

WIRELESS WORLD
RESEARCH FORUM

HUDDLE 2025

6G: The New Frontier

Making the business case for new technologies and emerging markets

23 - 24 SEPTEMBER

BRASILIA

WWRF 6G Huddle 2025

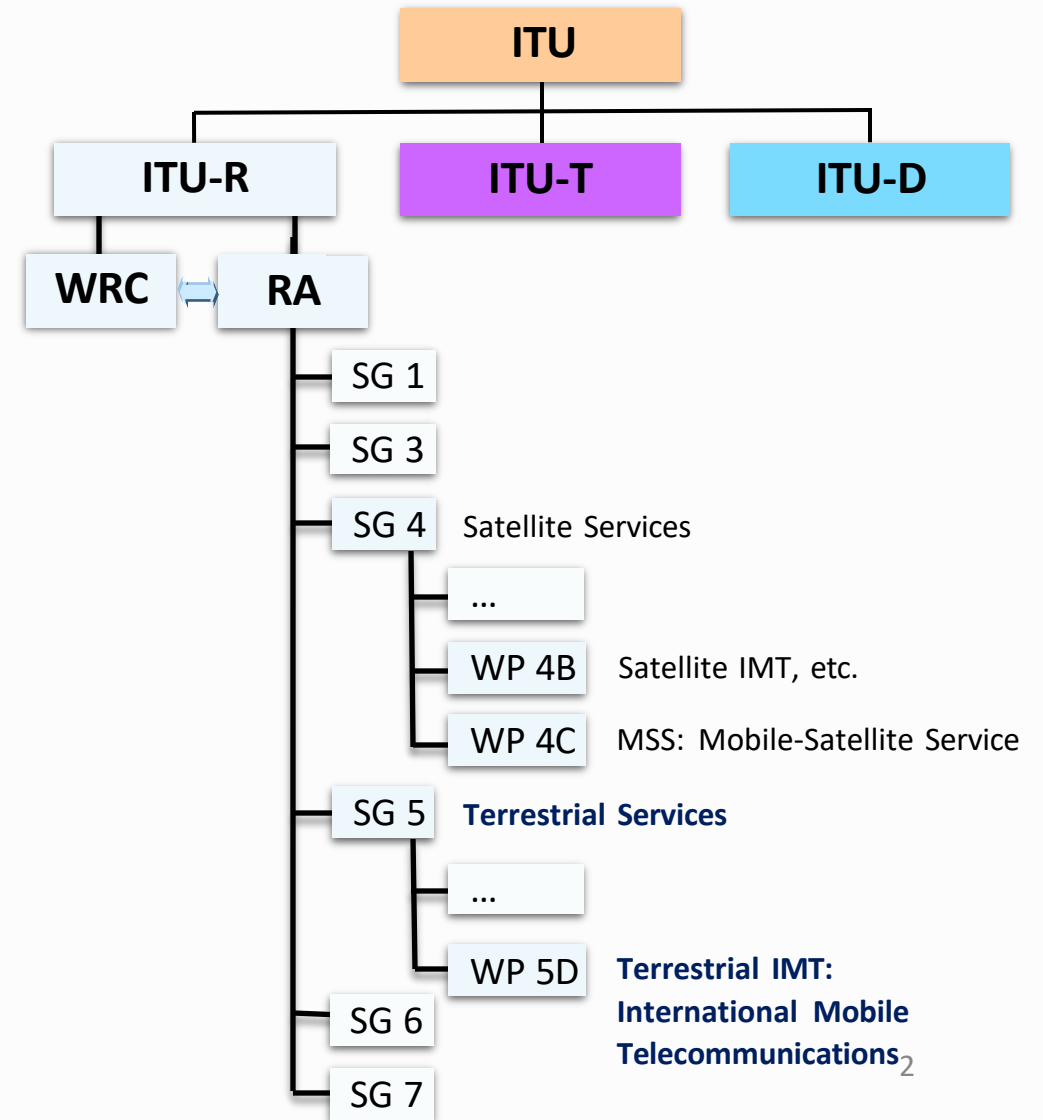
IMT-2030 Developments in ITU-R Working Party 5D

