SPECTRUM

for 5G & 6G mobile evolution

India Spectrum Management Conference, New Delhi, November 2024

CONNECTED:

57% of the world's population are now **using mobile internet**

→ 4.6 billion PEOPLE

But the rate at which people were adopting mobile internet remained FLAT in 2023

COVERAGE GAP:

4% **of the world's population are still not covered by mobile broadband**

AROUND 350m PEOPLE

USAGE GAP:

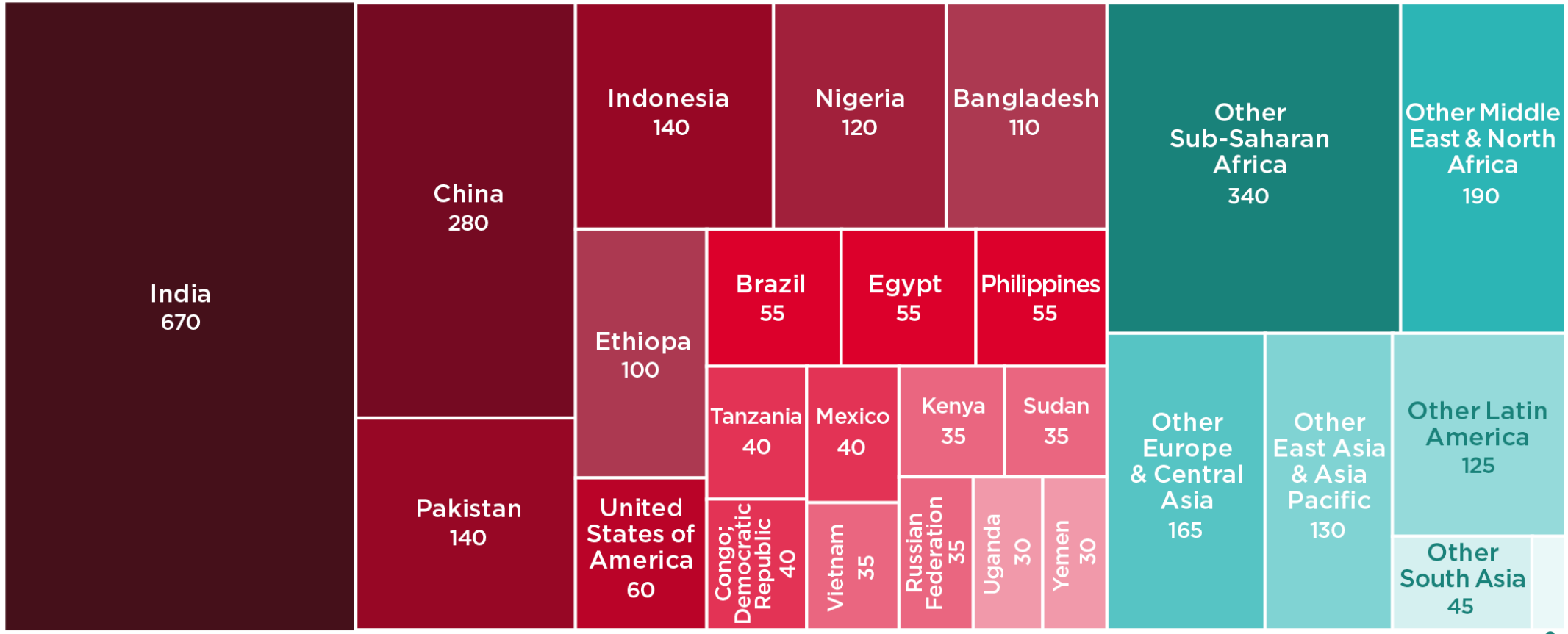
39% of the **world's population live within the footprint of a mobile broadband network** but are not using it

3.1bn PEOPLE → 2/3 OF WHICH DO NOT OWN A PHONE

WRCs deliver **HARMONISATION** and **SCALE** to support affordability and lower the usage gap.

