GSMA | 6 GHz: WRC-23 and Beyond

6 GHz IMT will expand capacity and deliver connection speeds to launch a new era of mobile productivity. The enablement effect of mobile communications on the race to net zero can be enhanced by gigabit experiences delivered with lower carbon emissions through minimal densification.

Thanks to the identification for IMT at WRC-23, 6 GHz is now the harmonised home for the expansion of mobile.

The average economic benefit of **FULL-POWER LICENSED MOBILE IN UPPER 6 GHz** is

7×

GREATER THAN UNLICENSED

6 GHz at WRC-23

The decision to harmonise technical conditions for the upper part of the 6 GHz band (6.425-7.125 GHz) in every ITU Region is a pivotal milestone.

It also serves as a critical developmental trigger for manufacturers of the 6 GHz equipment ecosystem.

The next step is for policymakers and regulators to update their spectrum strategies and add the 6 GHz band to their roadmaps.

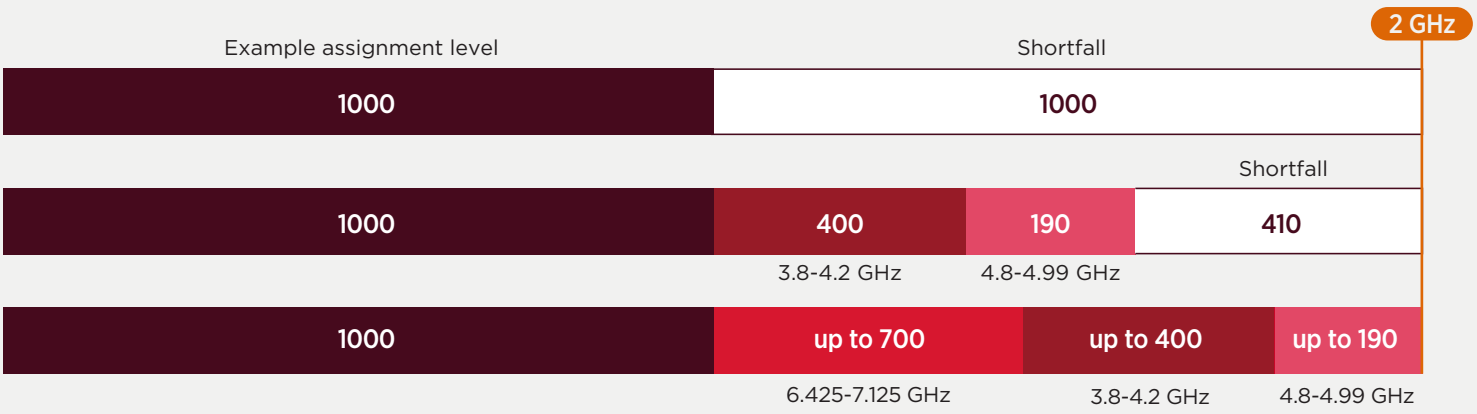
Channel Sizes – peak trial speeds

1.28 Gbps
80 MHz channel

5 Gbps
200 MHz channel

12 Gbps
400 MHz channel

An average of 2 GHz of mid-band spectrum is required, per country, by 2030



Reaching this is challenging without 6 GHz capacity

The ecosystem

- Network vendors
- Chipset developers
- Radio front-end suppliers
- Device manufacturers
- Mobile network operators

The timeline

2022 — First 6 GHz trials

2022 — 3GPP Rel. 17 specification NR Band 104 6425-7125 MHz completed

2023 — Continued field trials

2023 — First handset prototype

2023 — IMT identification at WRC-23

2024 — Further trials and prototype development

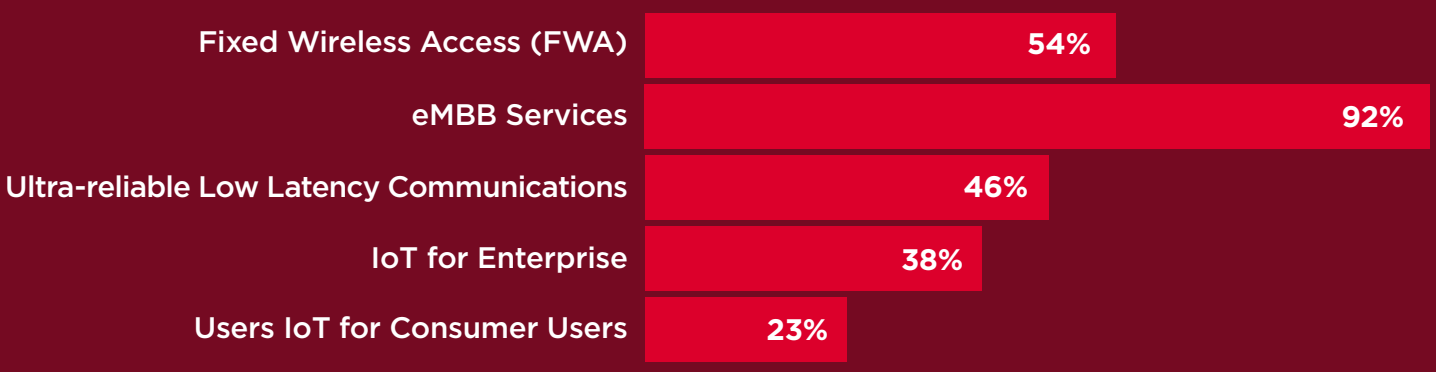
2025... — ...and beyond. Devices at scale according to spectrum availability and market demand.