by

Bharat Bhatia, Chair of Working Group General Aspects of ITU-R Working Party 5D

Major Activities Related to ITU-R

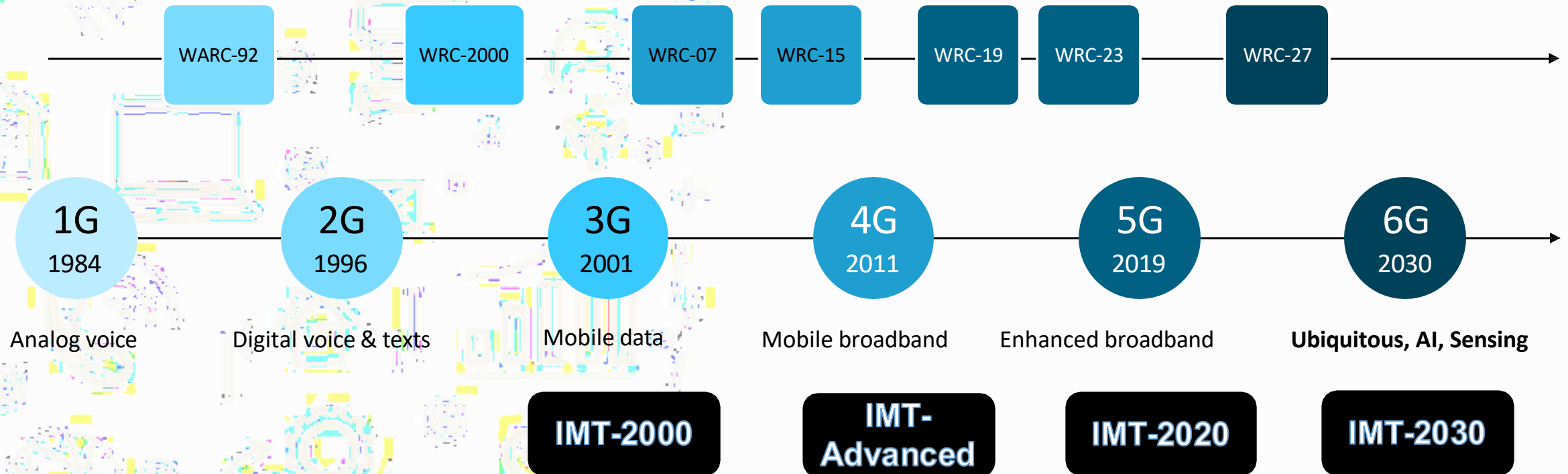
- **World Radiocommunication Conferences (WRCs)**
- **Study Groups (SGs)**
 - Radiocommunication Assembly (RA)
 - Study Group 1: Spectrum management
 - Study Group 3: Radio-wave propagation
 - Study Group 4: Satellite Services
 - **Study Group 5: Terrestrial Services**
 - Study Group 6: Broadcasting Services
 - Study Group 7: Science Services



