

Global mobile Suppliers Association

RSPG “6G strategic vision” hearing

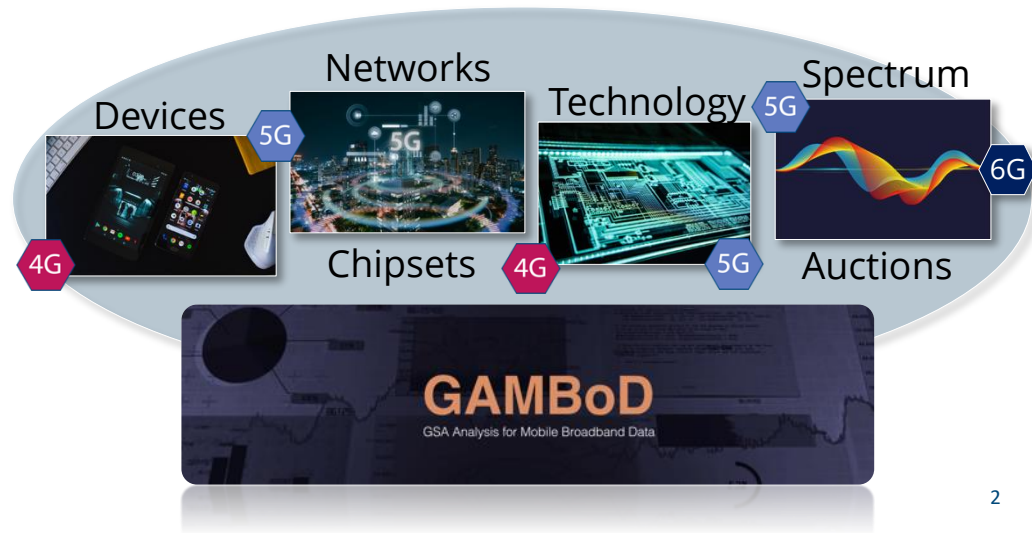
27th Sept 2024

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Chair of GSA CEPT Group



About GSA

- Representing the global mobile ecosystem since 1998
- Extensive research & database
 - Free industry reports
 - Member reports & GAMBoD Access
- GSA Spectrum Group
 - 185+ participants regionally grouped
 - Advocacy, education and technical support
 - Cooperation with other industry groups such as COAI, CTIA, GSMA, TechUK, etc.
- GSA Standards Group
 - 6G-Joint Working Group
- 87 Associates subscribing to GSA data
 - Regulators-Analysts-Operators etc.



Each IMT/3GPP generation enriches the user experience



Analog voice

1G (1984)



App-based touch screens

3G (2004)



High-speed eMBB and vertical services

5G (2019)



Digital voice, text, e-mail

2G (1996)