Government action to deliver 6 GHz to market:

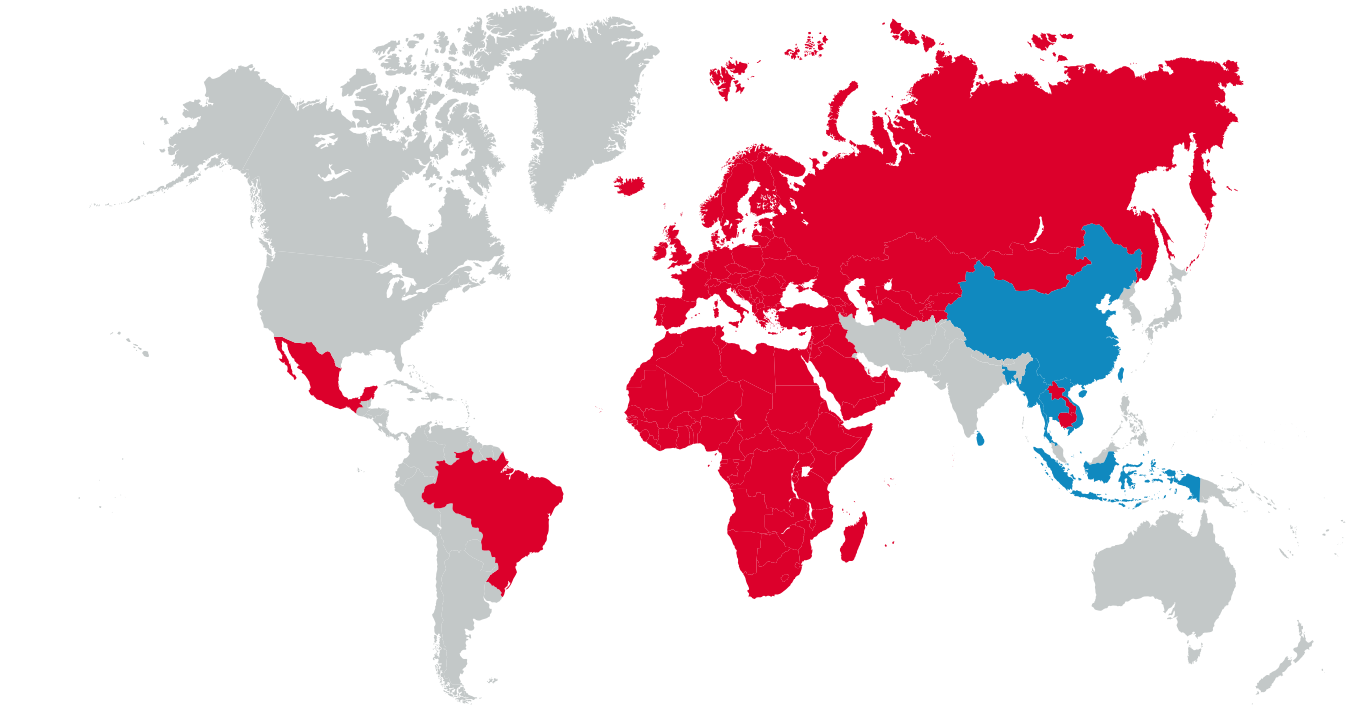
1. Add 6 GHz for mobile/IMT to national roadmaps and table of allocations.
2. Publish roadmap and conditions, after consultation with industry, of spectrum assignment

Over what timescale do MNOs require access to 6 GHz frequencies?

Which use cases do MNOs plan to use 6 GHz for?