Role of ITU in IMT Development

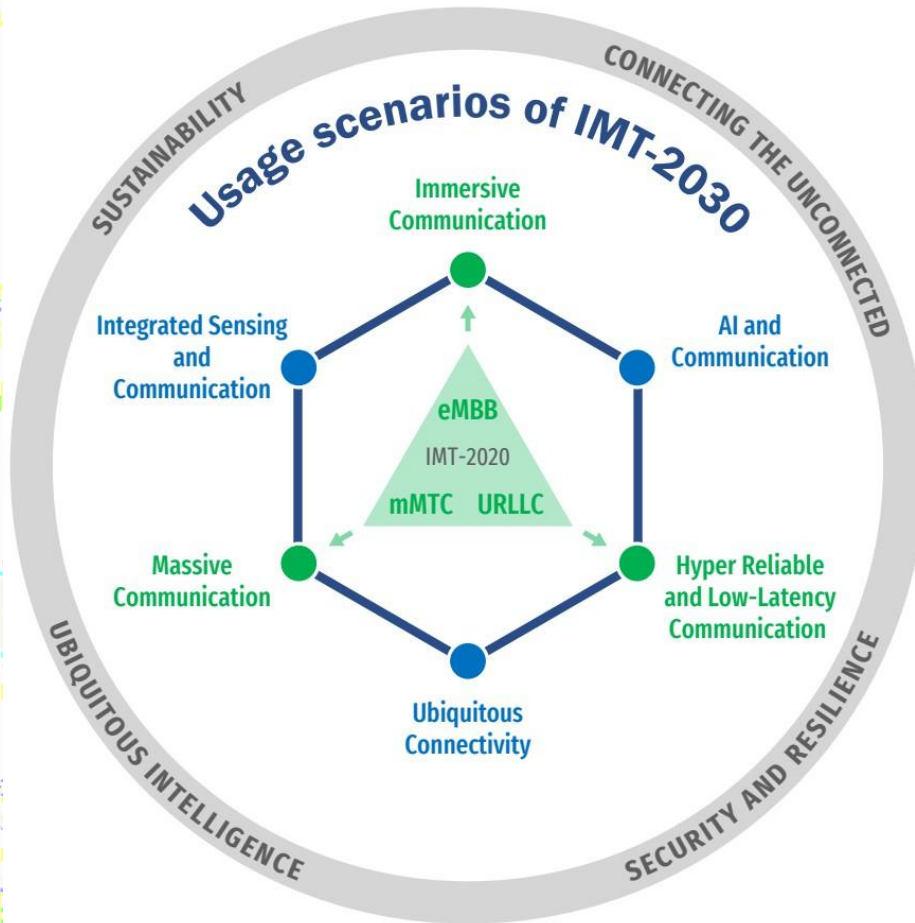
- **Global harmonization of IMT spectrum**
 - World Radiocommunication Conferences (WRCs)
 - Addressing needs of developing and developed countries
- **Standardization of IMT radio interface technologies**
 - Development of ITU-R Recommendations
- **ITU-R Working Party 5D** is responsible for
 - studying the overall radio system aspects of terrestrial IMT, considering both spectrum and technology perspectives

WRCs and Technologies



IMT-2030 (6G) Framework

Recommendation ITU-R M.2160



- **Usage Scenarios**

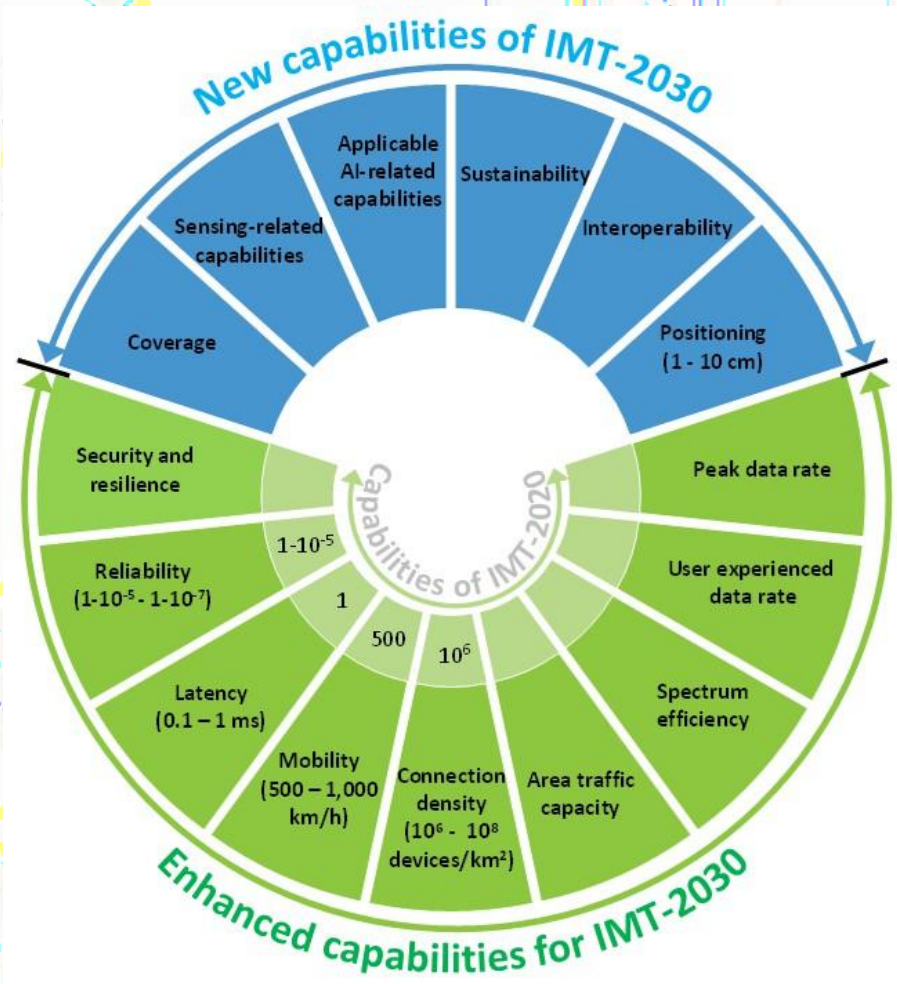
- Extensions from IMT-2020 (5G) scenarios
- Ubiquitous Connectivity
- AI and Communication
- Integrated Sensing and Communication

