

Future Spectrum Requirements in the Americas

WRC-15 lunchtime seminar

Geneva, 6 November 2015

A mobile operator’s perspective
Julio Linares, Vice Chairman
Telefónica

A vendor’s perspective
Javier Camargo, Latin America Regional Director
Ericsson

Recommended new mobile bands
Veena Rawat, Senior Advisor
GSMA

Q&A, buffet lunch and networking





A mobile operator's perspective

Julio Linares, Vice Chairman
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A vendor's perspective

Javier Camargo, LatAm Regional Director
Ericsson

TEMA DE AGENDA 1.1

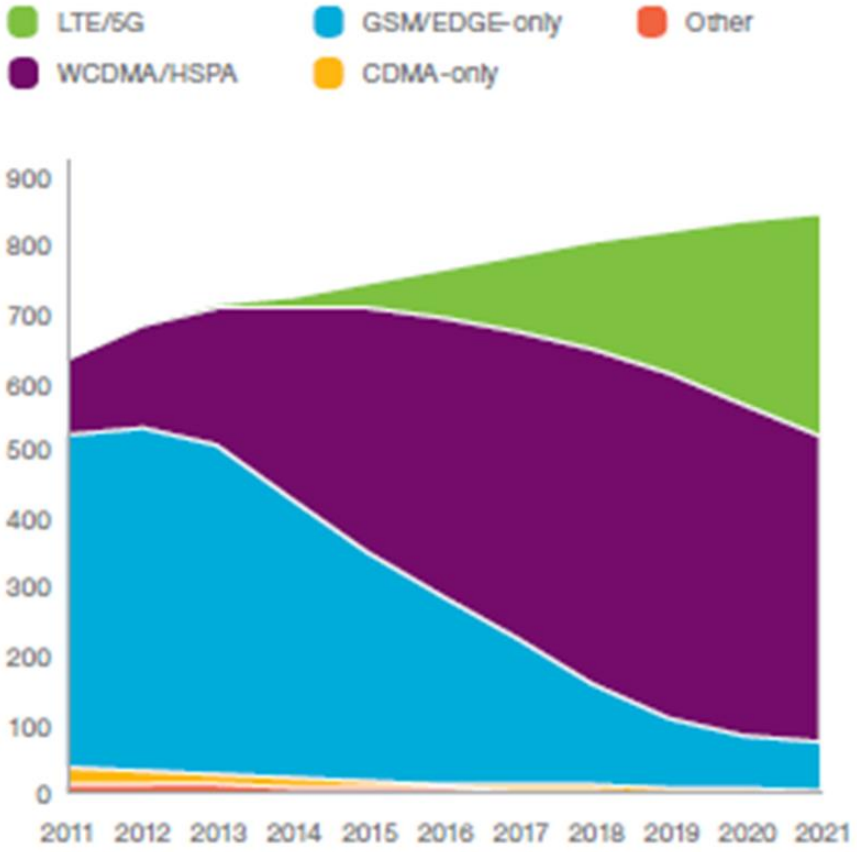


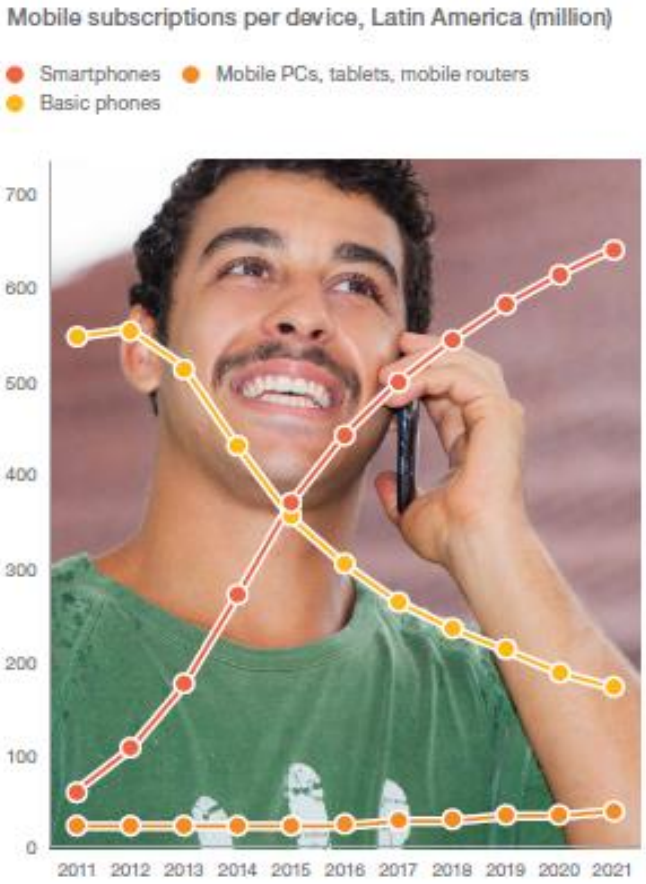


LATIN AMERICA AND THE CARIBBEAN

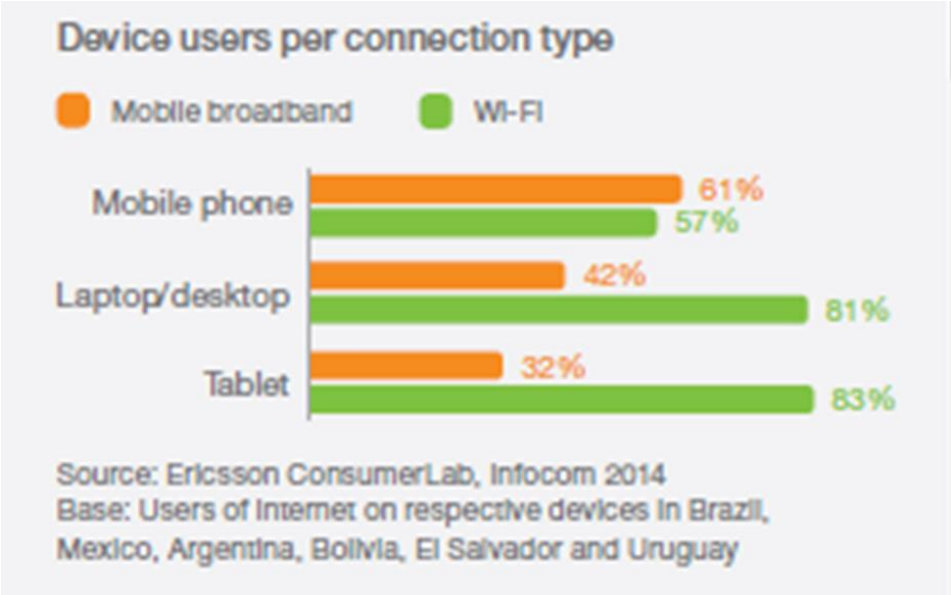
ERICSSON MOBILITY REPORT APPENDIX

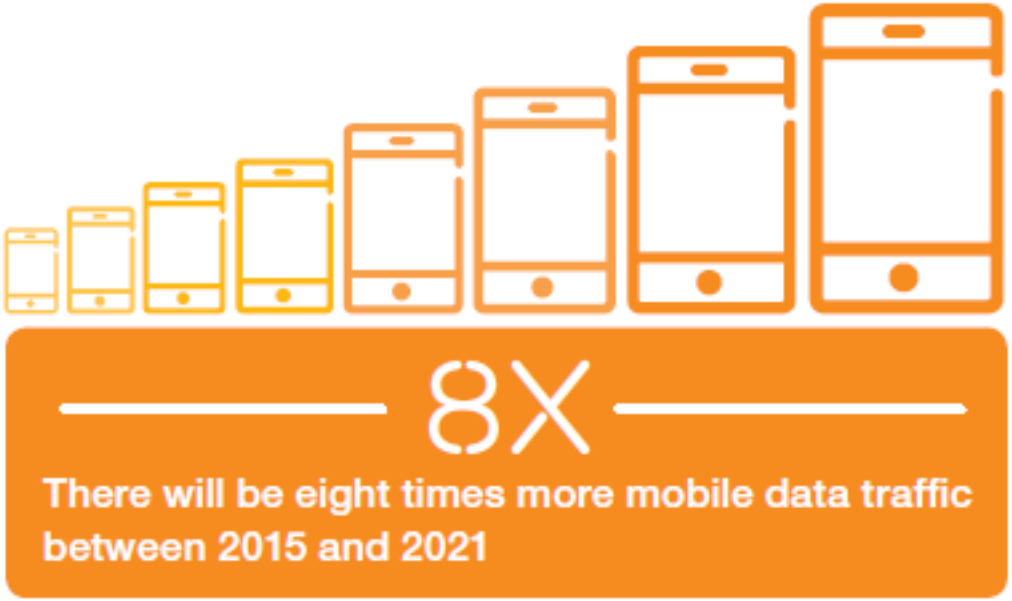
Mobile subscriptions by technology, Latin America (million)