True wireless Internet phone

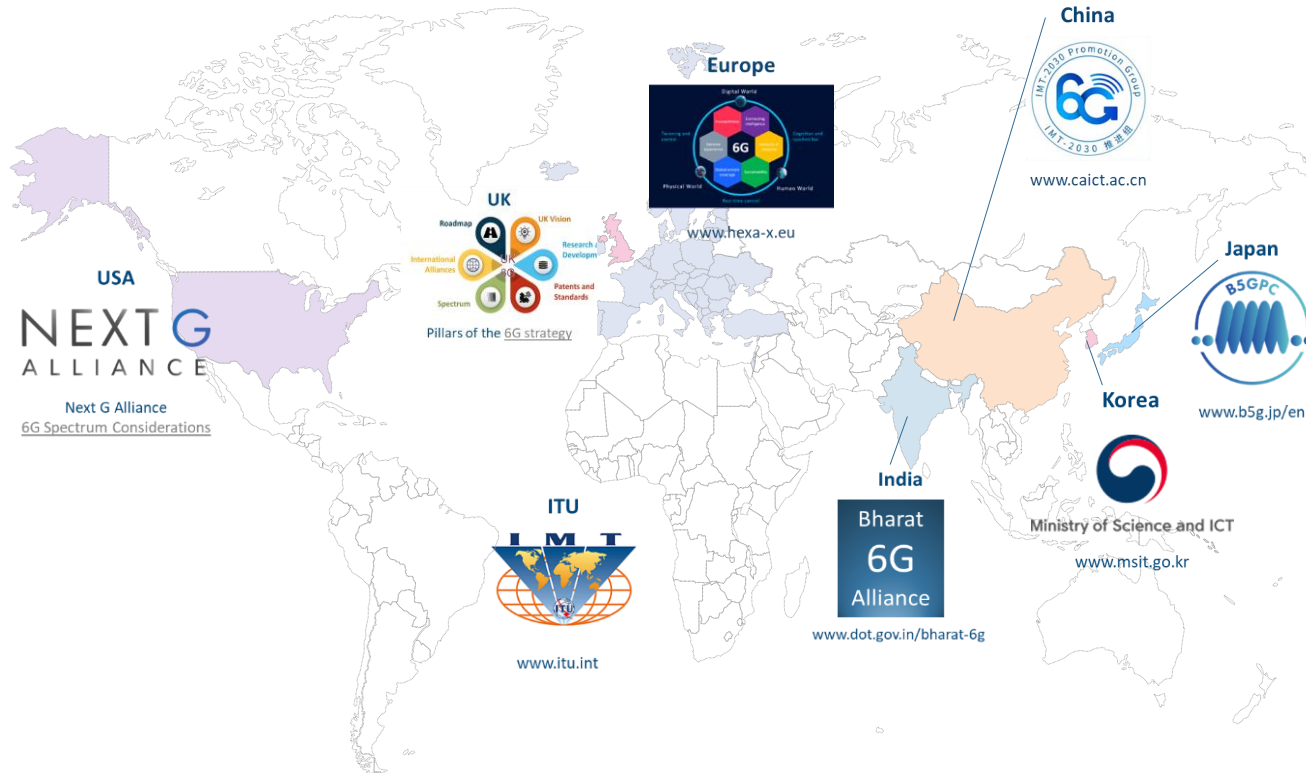
4G (2011)



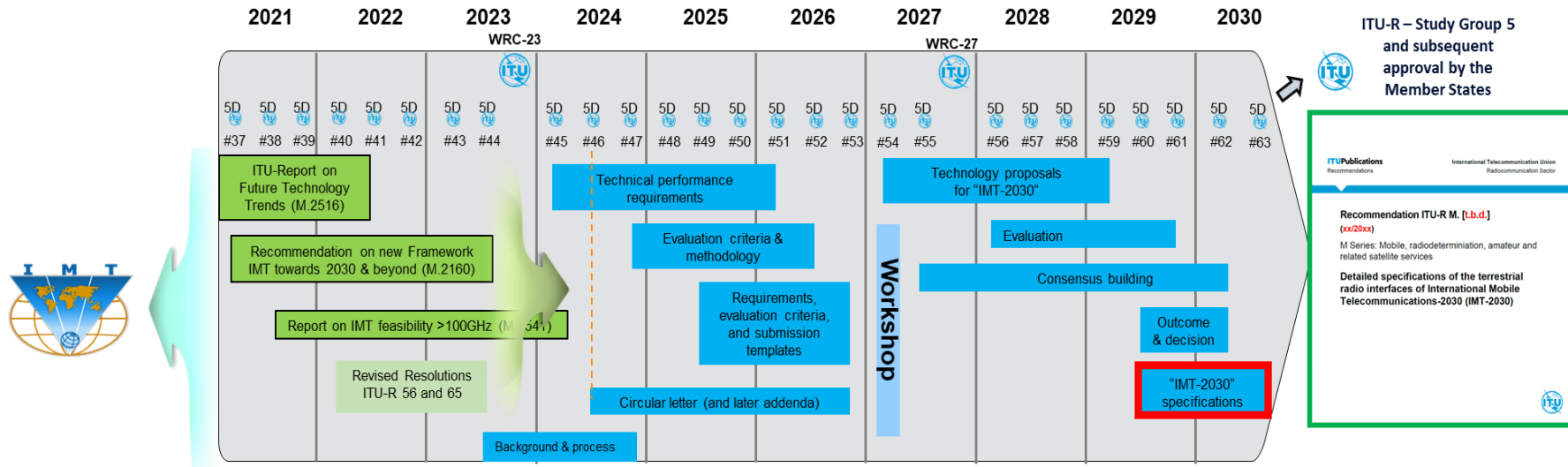
Extreme connectivity and immersive augmented experiences