WRC-27 can **ENABLE NEW TECHNOLOGIES** which, coupled with the right regulation, can help support coverage.

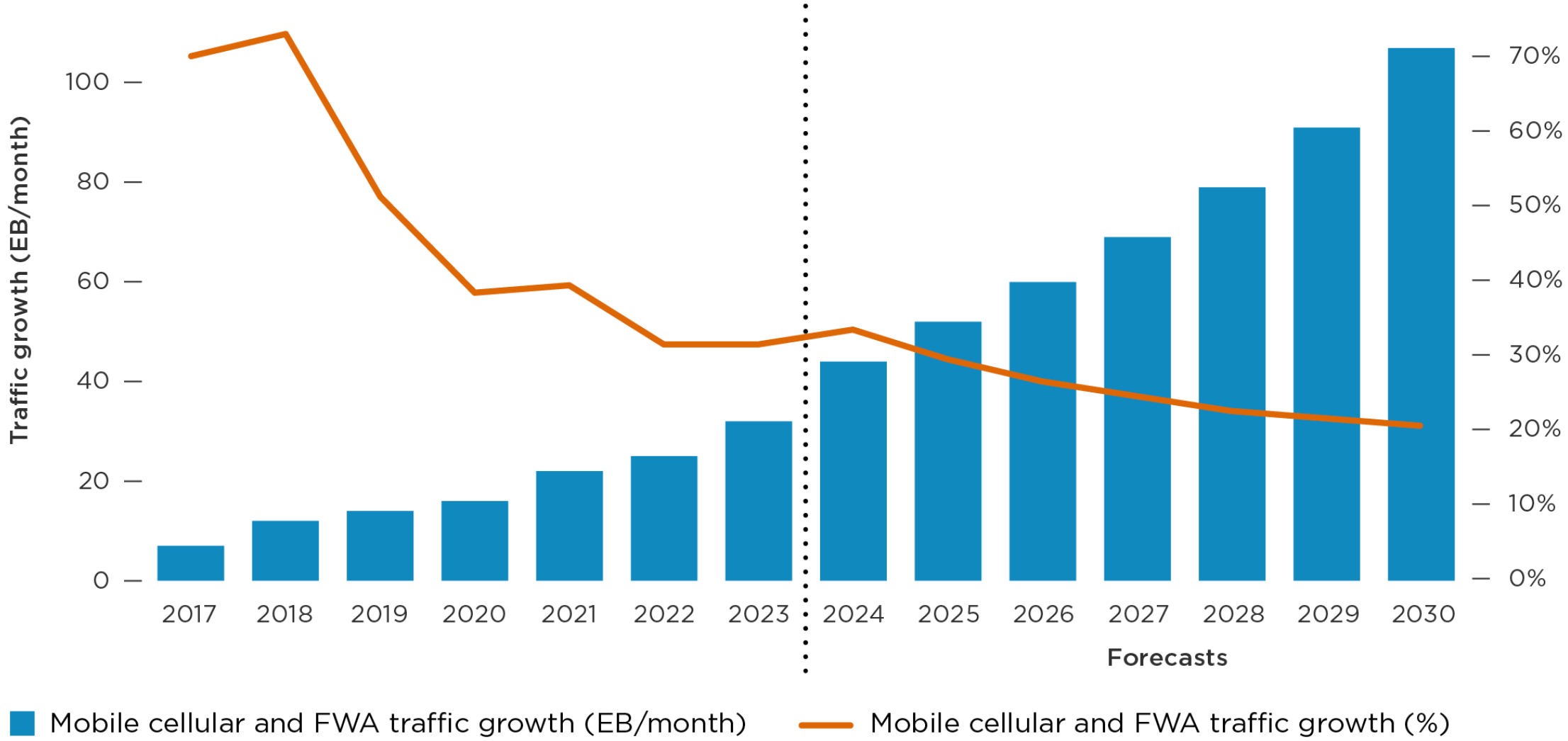
Global usage gap by country in absolute terms (millions of people)