- **Overarching aspects**

- Sustainability
- Connecting the Unconnected
- Ubiquitous Intelligence
- Security and Resilience

IMT-2030 (6G) Framework

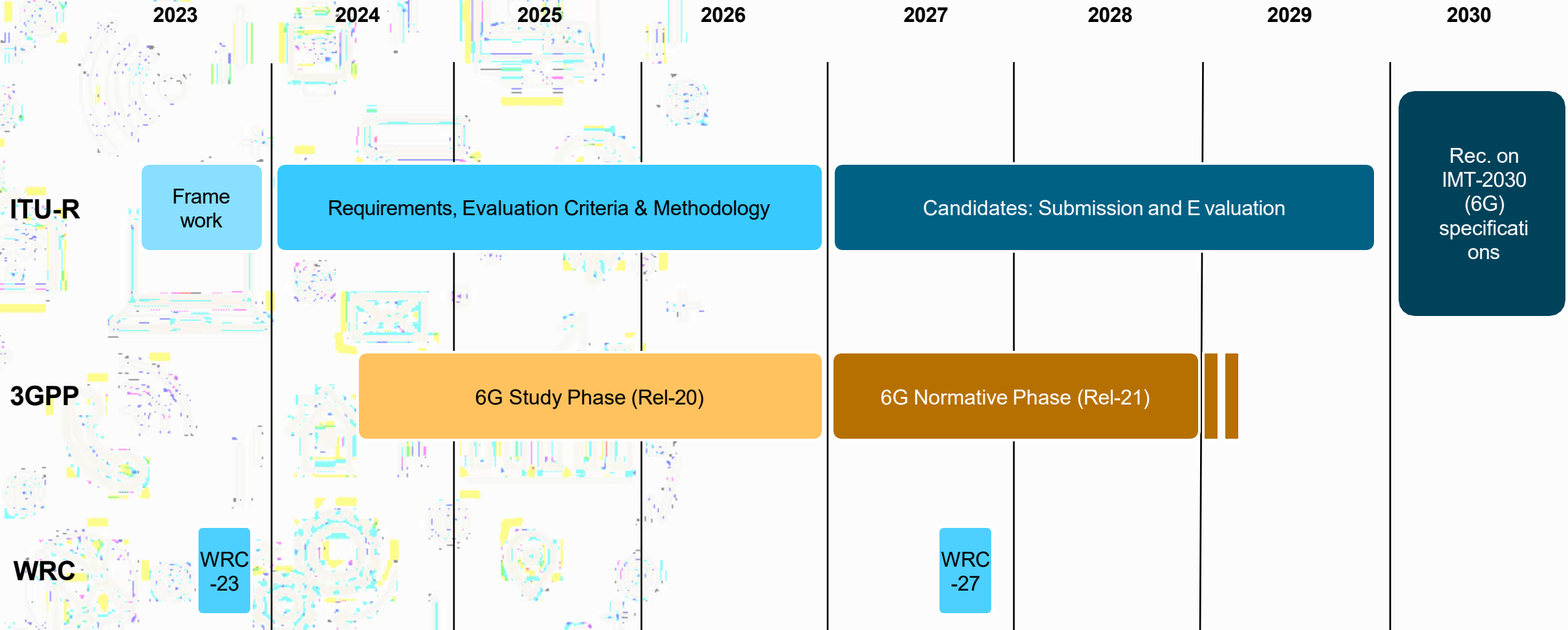
Recommendation ITU-R M.2160



- 15 capabilities have been identified.
- Envisioned targets for these capabilities
 - single or multiple values within each capability.