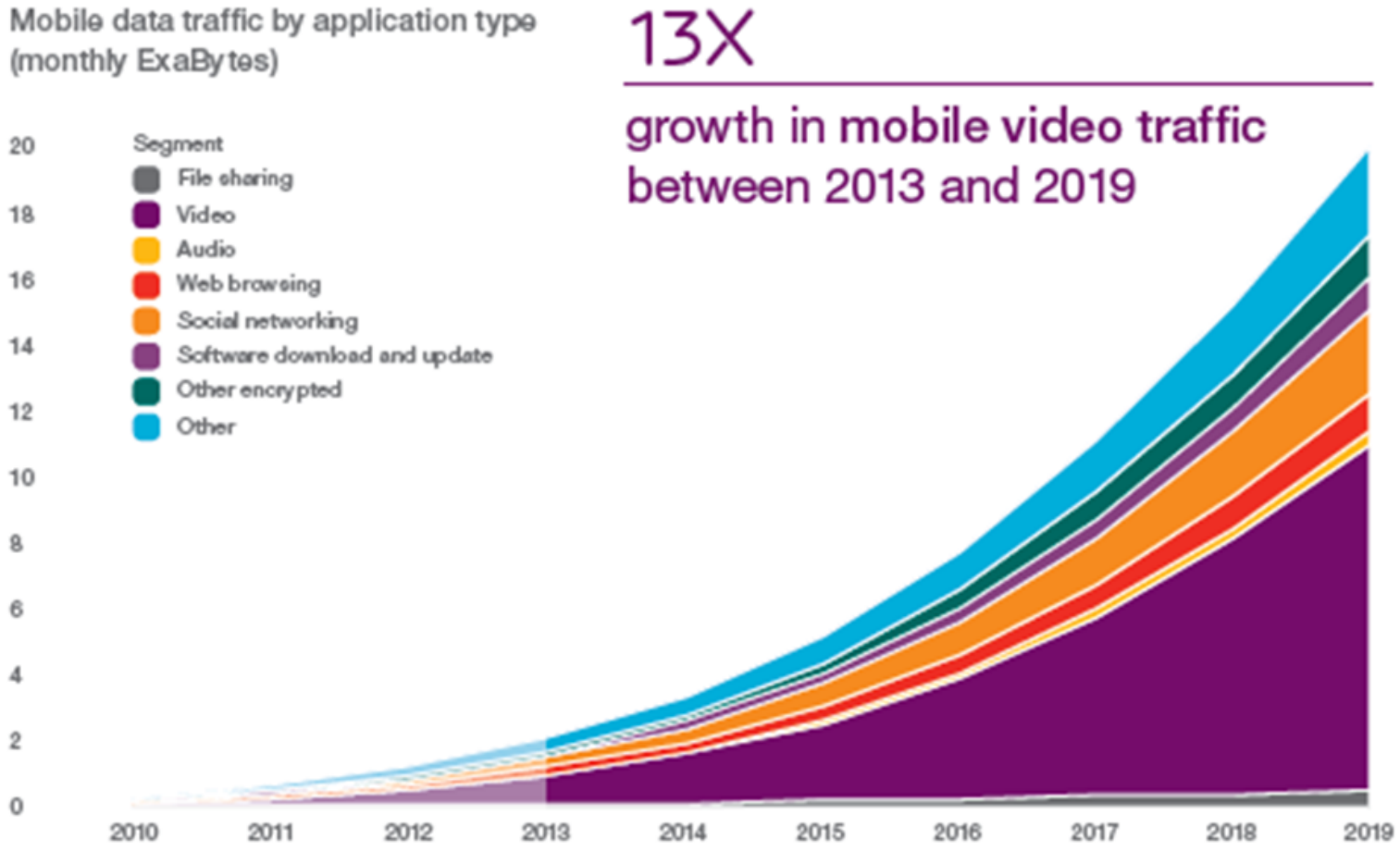


Four out of five handsets will be smartphones by 2021

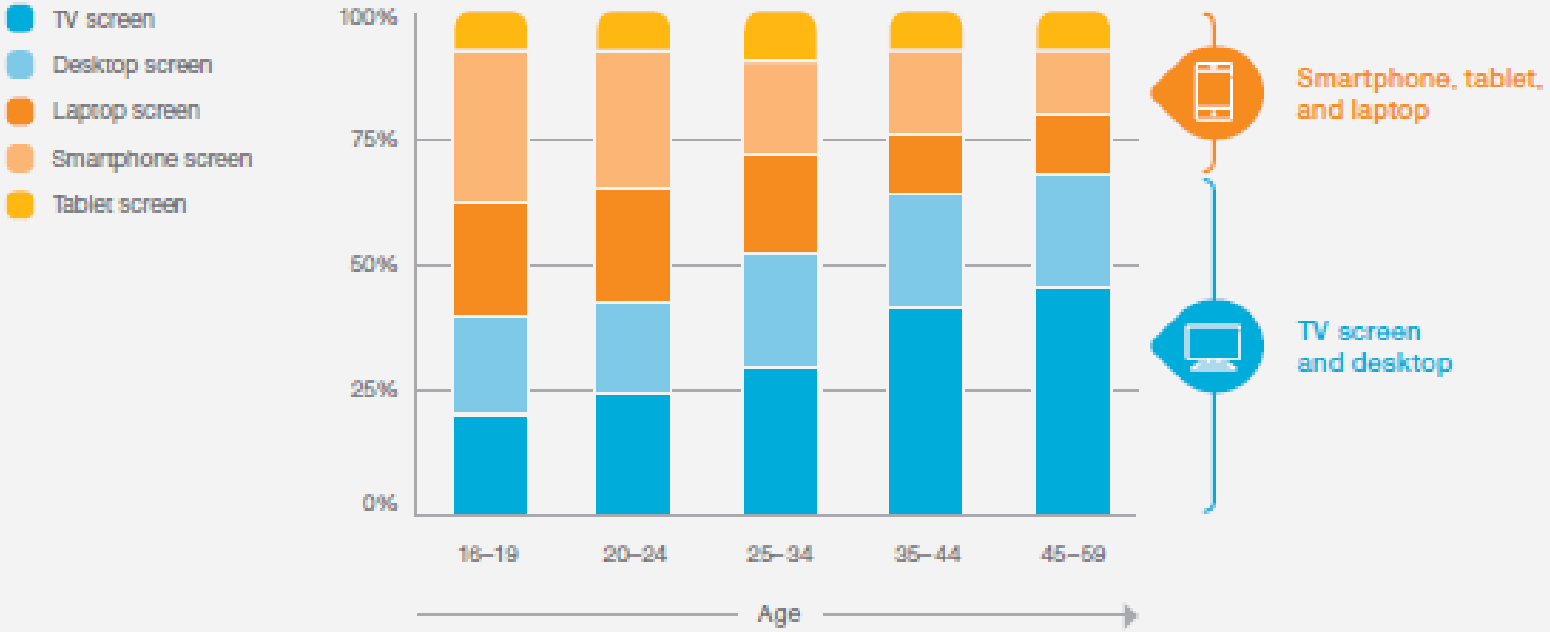




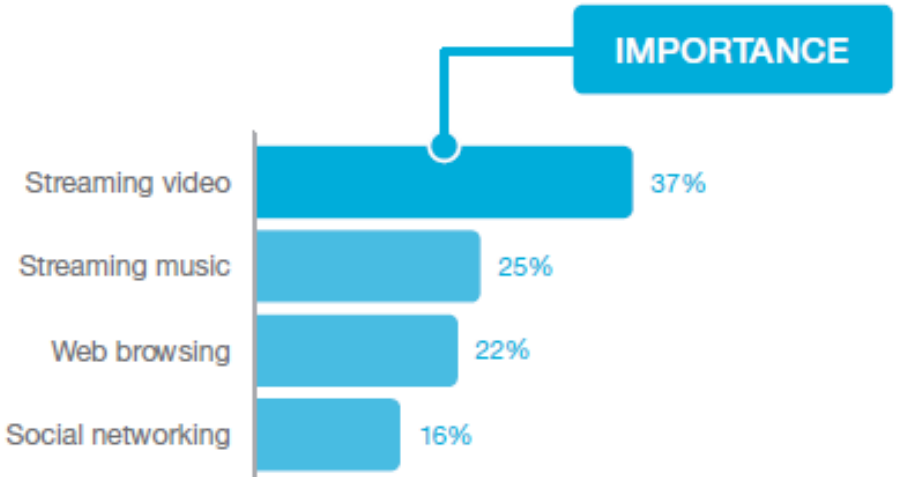
Voice traffic remains flat with a low impact on total mobile traffic volumes, but growth in data is expected to increase 8-fold by 2021. By 2021, 90 percent of traffic will come from smartphones. The amount of data used per active smartphone subscription will rise, from an average of 1.2 GB per month in 2015 to 6 GB in 2021.