Base: Total population, 197 countries
Source: GSMA Intelligence

Global mobile cellular and FWA traffic year-on-year growth

EB per month



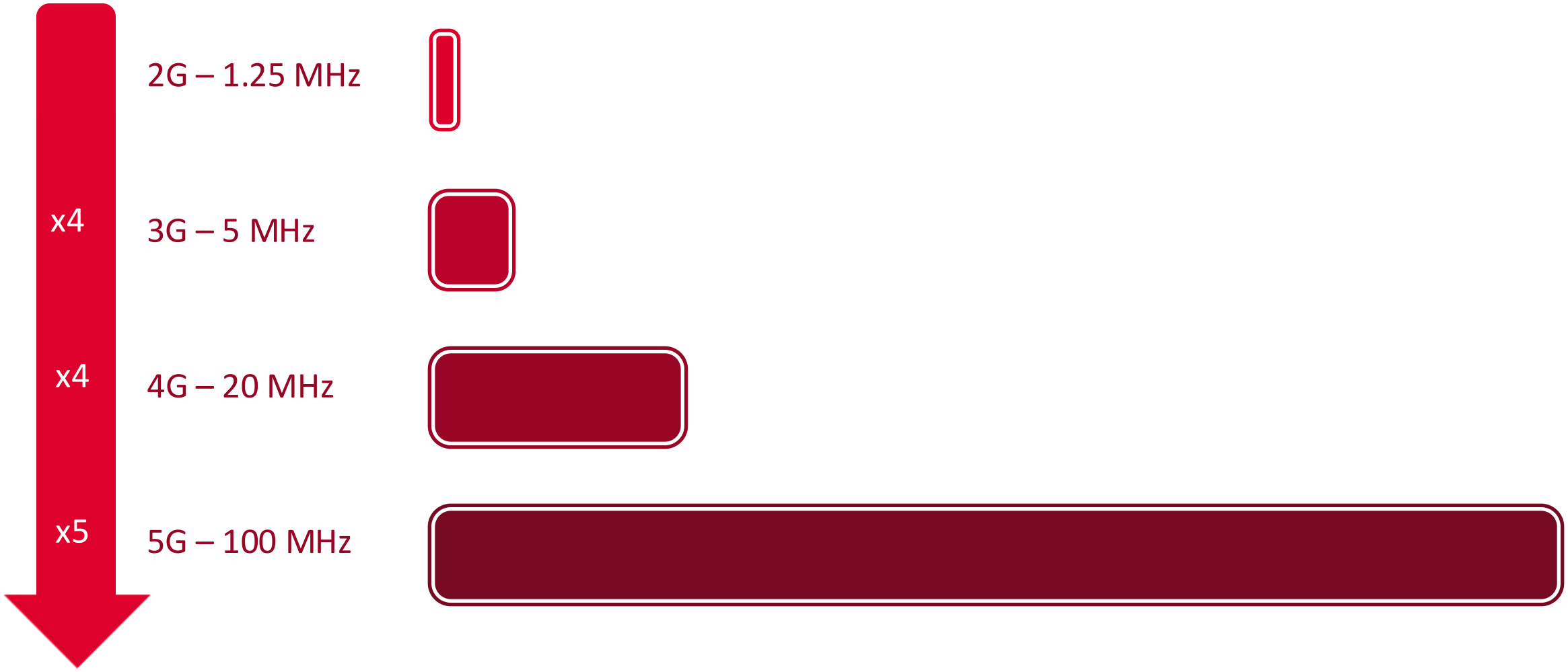
Source GSMA Intelligence and Ericsson

Next mobile generations must embrace:

- Universal meaningful connectivity
- Quality and consistency
- Sustainability and energy efficiency
- Massive capacity for more devices

"By delivering ever-present intelligent communication, 6G will contribute to the creation of a more human-friendly, sustainable and efficient society."