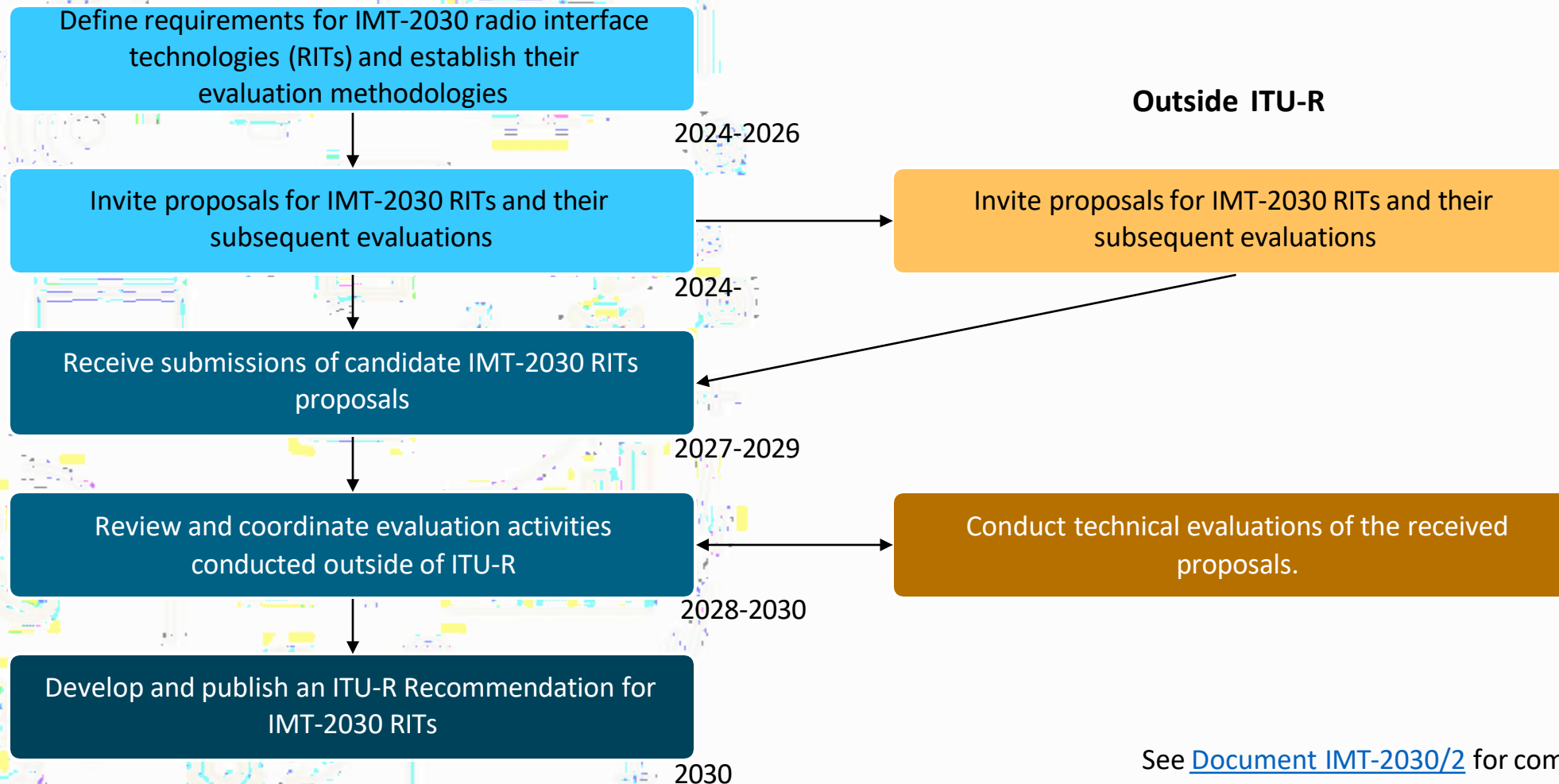
IMT-2030 (6G) Timeline

High level simplified timeline





IMT-2030 Development Process



See [Document IMT-2030/2](#) for complete information

Key ITU-R Documents for Calling Proposals

- Three documents for ITU-R Reports are currently being developed.
 - They are expected to be available by the end of 2026.

