

Bharat 6G 2025 International Conference & Exhibition

14th May 2025, New Delhi



ABOUT THE CONFERENCE

India has contributed to International Telecommunications Union International Mobile Technology (IMT) 2030 framework, also called 6G by industry for inclusion of 'Ubiquitous Connectivity' as one of the six usage scenarios of 6G and coverage, interoperability and sustainability as capabilities of 6G technology.

India's bold and ambitious goal, the **Bharat 6G Vision**, involves research, development, and collaborations to position India as a leader in 6G telecommunications technology. The aim is for 6G to provide significantly enhanced connectivity speeds and capabilities compared to current networks when it becomes available in the future. The government launched the Bharat 6G Alliance, a network of stakeholders driving research and development. The vision is to create a nine-year mission (from 2022 to 2031) to fund 6G in three phases, and lead to field trials and global standard contributions in the years to come. India has contributed to International Telecommunications Union International Mobile Technology (IMT) 2030 framework, also called 6G by industry for inclusion of 'Ubiquitous Connectivity' as one of the six usage scenarios of 6G and coverage, interoperability and sustainability as capabilities of 6G technology.

Keeping in mind Indian Government initiative on 6G, Bharat Exhibitions Organized the **3rd edition of Bharat 6G 2025 International Conference & Exhibition** scheduled on **14th May 2025 at Hotel Le-Meridien, New Delhi**. This Event was also supported by ETSI.

Bharat 6G 2025, 3rd International Conference & Exhibition: Brief Report

SESEI expert was invited as a panellist for the **Plenary session on “Research, Innovation & Standardisation Roadmap: Bharat 6G Vision”**. SESEI expert works in close cooperation with the Bharat 6G Alliance and participates actively in the technology workshops and conferences organised by Bharat Exhibitions, a leading Conference & Exhibition management organisation. This Annual Conference on 6G technology was also supported and endorsed by ETSI. Session details are as under:

Plenary Session: Research, Innovation & Standardization Roadmap: Bharat 6G Vision
Moderator: Prof. Brajesh Lall, IIT Delhi Panelists for the Discussion Shri Vinod Kumar, DDG (S.R.I.), DoT, Ministry of Communications Mr. R.K. Pathak, Director General, Bharat 6G Alliance Lt. Col. V.S. Velan, Founder & CTO, Elena Geo Systems Pvt Ltd Mr. Subhas Mondal, SVP & Head of Research & Development - 5G Products, HFCL Mr. Dinesh Chand Sharna, Director - Standardization, Policy & Regulation, SESEI Dr. Pimmy Gandotra, Lead - 5G Analytics and Standards, Bharti Airtel



SESEI expert used this opportunity to highlight the lead taken by the EU in 6G technology through Research and Standardization undertaken by the European Commission and the European Standardization Bodies. Highlights of the discussions and Questions responded by SESEI Expert are as under:

Q1. Experience and lessons learnt from 5G

When 5G rolled out, it was hailed as the next great leap forward in wireless technology. It promised faster speeds, lower latency, and greater bandwidth than 4G LTE. The anticipated result was the ability to support new and innovative use cases, such as autonomous driving, smart cities, and telemedicine. Despite the substantial investment from operators and makers of devices, systems, and chipsets, the reality has not fully met lofty expectations. Because of this, it's essential to learn from 5G adoption as 6G is being developed. Here are three key lessons:

- **Overpromising** – The excitement around 5G led to a barrage of promises about groundbreaking new applications and services. Many use cases have yet to materialize – at least not to projected levels. While 5G has improved speed and network capacity, many of the most touted use cases around M2/IoT remain at nascent levels. One significant issue is that businesses have struggled to generate new service revenues from 5G's more advanced capabilities, such as massive IoT and ultra-reliable low-latency communications (URLLC). 5G has not penetrated the enterprise market at the rate anticipated, leaving operators in a tricky spot where they've spent billions but are not seeing the projected ROI (Return on Investment).
- **5G Implementation Complexity** – The transition from 4G to 5G has been far more complex than many anticipated. From the deployment of new infrastructure, such as small cells for millimeter-wave (mmWave) frequencies, to the upgrading of existing networks, many operators have faced challenges. Additionally, some spectrum allocated for 5G, like the much touted 5G NR Frequency Range (FR) 2, which utilizes mmWave, have not lived up to expectations in terms of coverage and cost-effectiveness. 5G network deployment has been slower and more costly due to complexity. The 5G core network is much more flexible than 4G LTE. The trade-off is that it's also significantly more complicated. Higher operational costs and longer deployment times are the results. 3GPP is working on the 5G Use cases
- **Lack of an Ecosystem** – The success of any new technology relies heavily on a robust ecosystem. One challenge with 5G has been the delay in devices, applications, and services. For example, while smartphones now widely support 5G, other devices – particularly those needed for industrial IoT – remain in the early stages. Without a robust ecosystem to support these new services, 5G remains largely theoretical for many industries.