History of Channel Bandwidth



Future of Channel Bandwidth?

x2

x4

5G

Up to 100 MHz

6G

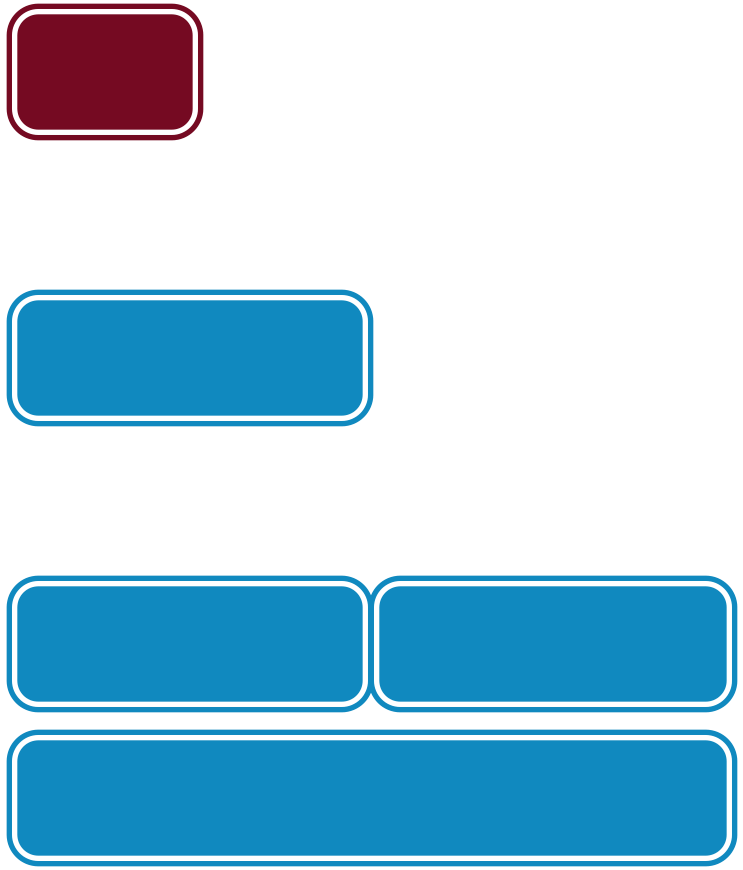
Initial Discussions

- Up to 200 MHz

6G

Potential Development

- Aggregation 2x200 MHz
- One 400 MHz channel



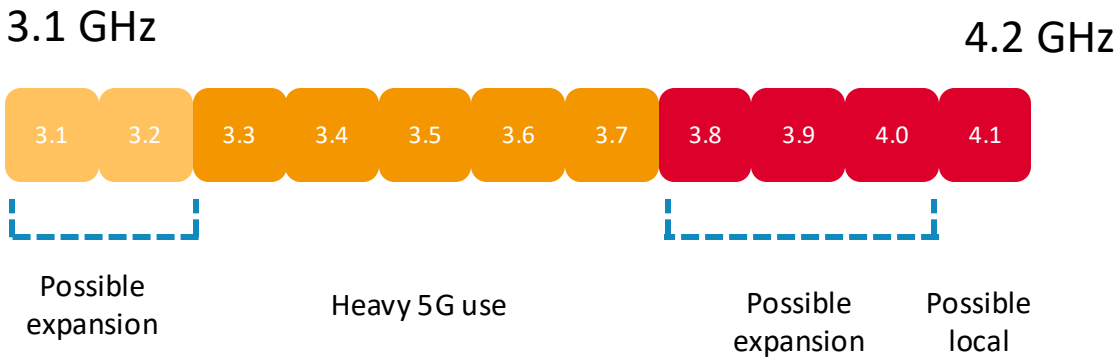
- Re-use of existing spectrum and support for wider bandwidths needed
- Industry discussions ongoing regarding extension of bandwidth for mid-bands
- 3GPP RAN 6G Workshop in March 2025
- 400 MHz channels may form part of initial discussions or may be a later development.
- 6 GHz trials used bandwidths between 80 and 400 MHz - the highest speeds were delivered with widest channels

