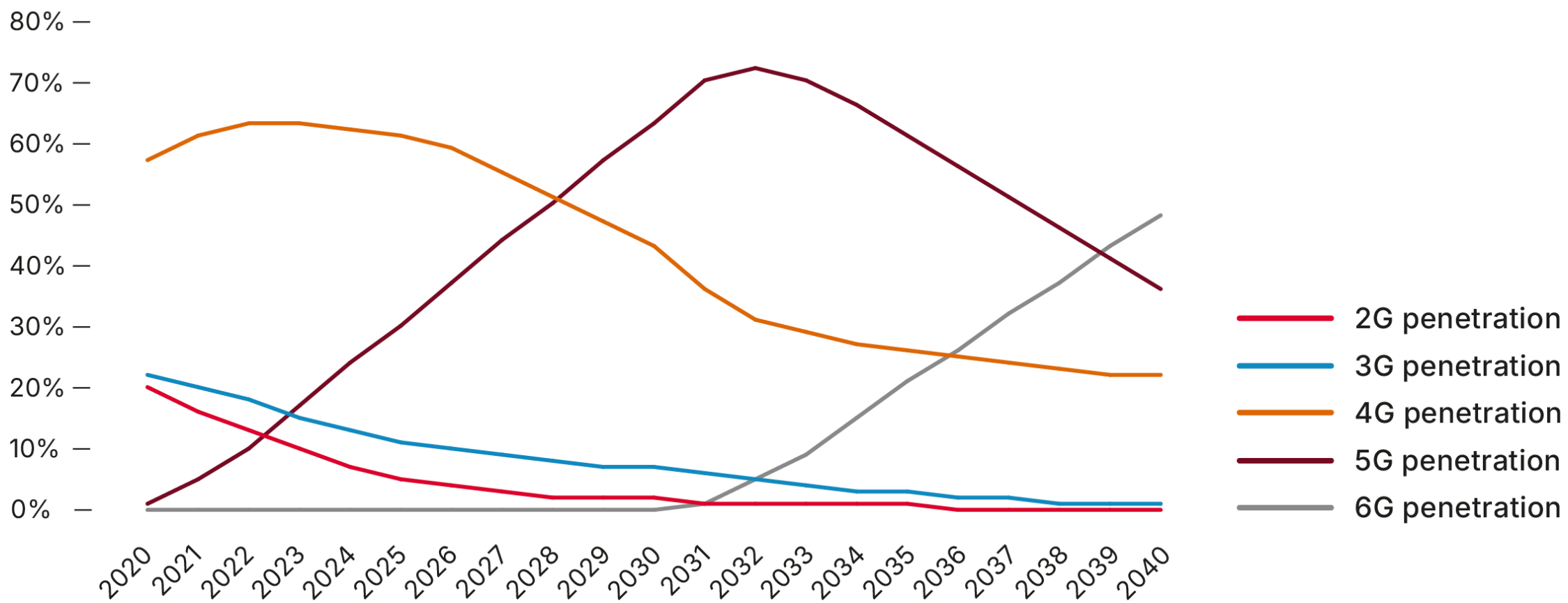


6G Spectrum Needs & WRC-27

Ashish Garg, GSMA

Market penetration by technology, 2020–2040



Source: GSMA Intelligence

Applications

1.

Tangibles

- MBB (Inc. Growing Video)
- FWA
- Enterprise digitalisation
- Some XR
- ... AI

2.

Probables

- More XR
- More enterprise digitalisation – sensing, robotics, digital twins etc.
- Social holograms
- Sensing
- ...AI

3.

Disruptors

- Mass market, immersive XR
- Realtime holographic comms
- Massive sensing applications
- Widespread UAVs
- ...AI

6G Spectrum Need

- **2-3 GHz total** needed by 2035-2040
- **WRC-27 4.5 GHz and 7-8 GHz** bands
- **200-400 MHz channels** per operator
- **15 GHz** – no clear commercial need



WRC-27: SPECTRUM FOR 6G AGENDA ITEM 1.7

GSMA

Each mobile generation is part of a continuous evolution that strengthens digital economies and helps the world connect to advanced, transformative technologies.

Today, spectrum plans are being advanced to support the growth of mobile in the next decade, a period that will come to be defined as the 6G era.

A global average of 2–3 GHz of mid-band spectrum is needed by 2035–2040 to support the ongoing growth of IMT, including 6G. Its harmonisation will begin at WRC-27.

AGENDA ITEM 1.7 WILL LOOK AT CRITICAL FREQUENCY RANGES INCLUDING:

4.4–4.8 GHz

7.125–8.4 GHz

SPECTRUM for the benefit of billions.

WRC-27 has the power to deliver:



HARMONISATION

Delivering 200–400 MHz channels for 6G in new bands including 4.5 GHz and 6–8 GHz.



INNOVATION

Enabling worldwide access to 6G launch spectrum to deliver XR, integrated AI and seamless digital access.

