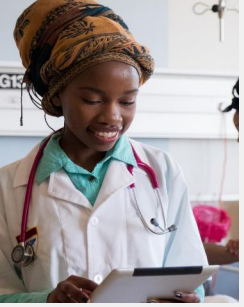
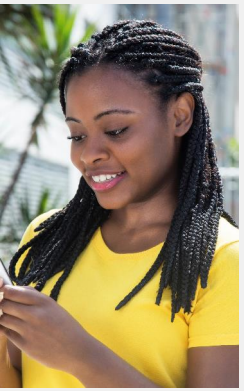
# Mobile Connectivity and WRC-23

ASMG

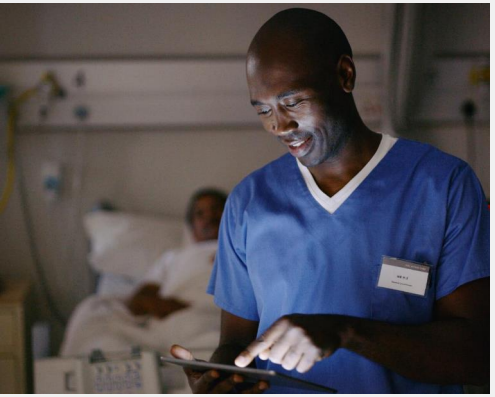
Ross Bateson, GSMA

© GSMA 2023

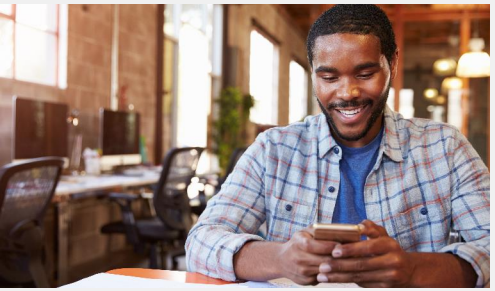










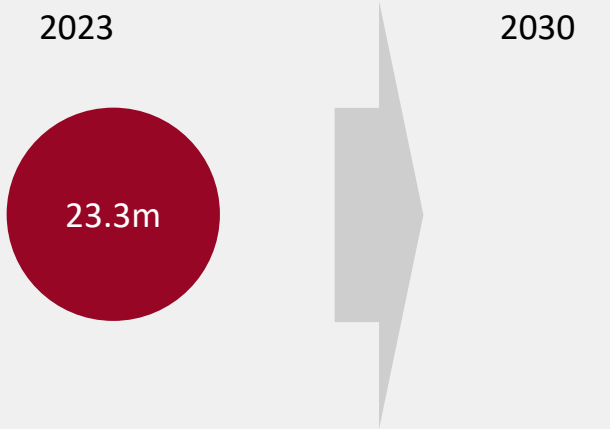


5.4 bn mobile subscribers

1.5 bn 5G connections

As subscribers increase …