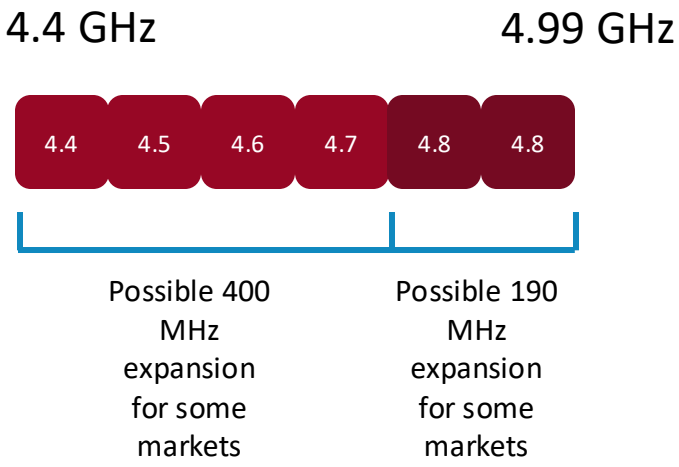
Channel Size

Peak 6 GHz trial speeds:

- **1.28 Gbps**
  80 MHz channel
- **5 Gbps**
  200 MHz channel
- **12.3 Gbps**
  400 MHz channel

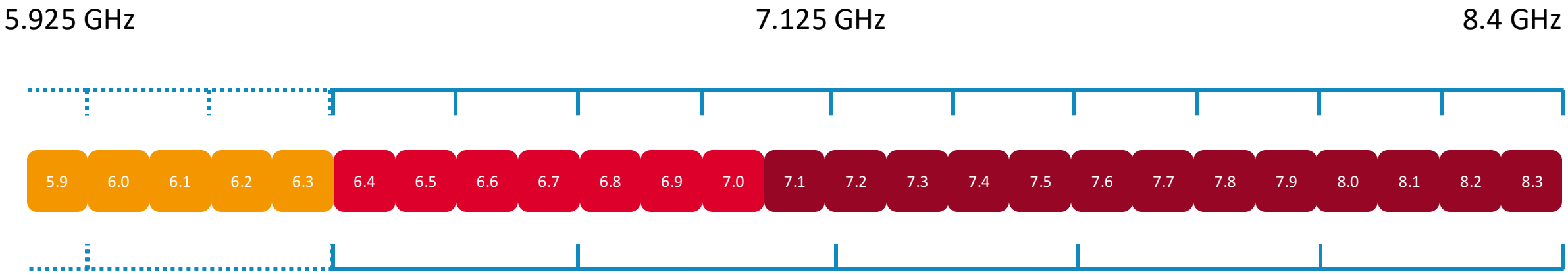
Finding Bandwidth





- Additional capacity may be possible in parts of 3.5 GHz and 4.5/4.8 GHz depending on the market
- Both ranges either heavily used or heavily restricted / fragmented

Finding Bandwidth



- Multiple 200 MHz and 400 MHz channels are possible between 6-8 GHz
  - 5 x 400 MHz channels within 6.425-8.4 GHz
  - 10 x 200 MHz channels within 6.425-8.4 GHz
  - Potential extension below 6.425 MHz in some countries
- Sharing possibilities with existing users within 7-1-8.4 (or parts) to be investigated
- Balance between available spectrum and number of operators
- Global tuning range facilitates global ecosystem with regional/national usage varying

Continuing Roadmap Development

WRC-27

4.4-4.8 GHz

7.125-8.4 GHz (or parts of)

14.8-15.35 GHz

Other options (including…)_

470-694 MHz

1427-1518 MHz

3.8-4.2 GHz

6 GHz

SPECTRUM

for the benefit of billions