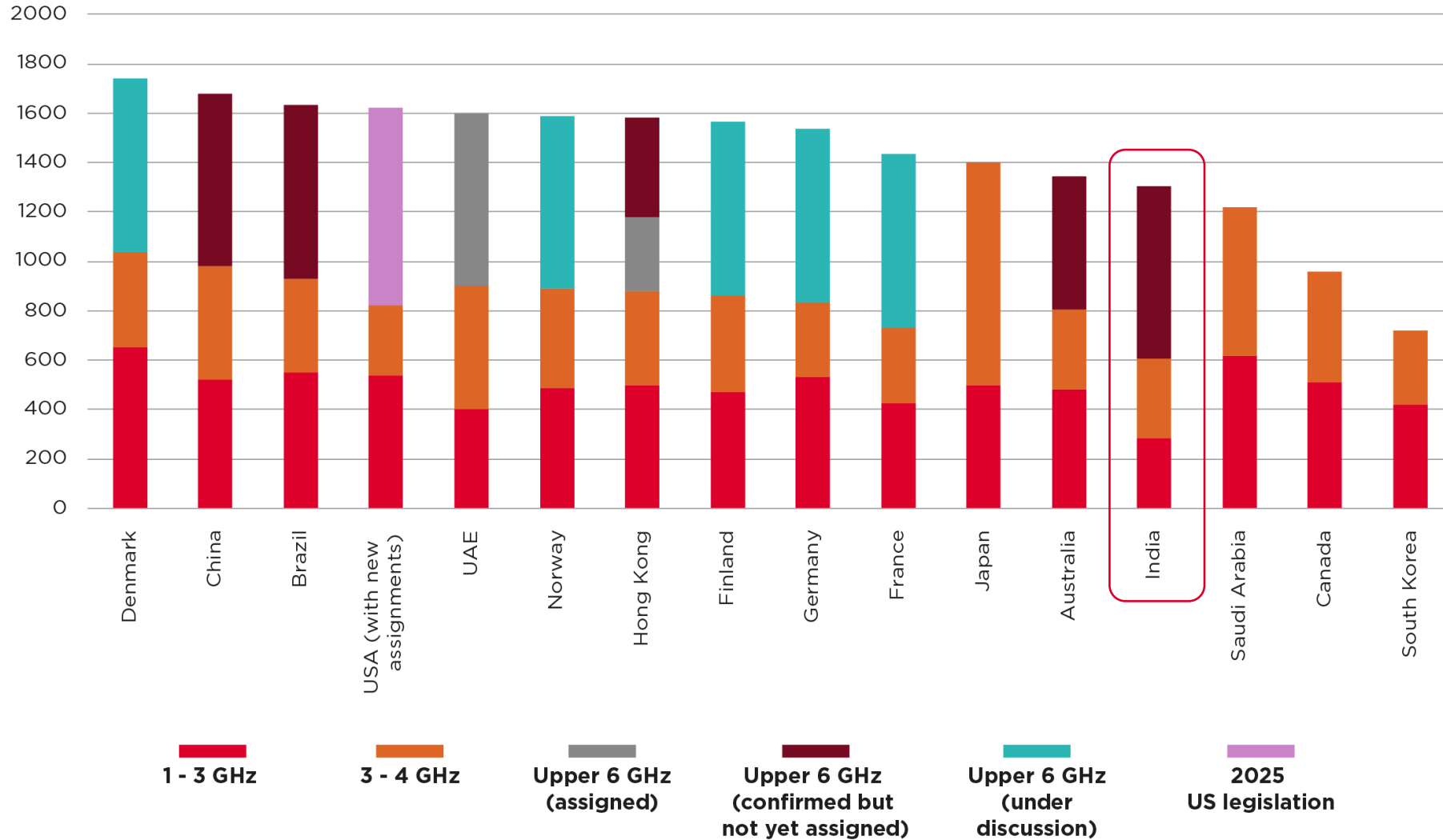


RESILIENCE

Allowing capacity for secure and robust 6G networks that underpin critical infrastructure and digital sovereignty.



Mid-Band Comparison



- European figures show maximum possible 6 GHz assignment of 700 MHz being considered by RSPG; minimum assignment being considered is 380 MHz

Opportunity at WRC-27

ITU & 3GPP 200-400 MHz

3.5 GHz



4.5 GHz



6-8 GHz





Cities with over 50% of the world's urban population will be capacity-constrained by 2030 if mid-band spectrum remains at today's levels.



A global average of 2-3 GHz of total mid-band spectrum will be required in urban areas by 2035-2040; higher-demand countries will need 2.5-4 GHz in this period.



A harmonised spectrum roadmap that delivers the total mid-band spectrum requirements should be developed to enable operators to meet these capacity demands from 2030.



Regulators should seek to assign spectrum in 3.8-4.2 GHz and upper 6 GHz to mobile by around 2030 to meet demand and consider 4.4-4.99 GHz and 7-8 GHz beyond that.

GSMA Views on AI 1.7 and next steps for consideration

- Consideration of IMT use in 4400-4800 MHz and 7125-8400 MHz
 - 7125-8400 MHz extends the 6425-7125 MHz IMT band in high traffic dense urban areas enabling 400 MHz per operator
 - Global tuning range 6425-8400 MHz facilitates global ecosystem with regional/national usage varying
- Recognise importance of incumbent services and usage of these bands
 - Aligning modelling approaches to reduce variance in sharing studies
- Global and regional outreach & coalition building
 - 6G leadership
- 6G standards & ecosystem ambition can only be realised with right spectrum being made available at the right time.

Thank you