While 6G is under study phase, 5G-A is available to be capitalized.

Q2. Role of Verticals in driving 6G?

- The role of verticals was lacking or very limited 5G use case were taken into consideration, as the IoT devices eco-system was not fully developed. I believe the role of verticals will be key in 6G with Artificial Intelligence agents they shall be able to deliver, which was missed while developing 5G due to limited or 5G Use cases being in very nascent stage.

Q3. How important will Open RAN be in the current ecosystem?

- SESEI Expert emphasized the need for integration of ORAN into 3GPP specifications.**

While O-RAN possibly brings many benefits, ORAN needs to be integrated well into 3GPP which is the appropriate platform building telecom ecosystem worldwide until now.

- 3GPP Roadmap for 6G is aligned with IMT2030 and ITU.
 - 3GPP specification work for 6G is divided **into 2 Releases**: Rel-20 for 6G studies and Rel-21 for 6G normative work. Studies for 6G in 3GPP are expected to start from Release 20
 - In a recent workshop between 3GPP and ORAN with its stakeholders, such as ORAN Alliance, etc.) concrete discussions were held on ORAN specifications to be harmonized with 3GPP.
 - ORAN release cycle shall be aligned with 3GPP and 3GPP specified AI/ML architecture & functional framework
 - Both ORAN and 3GPP shall strive for 6G Security architecture. They are also collaborating on the testing aspects.
 - ORAN specifies the Fronthaul Interface including Lower Layer split, etc.
 - This coordination is hopeful to continue and become part of 3GPP for its desired expected outcome as part of 6G.
- ii **Key Learnings from IoT / M2M technology evolution and deployment and Importance of Global/ Harmonized Standards.**
- M2M/ IoT ecosystem could not flourish fully due to fragmented standardization landscape and too many proprietary solutions. Which resulted in the not so successful deployment of wonderful technology on a massive scale as envisaged.
 - Need to ensure full maturity of 6G and ORAN technologies through myriad verticals used cases, harmonized global standards are extremely important.
- iii **Role of Artificial Intelligence (AI) in RAN Standards Based Architecture (BSA) of today may become AI based Architecture of tomorrow and not only RAN but it may include Core as well**
- Artificial Intelligence will play a very important role in RAN, Edge, Cloud, Quantum communications, Data Analytics, Privacy, Security etc.
 - Artificial Intelligence is not new as its implementation has been happening in many use cases already at SDO's.
 - 3GPP and ETSI roles in 6G are paramount. It has made a strong contribution to 5G standards (NFV, SDN, MANO, MEC)
 - For large scale 6G Rollouts (AI Based), ETSI is working on many possible use cases and apply these use-case scenarios for 6G standards & networks.
 - AI for network and Network for AI is an active study item already.

To ensure that the 6G system, which is possibly going to be AI based, integrated with RAN can deliver future ready technology, while ensuring sustainability and energy efficiency, 3GPP is the right forum for all to come together and collaborate.

Best Practices & Key Learning from EU's approach to 6G Standardisation

- ETSI'S approach towards 6G standardization is to make it the Global Standards. It is working in close coordination with other countries
- The cooperation between ETSI and SNS JU on 6G is already in place.
- Need to define Problem Statement/ Objectives for 6G technology evolution/ Pilot Project. 3 to 4 main areas should be defined (e.g. Applications, Services, Sustainability, etc.) and the small pilots being carried out under various PPP initiatives should be funneled under these main objectives.

- Government to establish large scale Experimental infrastructure for the development of 6G.

Key takeaways from the Session

- Major Learnings from **5G** standards having too many options for rollouts creating complexities, limited IoT device ecosystem and associated limited applications for better monetization etc. In **6G**, stakeholders are in discussion to have least feasible option and limited releases.
- Currently in the **Vision & Research** phase, 6G standardisation has started work with Release 20 for Studies and Release 21 for Normative and is expected to be ready for commercial rollout by 2030 timeframe primarily through **3GPP**.
- **Open RAN** brings lot of positives however its inclusion and alignment with 3GPP is must for both roadmap, timelines, and interworking. Outcome and way forward of 3GPP workshop with ORAN stakeholders were shared and suggested to wait for the development on this engagement.
- In case of **AI-RAN**, Yes AI will play a key role in RAN, EDGE, Cloud and possibly core as well through Native AI, AI agents addressing all aspects including sustainability.
- **European Leadership role in Research through 5G PPP & now SNS JU**: Public-private partnership between the European Commission and ICT industry.
- Early 6G expected “around 2030” alongside an evolved 5G. Now is the time to share 6G visions, research and standards roadmaps.
- ETSI has an important role to play in linking the research and pre-standards to feed the global 6G standards activities in 3GPP