## 5G needs space to grow



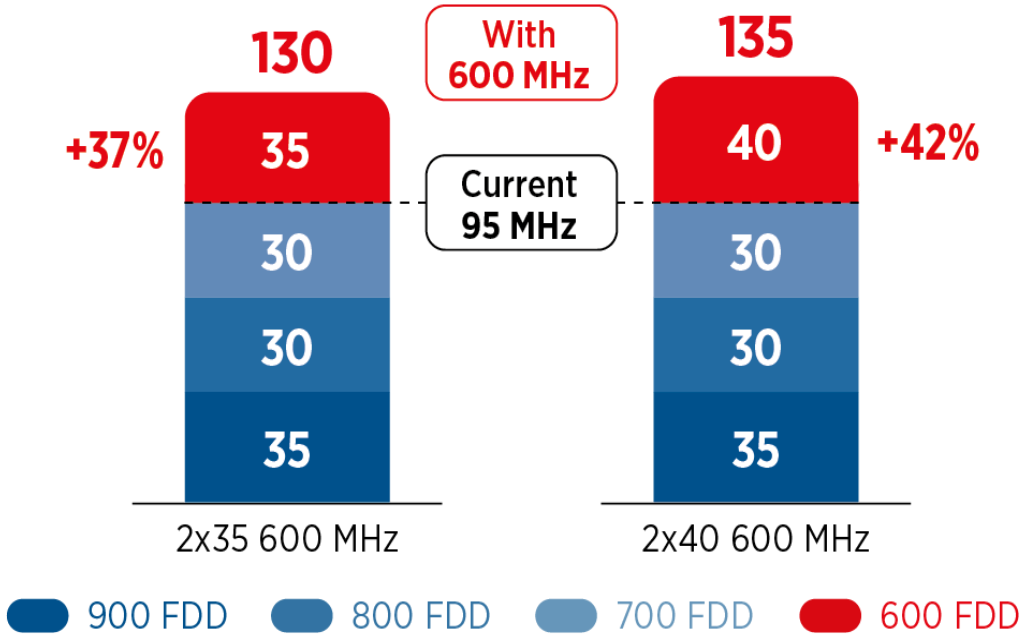




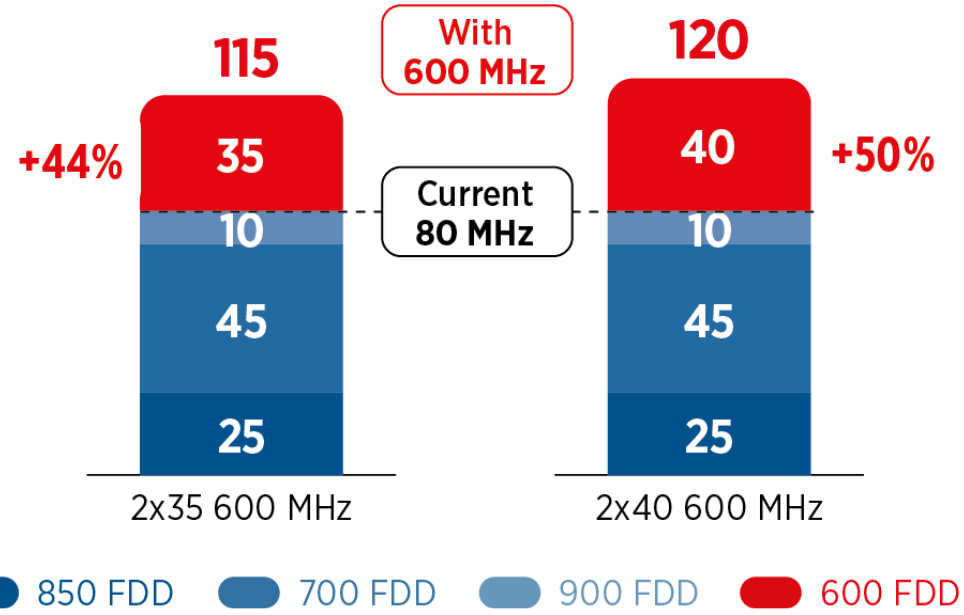
5G Connections in ASMG

# Why More Low-Band Spectrum?

EMEA

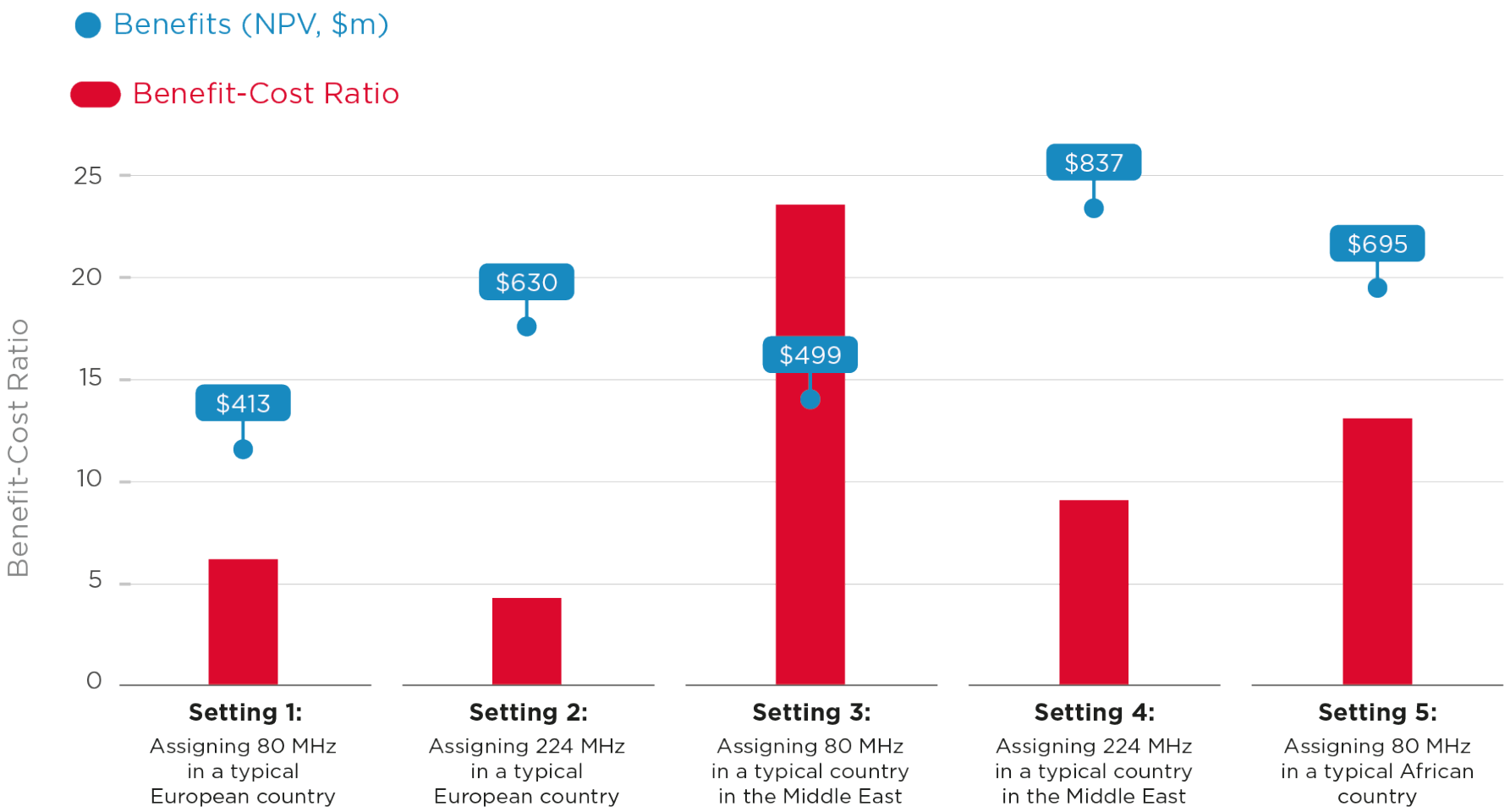



LatAm and APAC




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# Low Bands: Policy Goals and Economic Growth