Report ITU-R M.[IMT-2030.TECH PERF REQ]

Minimum requirements related to technical performance for IMT-2030 radio interface(s)

Report ITU-R M.[IMT-2030.EVAL]

Guidelines for evaluation of radio interface technologies for IMT-2030

Report ITU-R M.[IMT-2030.SUBMISSION]

Requirements, evaluation criteria and submission templates for the development of IMT-2030

Recent Highlights in IMT-2030 Development

- October 2024
 - The process for developing IMT-2030 radio interface technologies (RITs) was officially initiated.



Radiocommunication Bureau (BR)

Circular letter
5/LCCE/115

23 October 2024

To Administrations of Member States of the ITU, Radiocommunication Sector Members, ITU-R Associates and ITU Academia participating in the work of Radiocommunication Study Group 5

Subject: **Invitation for submission of proposals for candidate radio interface technologies for the terrestrial components of the radio interface(s) for IMT-2030 and invitation to participate in their subsequent evaluation**

1 Introduction

ITU-R has commenced the process of developing ITU-R Recommendations for the terrestrial components of the IMT-2030 radio interface(s). This work is guided by Resolutions ITU-R 56 and ITU-R 65 (see Annex 1).

Resolution [ITU-R 56-3](#) on the “Naming for International Mobile Telecommunications” confirms the name for the next generation of IMT to be “IMT-2030”. Resolution [ITU-R 65-1](#) on the “Principles for the process of future development of IMT-2020 and IMT-2030” outlines the essential criteria and principles which are being used in the process of developing the Recommendations and Reports for IMT-2030, including Recommendation(s) for the radio interface specifications. Also, the

Recent Highlights in IMT-2030 Development

- February 2025
 - A preliminary list of minimum technical performance requirements for IMT-2030 was created.

(Note: Square brackets indicate further discussion required)

Minimum Technical Performance Requirement	Method
AI-related capabilities	(to be determined)
Area traffic capacity	(Quantitative) (Note 1)
Average Spectral efficiency	(Quantitative)
Peak spectral efficiency	(Quantitative)
5th percentile user Spectral efficiency	(Quantitative)
Bandwidth	(Quantitative)
Connection density	(Quantitative)
Control plane latency	(Quantitative)
User plane latency	(Quantitative)
Energy Efficiency	(Quantitative)
Mobility	(Quantitative)
Mobility interruption time	(Quantitative)
Peak data rate	(Quantitative)
User Experienced Data Rate	(Quantitative)
Sensing-related capabilities	(Quantitative)
Positioning	(Quantitative)
Reliability	(Quantitative) (Note 2)
[Joint requirement on data rate, latency, reliability and capacity]	To be determined
[Coverage]	To be determined
[Security]	To be determined
[Resilience]	To be determined
[Sustainability]	To be determined
[Interoperability]	To be determined