Session Recording

The webinar recordings are available at <https://www.youtube.com/watch?v=wFPXQQzKhfl>

SUPPORTED BY		CO-ORGANISER		ORGANISER						
 संचार मंत्रालय MINISTRY OF COMMUNICATIONS		 भारत दूरसंचार DOT INDIA TELECOM		 BROADBAND INDIA FORUM "Think, Talk for Digital Transformation"						
 BHARAT EXHIBITIONS										
BOOK YOUR STALL NOW!										
 6D Technologies™ Smart Ideas, Delivered PRESENTS  BHARAT 6G 2025 3 RD INTERNATIONAL CONFERENCE & EXHIBITION 14 TH MAY 2025 • LE MERIDIEN, NEW DELHI 5G & BEYOND: CONNECTIVITY FOR A DIGITAL WORLD POWERED BY  IN ASSOCIATION WITH 			CHIEF GUEST  DR. CHANDRA SEKHAR PEMMASANI Hon'ble Minister of State for Communications Ministry of Communications Government of India							
EMINENT SPEAKERS										
Guest of Honour  SHRI A. ROBERT J. RAVI, ITS Chairman & Managing Director Bharat Sanchar Nigam Limited Introductory Address  MS. ARUNA SUNDARARAJAN Chairperson, BIF and Former Secretary, DoT  MR. SHASHI DHARAN Managing Director, Bharat Exhibitions Vote of Thanks  BRIG. ANIL TANDAN Director General Broadband India Forum						 MR. N G SUBRAMANIAM Chair Bharat 6G Alliance  LT. GEN. DR. S.P. KOCHHAR Director General COAI  MR. JAGBIR SINGH Chief Technology Officer Vodafone Idea  MR. SHYAM MARDIKAR Group CTO (Mobility) Reliance Jio  MR. MANISH ARORA Executive Director & Chief Revenue Officer 6D Technologies  MR. MAHESH KRISHNASWAMY Founder & CEO Taara				
 MR. SANDEEP SAXENA Head of Technology & Solutions (Mobile Networks), Nokia India  SHRI ANIL KUMAR BHARDWAJ DDG, DoT Ministry of Communications  MR. RAHUL KUMAR Senior Vice President 6D Technologies  MR. ARUN GOPINATH Head of Mobile Networks Technology Centre, Nokia (India)  MR. WILLIAM OLIVER Senior Director of Product Syniverse  MR. MANOJ KUMAR SINGH Director General DIPA					 PROF. BREJESH LALL IIT Delhi					
 MR. BHASKAR CHOUDHURI Executive Director Technology Consulting PwC India  MR. DHARMENDER KHAJURIA National Head - Network Partnerships Bharti Airtel  MR. MIHIR OZA Strategic Advisor - Business Development 6D Technologies  MR. SIDDHARTHA SHARMA Solution Manager HUBER+SUHNER  MR. MOMBASAWALA MOHMEDSAEED GM - New Technology Initiatives Keysight Technologies  DR. PIMPY GANDOTRA Lead-5G Analytics and Standards Bharti Airtel					 MR. SUBHAS MONDAL SVP & Head of Research & Development - 5G Products, HFCL  MR. DINESH CHAND SHARMA Director - Standardization Policy & Regulation, SECE					
 MR. DEBASHISH CHAKRABORTY Senior Director, Advocacy & Industry Engagement, GSMA  MR. MANOJ JAIN Global Head Marketing 6D Technologies  MR. MANOJ GURNANI Head of Strategy & Technology Nokia (India)  MR. PRADEEP BHARDWAJ Sr. Strategy Director & Head of Industry Standards, Syniverse  MR. SAURABH MITTAL Principal Consultant TATA Consultancy Services					 DR. SHIV KUMAR Director General ITS India Forum					
HOST OPERATOR		ROAMING PARTNER		PLATINUM PARTNER						
 BSNL Connecting Bharat  syniverse		 MAKSAT		 STPI						
SILVER PARTNERS		ASSOCIATE PARTNER								
 e-SPECTRA SOLAR		 KEYSIGHT		 Steel Bull						
SUPPORTING INDUSTRY ASSOCIATIONS		SUPPORTING INDUSTRY ASSOCIATIONS								
 Bharat 6G Alliance		 COAI		 dipa						
 ETSI		 GSMA		 IAFI						
 ITS INDIA										
STANDARDS PARTNER		MEDIA PARTNER		SOCIAL MEDIA PARTNER						
 tsdsi India's Telecom SDO		 COMMUNICATIONS TODAY		 THE MARCOM AVENUE						
FOR BRANDING, EXHIBITION & SPEAKING OPPORTUNITIES RANJEET K. SINGH +91 99582 33434 ranjeet@bharatexhibitions.com										
WWW.BHARATEXHIBITIONS.COM										