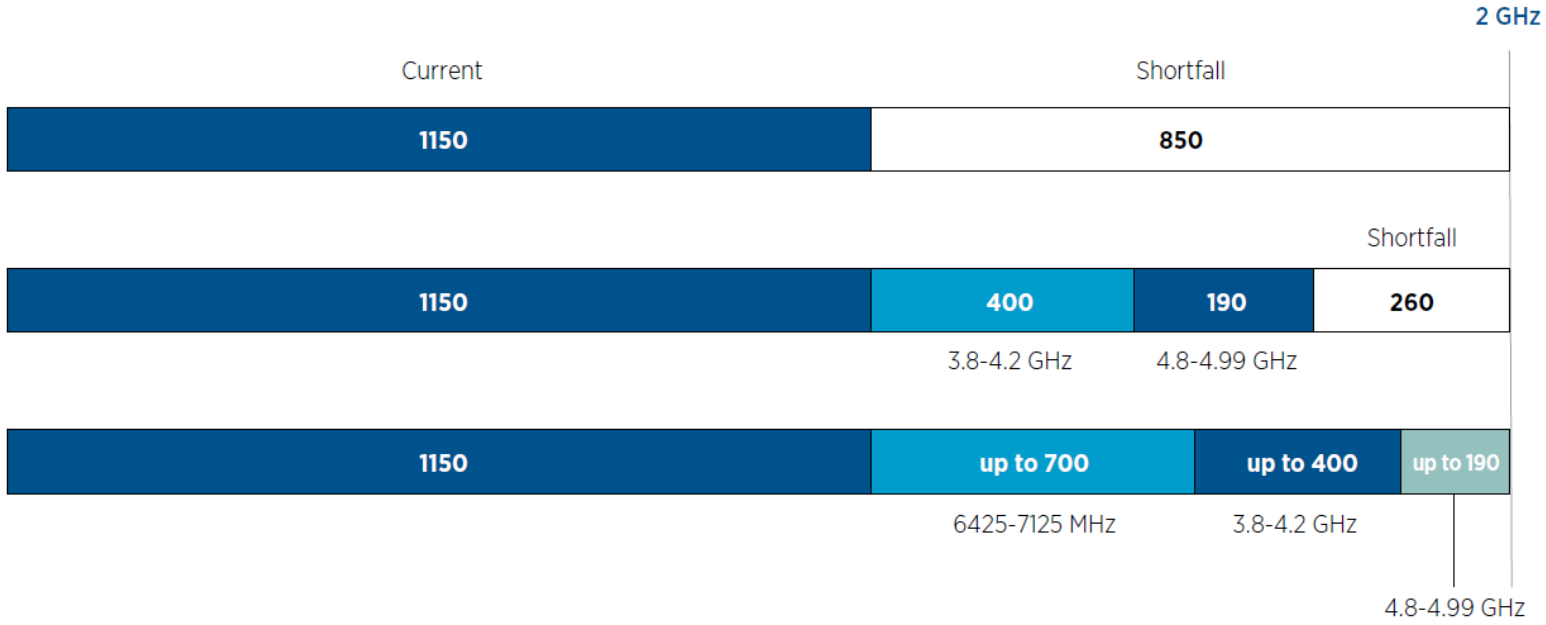

- Poverty reduction
- Education
- Employment
- Health
- Climate change

[Socio-Economic Benefits of 5G: Importance of Low-Band Spectrum]