Global progress

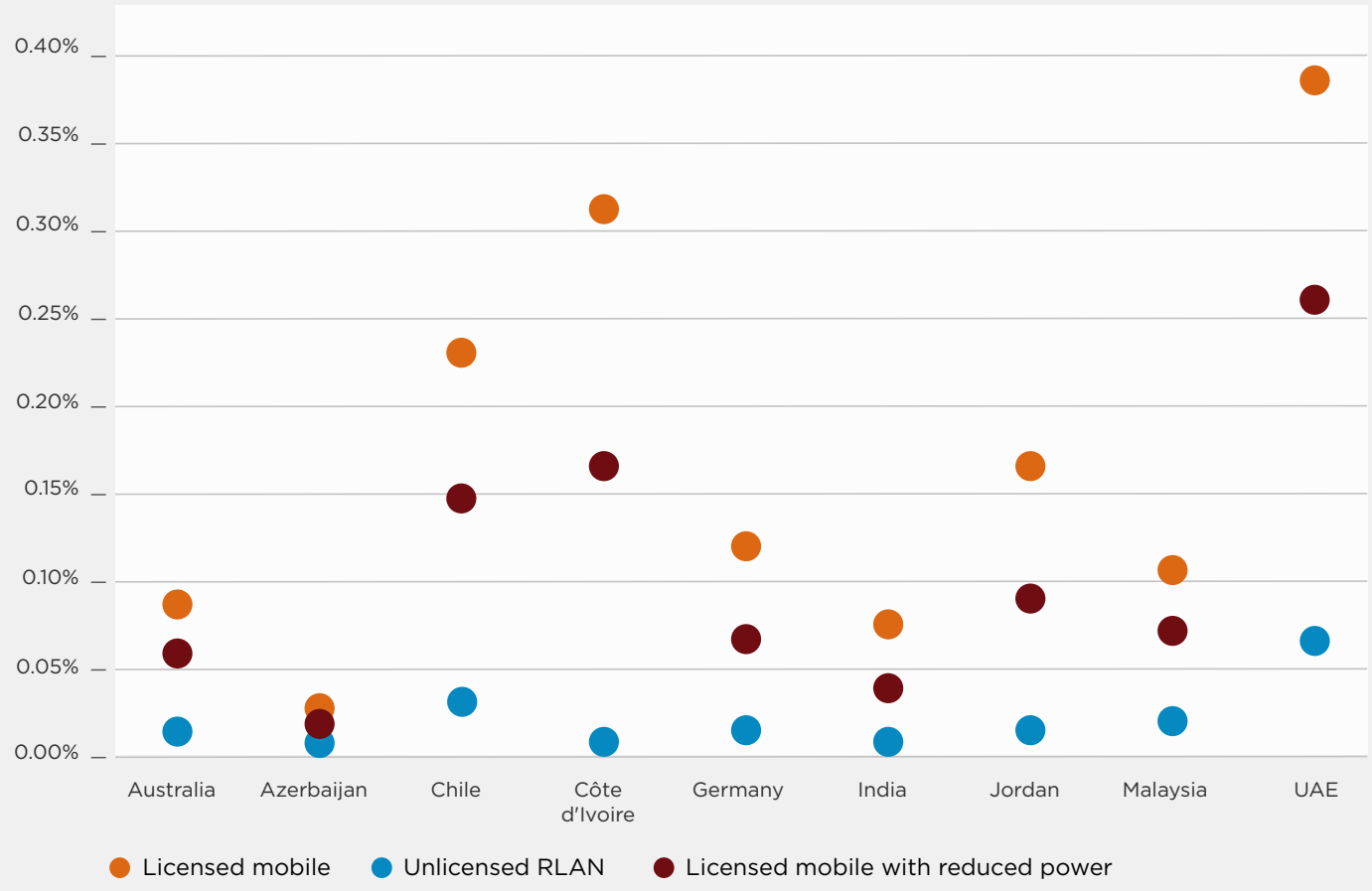


Countries identified at WRC-23 Requested identification at WRC-23

Additional countries are expected to identify 6 GHz at WRC-27

Comparison of 6 GHz benefits

Proportion of expected GDP in 2035



Source: GSMA Intelligence

Note: The results represent the net present value (NPV) of economic benefits during 2023-2035, expressed as a proportion of expected GDP in 2035 for each country.

Commercialising the 6 GHz IMT Ecosystem

Call for 6 GHz Collaboration

6 GHz spectrum can ensure that affordable mobile capacity is available to drive industrial and economic competitiveness in the sustainable, digitalised markets of the future. The mobile industry believes that:

- 6 GHz capacity is required to support increasing customer demand at speeds outlined in the International Telecommunication Union's vision for 5G. It will also be required for the future evolution of mobile.
- Mobile networks are already densified, but 6 GHz can enable the growth of sustainable mobile capacity on existing macro-cell sites.
- Timely availability of 6 GHz, at reasonable conditions and price, will drive cost-efficient network deployment, help lower the broadband usage gap and support digital inclusion.
- Mobile networks will need, on average, 2 GHz of mid-band spectrum per country by 2030. This is challenging to achieve without 6 GHz.
- The 6 GHz band at 6.425-7.125 GHz should be made available for licensed, macro-cell mobile.

Therefore, the GSMA and the above stakeholders call on government and industry to work together to support the full development of 6 GHz for mobile, to ensure a spectrum roadmap is delivered for mobile operators, and to put in place clear timelines for equipment and handsets to be ready at scale.

All data and further analysis found at:
www.gsma.com/spectrum/resources/6-ghz-for-5g/

Read more about WRC-23 spectrum here: **www.gsma.com/spectrum/wrc-series/**

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