technology development and deployment for next-generation networks.

With these new collaborations, the Bharat 6G Alliance builds further upon its existing international and domestic partnerships. The Alliance already has 10 global and 2 domestic MoUs/Mol collaborations, taking its broader partnership network to 17 collaborations.



Nine New White Papers Released

The Bharat 6G Alliance also released nine Working Group white papers, reflecting the collective technical contributions of its industry, academia, research and technology ecosystem.

1. 6G Technology Landscape Survey and Roadmap for R&D, Platforms and Trials in India
2. Integrated Sensing and Communication (ISAC) for 6G: Technologies, Architectures, Applications, and Future Directions
3. Fixed Wireless Access: Bharat's Broadband Backbone from 5G to 6G
4. Role of Optical Technologies for 6G
5. A Perspective on IMT Spectrum Readiness towards 2030 and Beyond
6. Sustainable 6G: Designing Networks for a Carbon Net Zero Future
7. Cellular and WiFi Synergy: Global Pathways to Inclusive Connectivity
8. Captive Non-Public Network (CNPN)
9. Security for 6G

The publications address critical technological and policy dimensions of India's 6G journey, including technology development and trials, spectrum readiness, sensing and communications, broadband connectivity, optical technologies, sustainability, enterprise networks, Wi-Fi-cellular convergence and security.



One-Year Progress on the New Delhi Declaration

A key highlight of the inaugural ceremony was the release of the Joint Report: "Progress towards the 6G Principles of the New Delhi Declaration: Actions, Outcomes and Outlook – First Edition, October 2026."

The report marks the completion of one year since the New Delhi Declaration was endorsed at the International Bharat6G Symposium 2025 and captures the progress, actions and outcomes reported by the participating MoU partners towards advancing the principles articulated in the Declaration.

The New Delhi Declaration provides a common framework for advancing 6G as a secure, resilient, open, interoperable, inclusive and sustainable technology ecosystem, with emphasis on international collaboration in research, innovation and standardisation.

The progress report provides an important mechanism for taking stock of the collective efforts of the participating partners and identifying the outlook for continued cooperation towards the realisation of these principles.

India's Growing Role in the Global 6G Ecosystem

The initiatives announced at the Symposium reaffirm the Bharat 6G Alliance's role as a platform bringing together Indian and international stakeholders to shape the technological, standards and ecosystem dimensions of 6G.

The Alliance continues to facilitate collaboration across industry, academia, research institutions and government stakeholders, while supporting India's participation in global standardisation, technology development, trials, intellectual property creation and international partnerships.

The release of the white papers, the expansion of the MoU network and the one-year progress report on the New Delhi Declaration collectively demonstrate the growing momentum of India's engagement with the global 6G ecosystem.

The 3rd International Bharat 6G Symposium 2026, being held from 7-9 October 2026 at Yashobhoomi, Dwarka, New Delhi, features discussions on global 6G vision, standards and technology leadership, trials and testbeds, AI-native and sustainable networks, spectrum, industry applications and international cooperation.

The Bharat 6G Alliance will continue to work with its members and international partners towards building a secure, inclusive, sustainable and globally interoperable 6G ecosystem, strengthening India's contribution to the global development of next-generation telecommunications.

Bharat 6G Alliance Strengthens Global Partnerships at 3rd International Bharat 6G Symposium 2026

Union MoS for Communications Dr. Chandra Sekhar Pemmasani addresses valedictory session; DoT highlights ESTIC 2026 and its focus on intelligent networks and quantum communication

Posted On: 09 OCT 2026 7:41PM by PIB Delhi

The 3rd International Bharat 6G Symposium 2026 concluded at Yashobhoomi, Dwarka, New Delhi, with a valedictory address by Dr. Chandra Sekhar Pemmasani, Union Minister of State for Communications and Rural Development. Organised by the Bharat 6G Alliance (B6GA) alongside India Mobile Congress 2026, the three-day event brought together global telecom leaders, policymakers, standards organisations, industry, academia and researchers to discuss the roadmap towards IMT-2030 and beyond.



Union Minister of State for Communications and Rural Development is his address congratulated the Bharat 6G Alliance for organizing the two-day 3rd International Bharat 6G Symposium 2026 and for inviting over 75 speakers, which included more than 30 international experts.



The Union Minister of State said that India is moving from being one of the world's largest telecom markets to becoming an important telecom technology nation and our indigenous technology journey has taught us something important: Self-reliance and global collaboration are not opposites. The stronger our capabilities, the stronger the partner we can be to the world. The Union Minister of State highlighted that 6G must not create a new digital divide while we are still closing the old one. Affordability, accessibility and coverage must therefore be design requirements — not afterthoughts and in 6G, connectivity need not end where the tower ends. The integration of terrestrial and satellite networks can take connectivity further — to remote villages, islands, oceans and places that traditional networks struggle to reach. India is ready to test these technologies at scale — and share what we learn with the world. Our national goal is Viksit Bharat — a developed India by 2047, the hundredth year of our independence.

The experts contributed to sessions on 5G-Advanced foundations for 6G, global standards, spectrum and WRC-27, international trials and testbeds, AI-native and sustainable networks, startups and academia, global alliances, and industrial use cases. The Symposium emphasized that global interoperability and inclusive 6G development will depend on collaboration across countries, industry, research institutions and standards bodies.