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# Mid-Band Maths




**2 GHz**

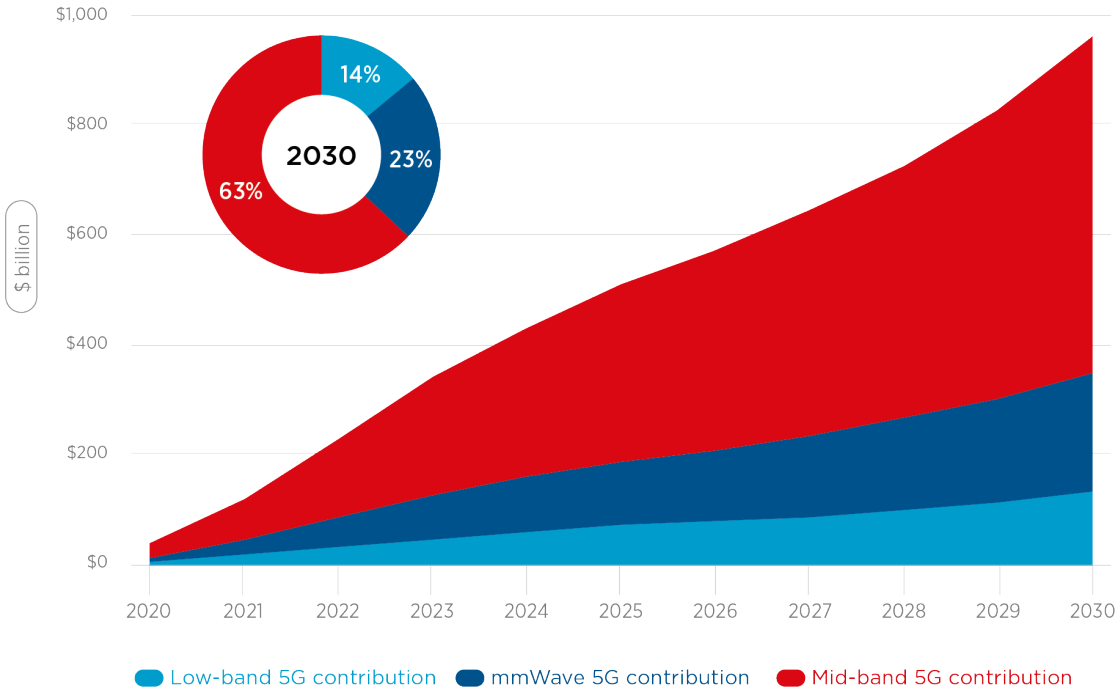
of mid-band is required for 5G by 2030.

