

India's 6G Vision and R&D roadmap

7 Dec 2022



About 5G India Forum

- The 5G India Forum (5GIF) is, an industry led initiative
 - to enable synergizing the national efforts in the telecom space
 - play a significant role in shaping the strategic, commercial, and regulatory development of the ecosystem for 5G and next generation 3GPP based technologies in India.
- 5GIF has been at the forefront of Industry activities
 - We have also been actively contributing to the ITU-R work and are a registered IMT evaluation group
 - Contribution to National preparatory activities on technology, spectrum and standardization activities

6G Technology Innovation Group

Multiplatform Next Gen Networks

Prof. Bhaskar (IITM)

- Multiplatform Next Gen
- Satellite Drones etc.
- Wireless GPON

Spectrum Policy

Prof. Abhay (IITK)

- Feasibility of 6 , 10 GHz and THz.
- Integration of Satellite, drones and Spectrum
- New Spectrum ownership and flexible allocation

Multidisciplinary Innovative Solutions

Prof. Bhardwaj (IISc)

- Use Cases
- Develop and promote indigenous solutions
Promote implementation inputs for global Standards

Devices

Prof. Kiran (IIT Hyd.)

- 6G device ecosystem
- AIML for cyber physical fusion
- Build global consensus on requirements, device arch.

International Standards contributions

N. G. Subramaniam (TCS)

- Mapping global 6G
- Contribution to 5G
- India 6G Mission
- Promote India's competence (Academia , R&D)
- Inputs to TSDSI 6G Std.
- Pre-standardization activities

Financing R&D

A. K Tiwari (Mem. T, DoT)

- Funding related aspects for PoC, PPP, Test bed , Pilot rollout
- Propose and vet under R&D proposals under 6G mission

Recommendations from 6G TF

- A 6G program be created with a **broad category of ecosystem partners including operators, vendors**, hyper scalers, academia, and Government research labs, that is agile and quickly adaptable to the evolving needs for **driving 6G research and innovations**, building on and strengthening India's competencies. (e.g., Next Gen Alliance was setup outside the ATIS, with its own working procedures, EU SNS and 6GIA projects)
- This set of stake holders through a consensus driven approach **recommend topics/themes of interest in 6G based on business and societal needs**. The program should cover all aspects of technology development including early research, proof-of-concept, standardization, trials & testbeds, etc.
- Govt. of India taking a lead in streamlining **the process and fund research programs** on the themes identified.
- 6G program to take a lead in preparing well defined measurable KPIs to assess the success of **these program funding**
- Objectives of this framework is also to have cohesive **policies** to meet common goal of **national leaderships, national 6G Roadmap**, Sustainability goals, etc.
- It is important that this initiative gains momentum **immediately and aligns to the timeline of various 6G standards efforts** across the globe.
- 6G program should take a lead in developing **consensus on solutions of interest and pursue the standardization efforts** at the corresponding international standardization bodies
- Concurrently, the program should **facilitate early trials and prototype development**, aimed at **developing proof-of-concepts** and support the domestic manufacturing process.