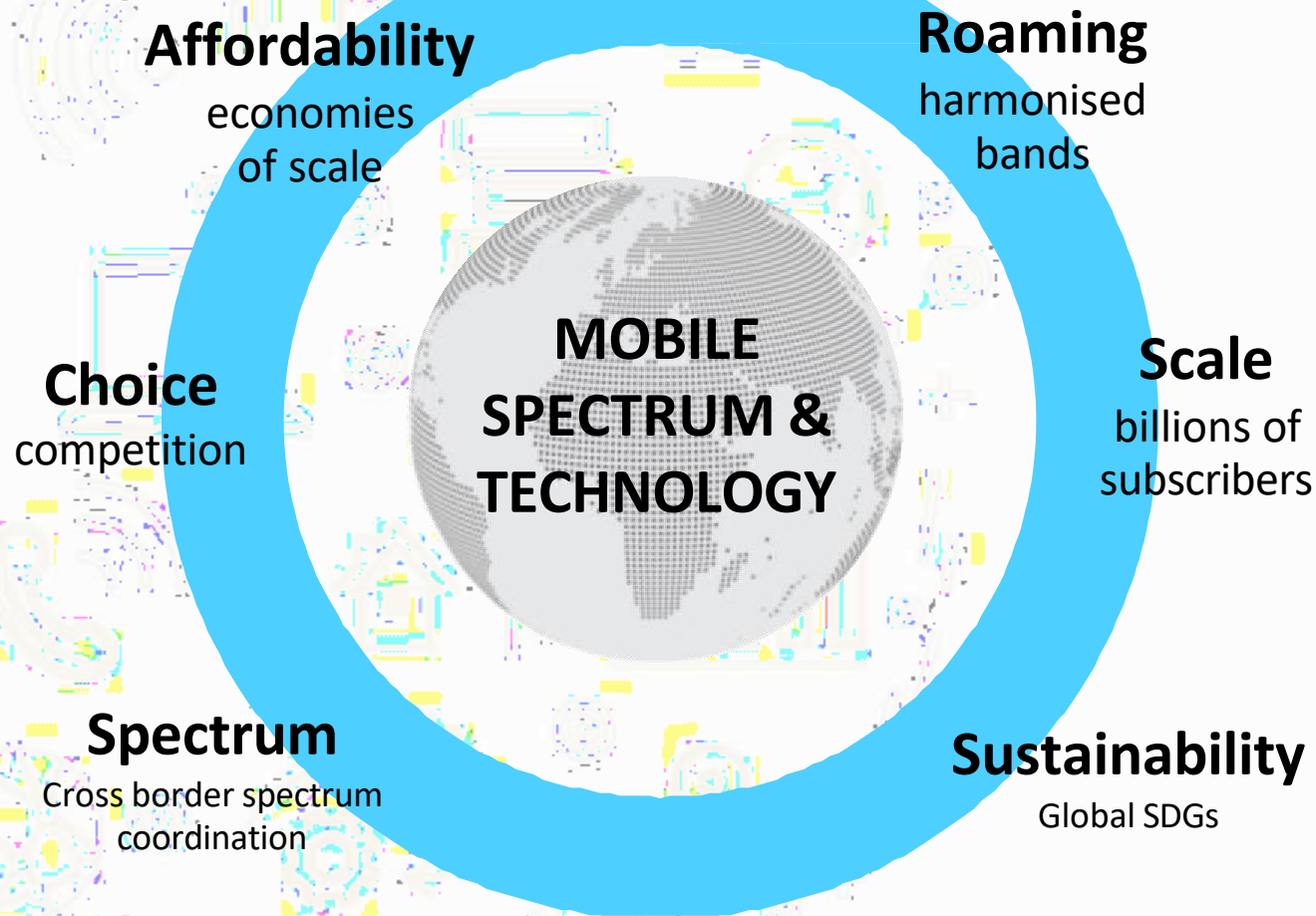
Note 1: The evaluation technique for quantitative requirements is determined by SWG Eval (e.g., analysis, simulation, etc.).

Note 2: The reliability requirement may be replaced by the “Joint Requirement” (if agreed).

Recent Highlights in IMT-2030 Development

- June/July 2025 – the most recent WP 5D meeting:
 - **Report ITU-R M.[IMT-2030.TECH PERF REQ]**
 - The working document was further updated.
 - There were challenging discussions regarding the requirements for “Composite requirement,” “Coverage,” “Security,” “Extended connectivity,” and “Interoperability.”
 - Several proposals were provided for the minimum technical performance requirement values.
 - **Report ITU-R M.[IMT-2030.EVAL]**
 - The working document was further updated.
 - **Report ITU-R M.[IMT-2030.SUBMISSION]**
 - A working document with the table of contents was created.

Global Harmonization



- Collaboration between WP 5D and External Organizations (SDOs, 3GPP, etc.) is crucial.

Summary

- The international process for the submission of IMT-2030 (6G) candidate proposals, their evaluation and, finally, their standardization in the 2030s, is well underway:
 - ITU has approved the global framework (Rec ITU-R M.2160)
 - Working Party 5D is currently focused on establishing the detailed IMT-2030 requirements and their evaluation methodologies.



Thank You