This is challenging to achieve without 6 GHz

© GSMA 2023

# Economic Power of 5G

## 5G CAN IMPACT GLOBAL ECONOMY IN 2030 BY $961BN...




## ... BUT SPECTRUM CONSTRAINTS RESTRICT VALUE

**Optimal Scenario**

**$961bn**

0.68% of GDP

**Constrained Scenario**

**$594bn**

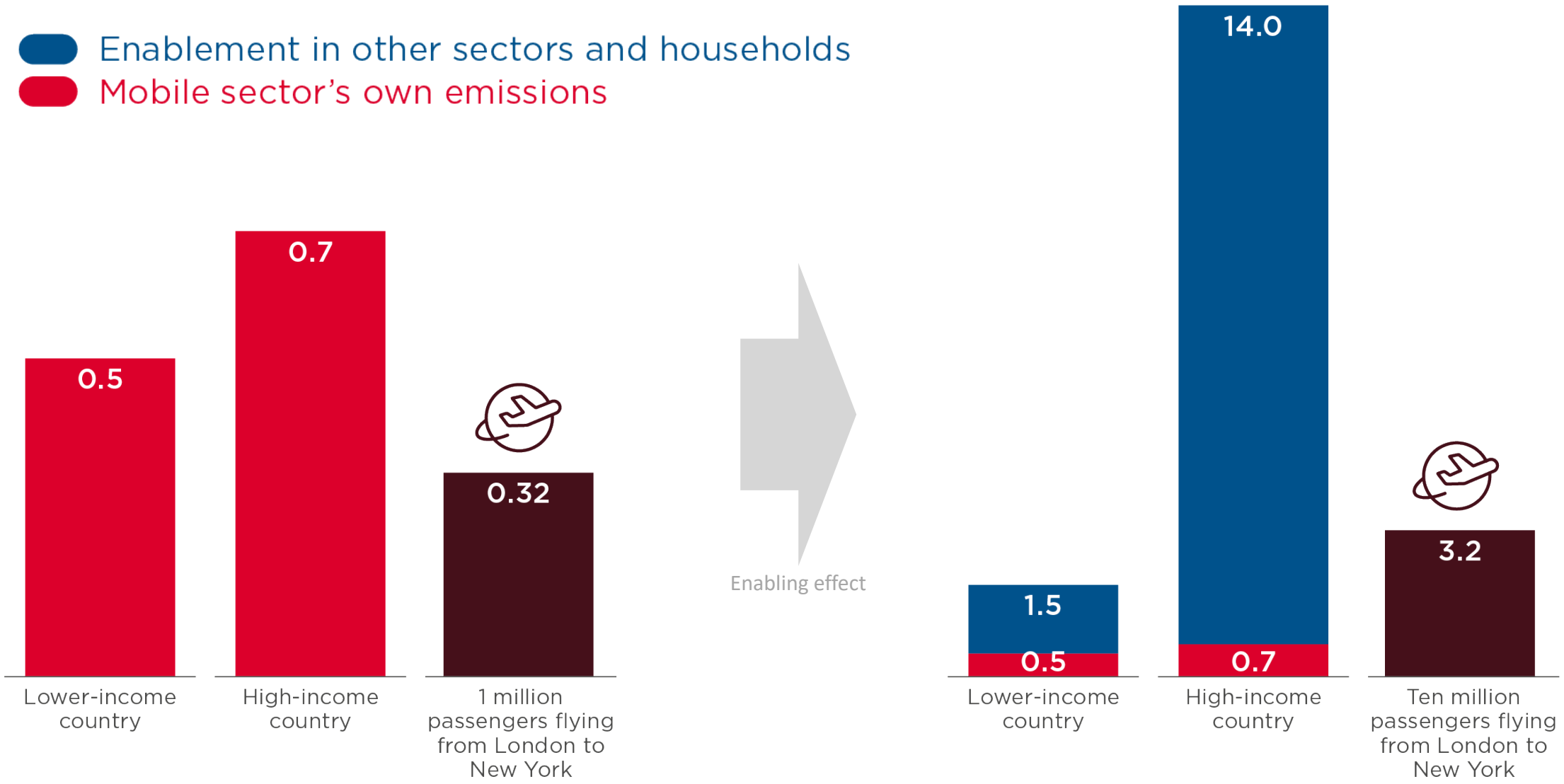
0.42% of GDP

© GSMA 2023

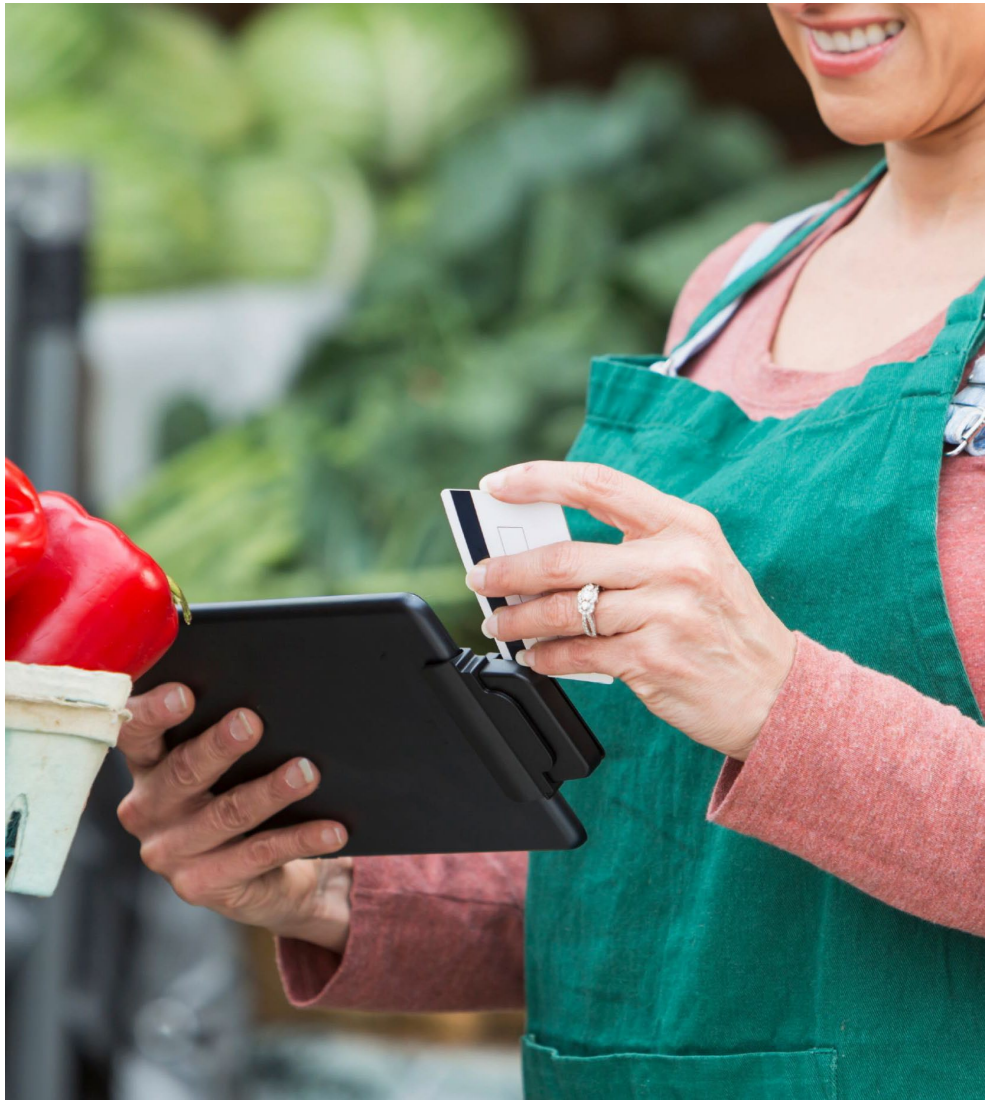
The Socio-Economic Benefits of Mid-band 5G GSMA Intelligence 2022

# WRC-23 and Carbon Emissions

## Emissions increase with 100 MHz less spectrum




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## Digital Equality

Low-band

470-694 MHz

- The GSMA supports a primary mobile allocation in the band 470-694 MHz. This will allow those countries that wish to do so to identify the band, or parts thereof, for IMT.

## Harmonisation

3.5 GHz

3.3-3.8 GHz

- The GSMA supports identification of the bands 3.3-3.4 GHz and 3.6-3.8 GHz for IMT.