Standardization Process



6G Task Force - Standardization

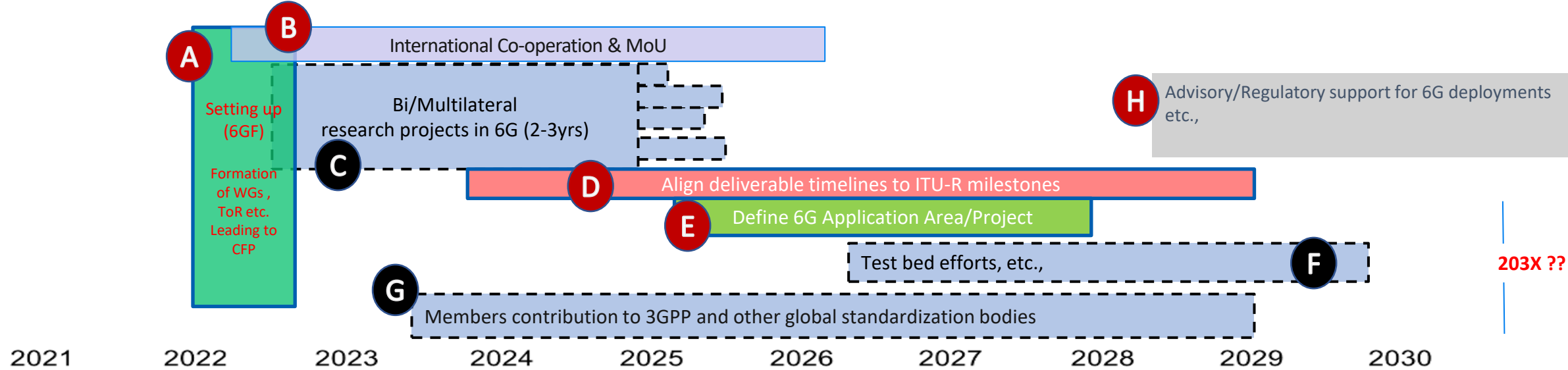
- 5G in India will drive innovation of services and new devices
- to participate in definition of 5G Advanced and 6G
- Drive the evolution 5G Advanced
- Connectivity drives new and demanding service demands
- Technologies for demands for 2030 and beyond

- **Maximize compatibility, interoperability, safety, repeatability, and quality.**
- **Open standards for 2/3/4/5G have the strongest eco system**
- **Wide acceptance of standards drives scale and lowers cost**

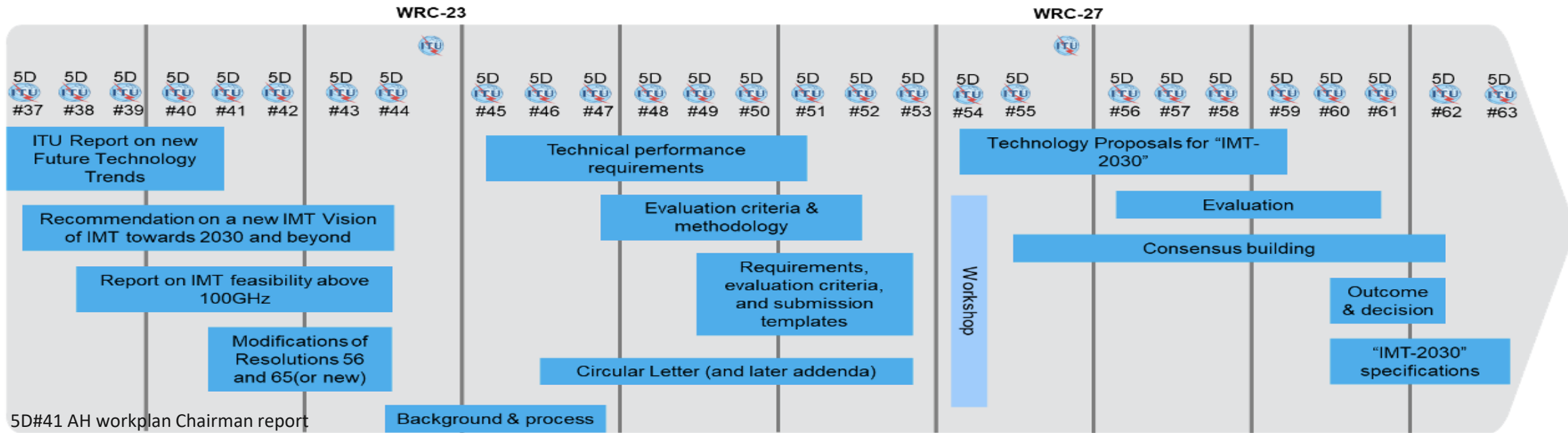
Setting the stage

A **6G program** with a **broad category of ecosystem partners including operators, vendors**, hyper scalers, academia, and Government research labs, **co-operation with international 6G programs** that is agile and quickly adaptable to the evolving needs for **driving 6G research and innovations**, building on strengthening India's competencies and leadership on 6G

Timeline : Relevant 6G activities



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Items A, B, D, E are to identify, prioritize areas and activities that can be referred by stakeholders.. (for e.g., to plan and execute C, G and F).

Item C, G and F are independent activities handled outside the 6GF