6G (2030)

Global 6G research framework and strategies



ITU-R IMT-2030 activities



Note 1: WP 5D #59 will additionally organize a workshop involving the Proponents and registered Independent Evaluation Groups (IEGs) to support the evaluation process

Note 2: While not expected to change, details may be adjusted if warranted. Content of deliverables to be defined by responsible WP 5D groups



Close collaboration between ITU-R and 3GPP as an external organisation for the development of 3GPP proposals to IMT-2030



Why new bands for 6G?

There are many obvious reasons why new spectrum bands for 6G deployments will be needed and why nominating specific bands would be beneficial, similarly as it was done for the previous generation (e.g., the concept of European Pioneer/Primary bands for 5G):

Existing spectrum bands are not enough

New bands with wide enough bandwidths are needed to provide the foreseen 6G capacity and coverage needs as existing bands are still needed to provide connectivity and capacity for serving the demands of previous generations' use cases.

Facilitating deployments

New bands (which provide wide bandwidths) clearly introduced as 6G pioneer bands would facilitate deployments as regulators and industry would know which bands to focus their research, standardization and investments on.

Why new bands for 6G?

Provision of regulatory certainty

Harmonized 6G pioneer bands (like with 5G Pioneer bands) would provide necessary regulatory certainty for industry to create a broad 6G ecosystem.

Ecosystem & economies of scale

New bands would help in creating a unified 6G ecosystem, allowing devices and services to seamlessly operate across borders. Unified 6G ecosystem would then bring in, inter alia, economies of scale and affordability.

Why new bands for 6G?

Preventing spectrum fragmentation

New pioneer bands would also prevent fragmentation since in the absence of common/harmonized new bands, regulators and operators would need to re-farm their existing IMT-bands (used by 2G, 3G, 4G, 5G) for 6G, which would differ region by region, country by country, operator by operator, leading to spectrum fragmentation.

Enabling possible new 6G entrants

New bands would enable possible new entrants to enter straight to 6G. They do not have any existing band to re-farm to 6G so new bands is their only way in.

How much wide-area spectrum to support 6G ?

Immersive XR



Mobile Hologram



Communication + Sensing



	Immersive XR	Holographic communications	Communication + Sensing
Wide area use cases (GHz)	1	1.1	0.3-0.75