## Expansion

6 GHz

6.425-7.125 GHz

- The GSMA supports identification of the band 6.425-7.125 GHz for IMT to enable ecosystem development and protection of existing services

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# For the benefit of all

Mobile means a fairer world. It brings opportunities to prosper, learn, laugh and love, allowing everyone to live their lives to the full.

# Global mobile Suppliers Association

## Ensuring the ongoing success of IMT

ITU-R CPM23-2 Meeting

GSMA/GSA Lunchtime Seminars

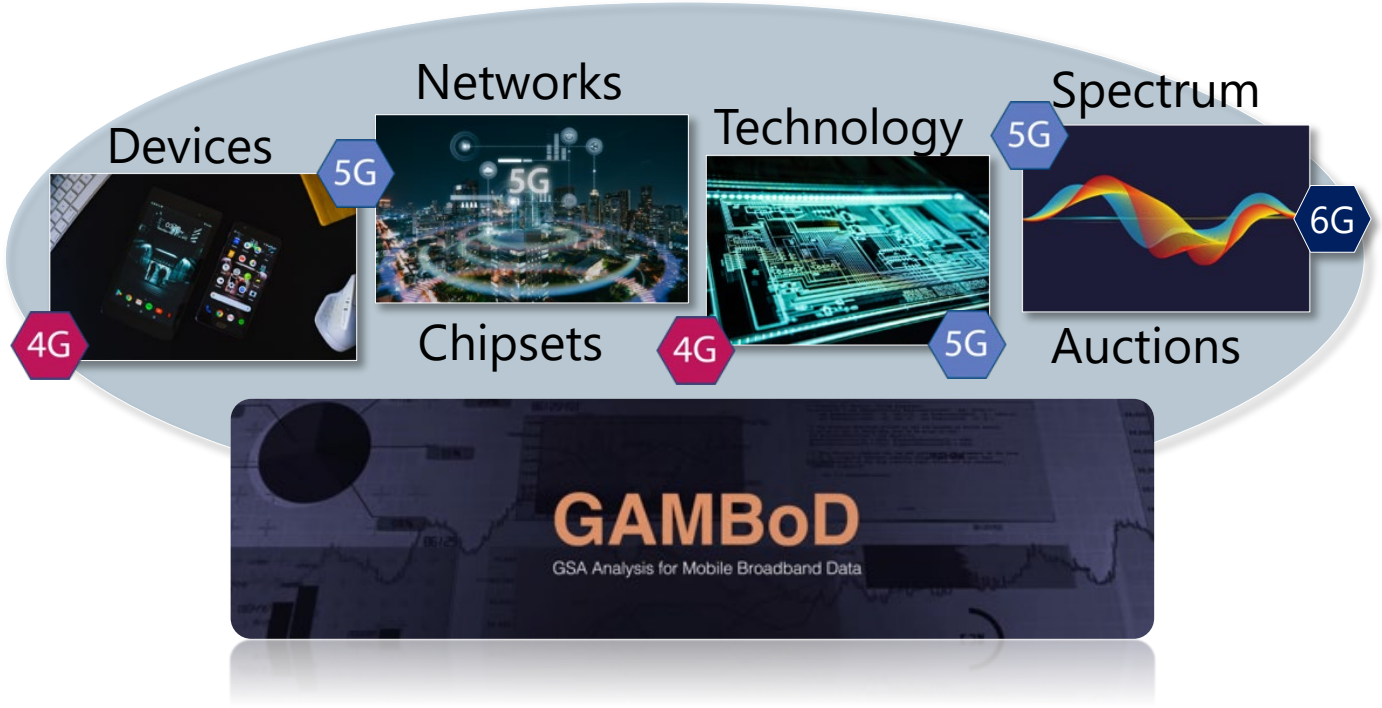
March ‘23

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# 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.
- GSA is pleased to partner with GSMA for this event concerning WRC matters. The views expressed in this presentation are those of the GSA.

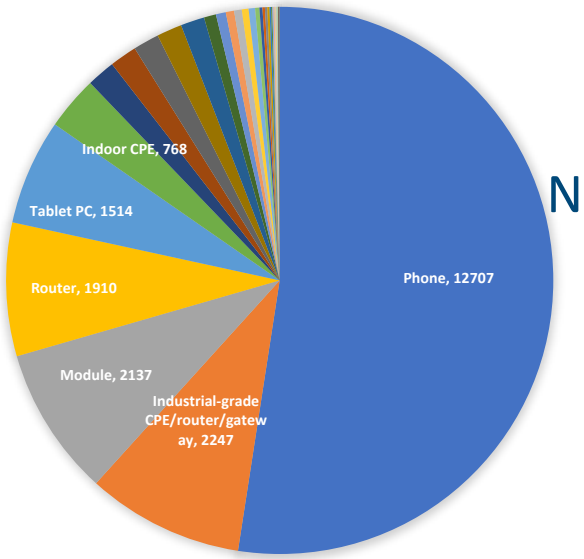



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# Continuing to Deliver the Global ITU IMT Vision