The Symposium reaffirmed India's commitment to contributing to global 6G research and standards while building indigenous capabilities and strengthening international partnerships. Its discussions called for coordinated standards development, collaborative research, spectrum harmonization and large-scale testing, with affordability, accessibility, security and sustainability embedded in the design of future networks.

A key outcome was the exchange of five new MoUs with GSMA, one6G, GTI Alliance, 6G Innovation Forum (6G IF) Taiwan and VOICE, strengthening opportunities for international cooperation, joint research, trials and knowledge exchange. B6GA also released ten white papers and reports, including a Progress Report on 6G Joint Principles, reflecting continued work towards a 6G ecosystem that is secure, open, resilient, inclusive and sustainable by design.



During the valedictory session in the presence of the Minister of State for Communications, the Department of Telecommunications (DoT) presented a curtain raiser for the Emerging Science, Technology and Innovation Conclave (ESTIC) 2026. The second edition of this national science and technology platform is scheduled from 27-29 October 2026 at Bharat Mandapam, New Delhi, under the guidance of the Office of the Principal Scientific Adviser and organised by CSIR in collaboration with 12 participating departments/Ministries. Its theme is "Creative Minds, Catalyzing Science, Empowering Technologies".

The three-day Conclave features plenary talks, 9 thematic technical sessions, panel discussions, presentations by science and technology leaders and deep-tech Startups, exhibitions and B2B/B2G connect meetings.

In the 2nd edition of ESTIC 2026, DoT is identified to lead the thematic session "Intelligent Networks and Quantum Communication", scheduled for 28 October 2026. The session will explore technologies shaping future digital infrastructure and secure communications. It will feature a keynote by Mr. N. G. Subramaniam, Vice President, TCS; presentations by deep-tech entrepreneurs and technology leaders; and a panel discussion with experts from IIT Kanpur, IIT Delhi, HFCL, Reliance Jio and Bharat 6G Alliance, moderated by Dr. Rajkumar Upadhyay, CEO, C-DOT.

Acknowledgement

The Bharat 6G Alliance (B6GA) expresses its sincere gratitude to **Shri Jyotiraditya M. Scindia, Hon'ble Union Minister of Communications and Development of North Eastern Region**, and **Dr. Chandra Sekhar Pemmasani, Hon'ble Minister of State for Communications and Rural Development**, for their guidance and presence. The Alliance also extends its appreciation to **Shri Amit Agrawal, Secretary (Telecom)**, and **the officers of the Department of Telecommunications (DoT)** for their continued support to the Alliance and the successful organisation of the Symposium.

The Alliance gratefully acknowledges the generous sponsorship of TCS, the Diamond Sponsor, and Nokia, Qualcomm and Ericsson, the Gold Sponsors. Their support was instrumental in enabling the successful conduct of this flagship event. B6GA also conveys its sincere appreciation to the Governing Council, the Chairs and Vice-Chairs of its Working Groups, and its esteemed members for their valuable contributions to the organisation of the Symposium, the preparation of B6GA white papers, and the joint New Delhi Declaration report. Special thanks are extended to the India Mobile Congress and COAI for hosting the Symposium alongside IMC 2026.

The Alliance places on record its appreciation for the sustained efforts and dedication of the Organising Committee, particularly Mr. Anil Kumar Bhardwaj, DDG (SE), DoT; Dr. Mallik Tatipamula, CTO, Ericsson; Dr. Ulrich Dropmann, Nokia; Prof. David Koilpillai, Chairperson, B6GA; and Prof. Rohit Budhiraja, Vice-Chair, B6GA whose contributions over several months were vital to the successful planning and execution of the event.

B6GA also acknowledges the valuable support of its national and international partners: NASSCOM, TEPC, IAFI, TSDSI, VoICE, one6G, GTI Alliance, 6G Forum (6GIF), GSMA, 5G-ACIA, Federated Telecoms Hubs, IEEE Future Networks, the European Space Agency, 6G Smart Networks and Services Industry Association (6G-IA), 6G Flagship (University of Oulu), Next G Alliance, UK Telecoms Innovation Network, UK-India Future Networks Initiative, XGMF, 5G Brasil, and NGMN Alliance. The Alliance extends its sincere appreciation to the distinguished speakers, experts and thought leaders from India and across the world who shared their knowledge, research, technological perspectives and forward-looking insights during the Symposium. Their contributions enriched the technical deliberations, fostered international cooperation, and helped advance a shared vision for the development of future 6G networks and technologies. B6GA is equally grateful to the session chairs and moderators for facilitating meaningful discussions and constructive exchanges among stakeholders from government, industry, academia and research institutions.

Finally, the Alliance extends its heartfelt thanks to the B6GA Secretariat led by Dr. Astha Sharma, Mr. Faisal Shah and Ms. Swapnil Tripathi, the IMC team led by Mr. Ramakrishna, Ms. Garima Sharma, Mr. Sudhakaran, the KPMG team, designers, volunteers and all members of the Organising Committee for their professionalism, commitment and tireless efforts. Their collective contribution was instrumental in the successful hosting of the 3rd International Bharat 6G Symposium 2026.

The success of the Symposium reflects the collective commitment of government, industry, academia and international partners to advancing the Bharat 6G Vision and strengthening India's contribution to the global 6G ecosystem.







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