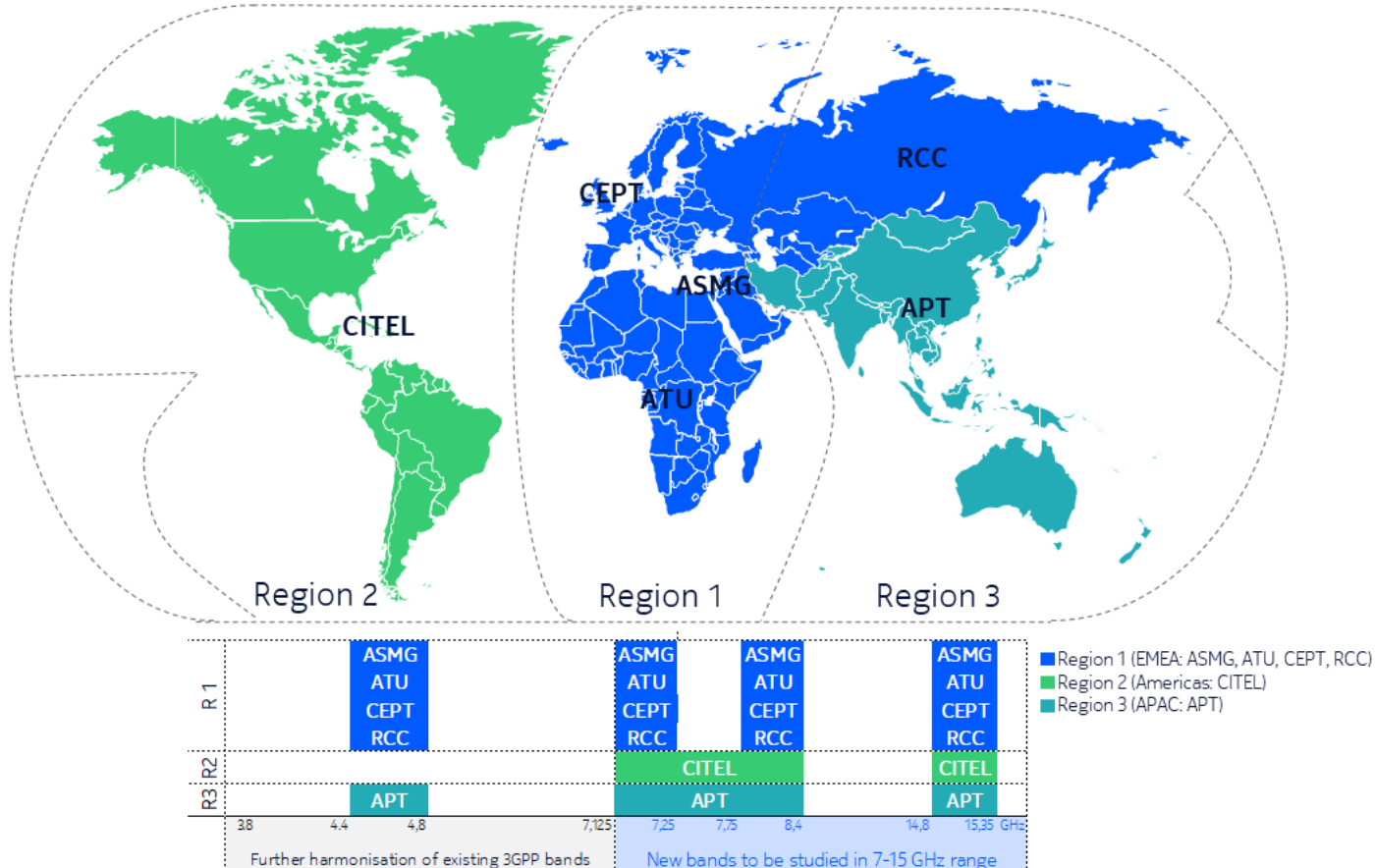
In addition to re-using existing spectrum, 500-750 MHz of wide-area spectrum will be needed per network* to implement the anticipated use cases for 6G/IMT-2030.

The exact amount of additional spectrum depends on the number of operators and on the wide-area spectrum already available in each country.

* APG23-5/INF-26 to the 5th Meeting of the APT Conference Preparatory Meeting (February 2023), CEPT PTA(23)047), and CITEL CCPII-2023-42-5952 PCC.II 42nd Meeting (August 2023)

Spectrum to be studied for 6G in ITU-R (WRC-27 Agenda Item 1.7)

- Some (or parts) of the bands may not be considered for IMT in some countries and regions.
- Work has already started in WP5D and 3GPP RAN4 to define necessary IMT deployment scenarios and parameters to be used in ITU-R sharing and compatibility studies.



Summary

- 6G research is globally accelerating
 - IMT-2030/6G specifications to be completed by 2030 (ITU-R Working Party 5D in cooperation with external organisations such as 3GPP)
 - Commercialization target of around year 2030 is expected for initial 6G deployments
- 6G will need the combination of various frequency ranges to meet coverage and enhanced capacity requirements as well serve new emerging use cases
 - At least 500 MHz per network of new wide-area spectrum is estimated to be needed in addition to the re-use of existing spectrum
- WRC-27 agenda item 1.7 to study the following bands: 4.4-4.8, 7.125-8.4 and 14.8-15.35 GHz
 - In addition to bands under AI 1.7, countries may consider and study bands outside the ITU WRC-27 process (e.g., 12.7-13.25 GHz is considered by US and 6.425-7.125 GHz by France)
- As research and standardization of IMT-2030/6G is still ongoing, sharing and coexistence with other Radio Services could be reflected in that process
 - Global/regional harmonisation (spectrum, standards, timing, etc.) remains critical
 - New bands for 6G will be needed and would be beneficial

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The Industry Voice of the Global
Mobile Ecosystem

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