## 24k IMT2020 Devices*




## 8.4Bn Mobile Subscribers#

**x1.51** Europe

**x1.06** North America

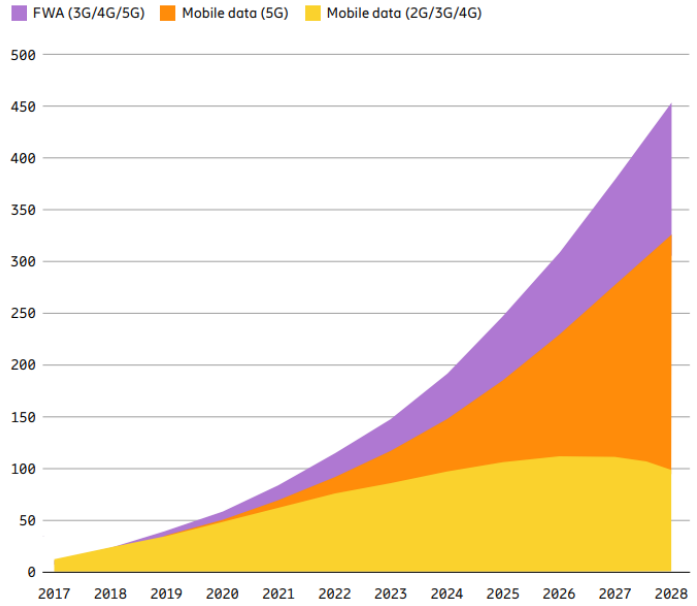
**x1.02** Asia

**x1.07** Latin America

**x0.91** MEA



## 15GB per month+



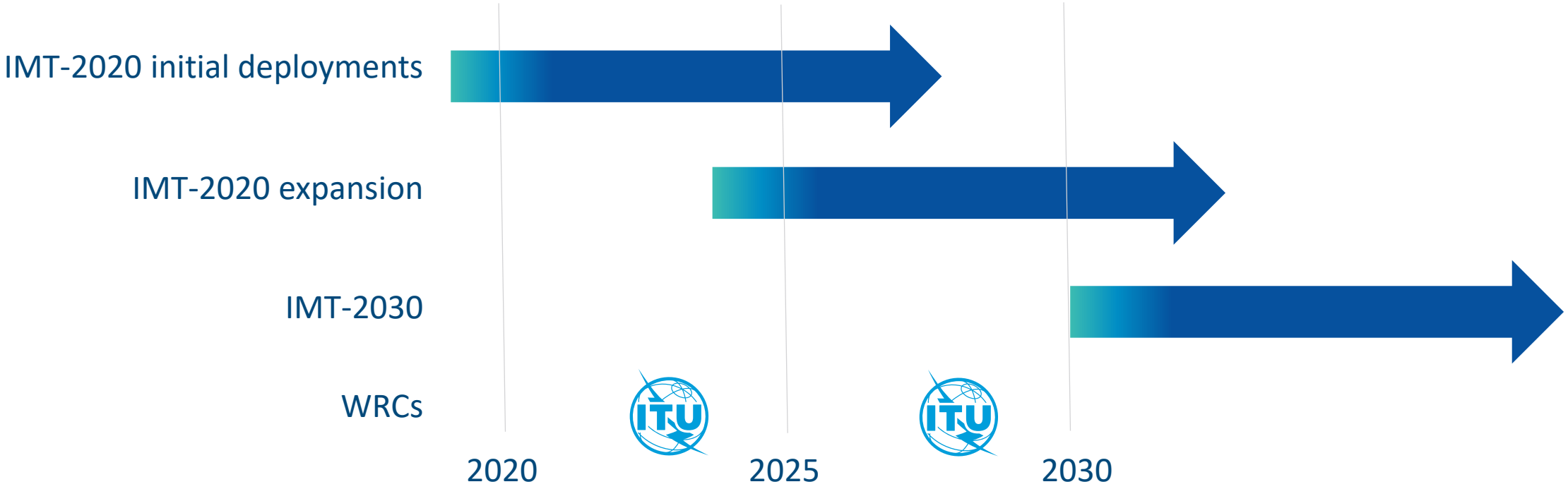

* Source: GSA GAMBoD, March 2023

# Source: Ericsson Mobility Report, Nov22.
Number of Mobile Subscriptions per region

+ Source: Ericsson Mobility Report, Nov22

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# IMT / 3GPP Spectrum 2020-2030

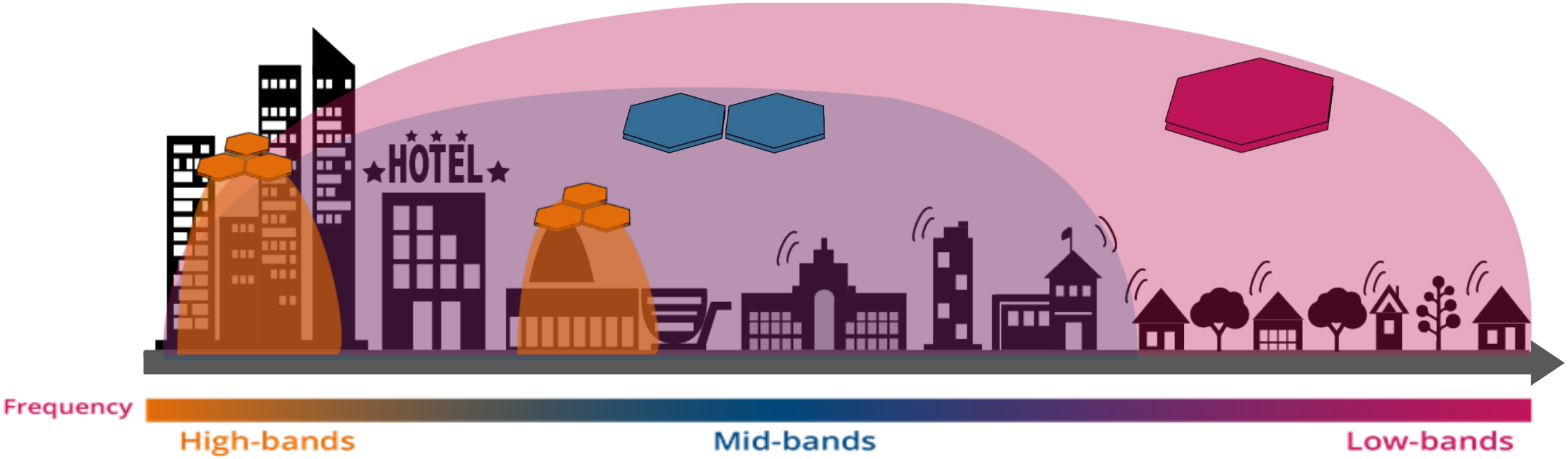



- 5G underway with licensing and roll-outs
- 5G expansion spectrum planning underway in some countries, with a timeframe from 2023/25
- 6G research is accelerating globally, ITU-R planned deliverables (including IMT-2030 framework) and workplan in place to enable IMT-2030/6G standards to be completed by 2030, in cooperation with external organisations such as 3GPP

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# Spectrum for coverage, capacity and ultra experience

| 24.25 GHz to 29.5 GHz,<br>37.0 GHz to 43.5 GHz, etc | 1.8 GHz, 2.3 GHz, 2.6 GHz, 3.3 GHz<br>to 4.2 GHz, 4.4 GHz to 5 GHz, etc | 600 MHz, 700 MHz, 800 MHz, etc |
|---|---|---|
| High-bands<br>Ultra experience layer | Mid-bands<br>Capacity-coverage layer | Low-bands<br>Basic coverage layer |




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# GSA views on WRC-23

*GSA encourages administrations to plan, support harmonization and secure availability for low & mid band expansion*

**Agenda Item 1.1**

GSA would welcome a decision by WRC-23 that globally expands the use of the 4800-4990 MHz band by IMT

- **Preference**: Delete pfd limit from RR No. **5.441B** and rely on RR No. **9.21** (*Methods F, G and H*). Optionally, introduce bi/multilateral agreements.
- **Note:** A significant relaxation* of the pfd limit could allow for largely unconstrained IMT macro cell deployments in coastal cities (*Methods C and D, possibly Alternatives 3-5**).

*GSA is still assessing what relaxation (pfd limit and distance) would enable unconstrained IMT use

**Agenda Item 1.2**

3.3-3.4 GHz (R1): Amend RR Nos. **5.429A** and **5.429B** to remove stringent conditions and add additional country names

3.3-3.4 GHz (R2): Upgrade MS to primary and amend RR Nos. **5.429C** and **5.429D** to apply in all of Region 2 and remove stringent conditions (*Method 2B*)

3.6-3.8 GHz (R2): Amend RR No. **5.434** to apply to 3.6-3.8 GHz in all of Region 2, and remove the need to seek agreement under RR No. **9.21** (*Method 3B*)

6425-7025 MHz (R1): GSA supports studies towards IMT identification in this region

7025-7125 MHz (all): GSA supports studies towards IMT identification globally

10-10.5 GHz (R2): GSA supports studies towards IMT identification in this region



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# GSA Views on WRC 23 - continued

*GSA encourages administrations to plan, support harmonization and secure availability for low & mid band expansion*

**Agenda Item 1.3**

GSA would welcome a decision by WRC-23 that expands the benefits from the already large existing ecosystem in this band

- Upgrade MS to primary and identify for IMT to leverage these benefits (*Method D*)
- No technical conditions necessary (*Method D*) but if some conditions would have to be applied, they should not be more restrictive than those for the 3400-3600 MHz band (ref. RR No. **5.430A**)

**Agenda Item 1.5**

GSA would welcome a decision by WRC-23 that opens possibilities to further harmonize the use of 470-694 MHz with other countries outside of Region 1

- Add primary mobile allocation to 470-694 MHz in Region 1 (*certain Alternatives of Methods B and C*)
- GSA welcomes support for IMT identification from interested administrations for this frequency band (*Alternatives B2, C2, C4 and C8*)

**AI 10**

GSA supports proposals for a potential WRC-27 agenda item for IMT from within 7-24 GHz



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# Global mobile Suppliers Association

The Industry Voice of the Global Mobile Ecosystem

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info@gsacom.com

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# For the benefit of billions

Mobile is used by over 5 billion people worldwide every day. It creates business opportunities, connects us with loved ones, facilitates healthcare and education, and allows us to enjoy the things that make life worth living.