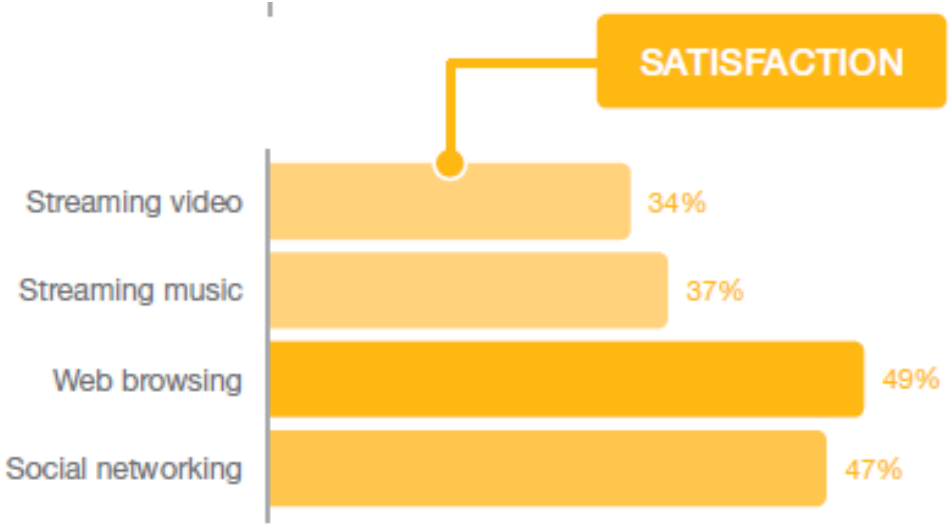

Mobile data traffic by application type
(monthly ExaBytes)
13X
growth in mobile video traffic
between 2013 and 2019
Segment
File sharing
Video
Audio
Web browsing
Social networking
Software download and update
Other encrypted
Other
20
18
16
14
12
10
8
6
4
2
0
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019

Share of total TV time by age group, measured on respective devices



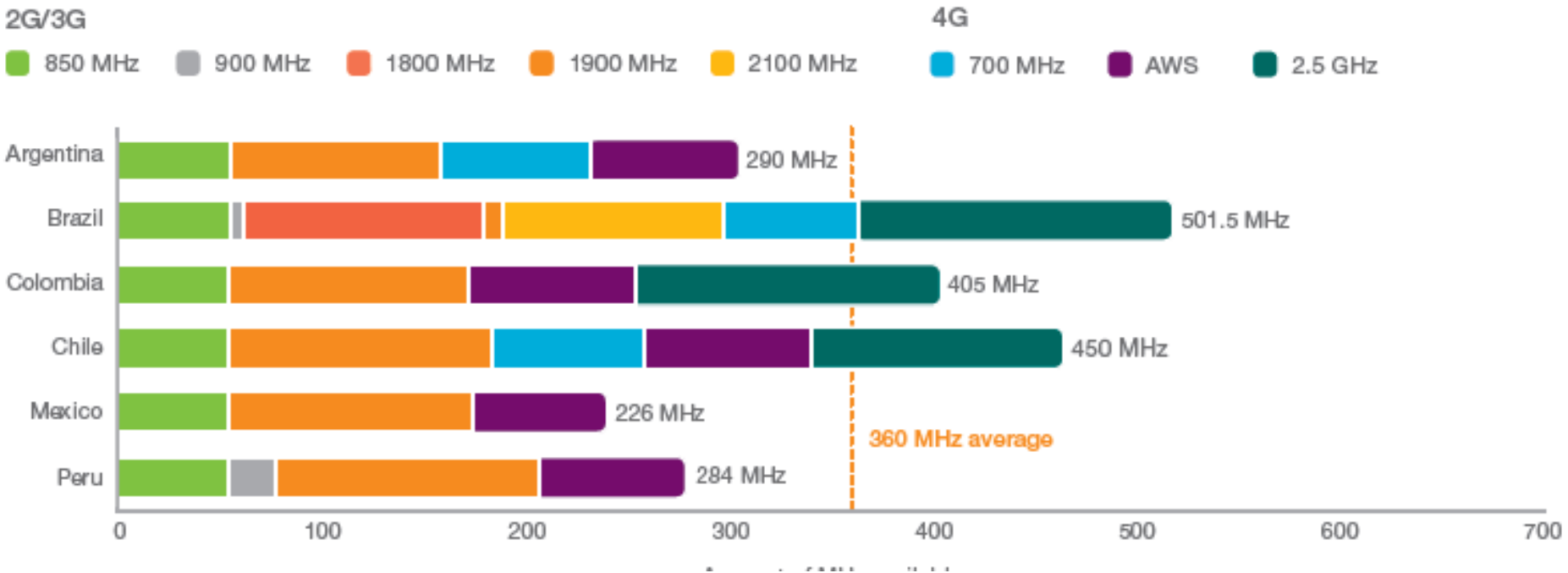
Source: Ericsson ConsumerLab, TV and media study 2015. Regional average of Brazil, Mexico and Colombia

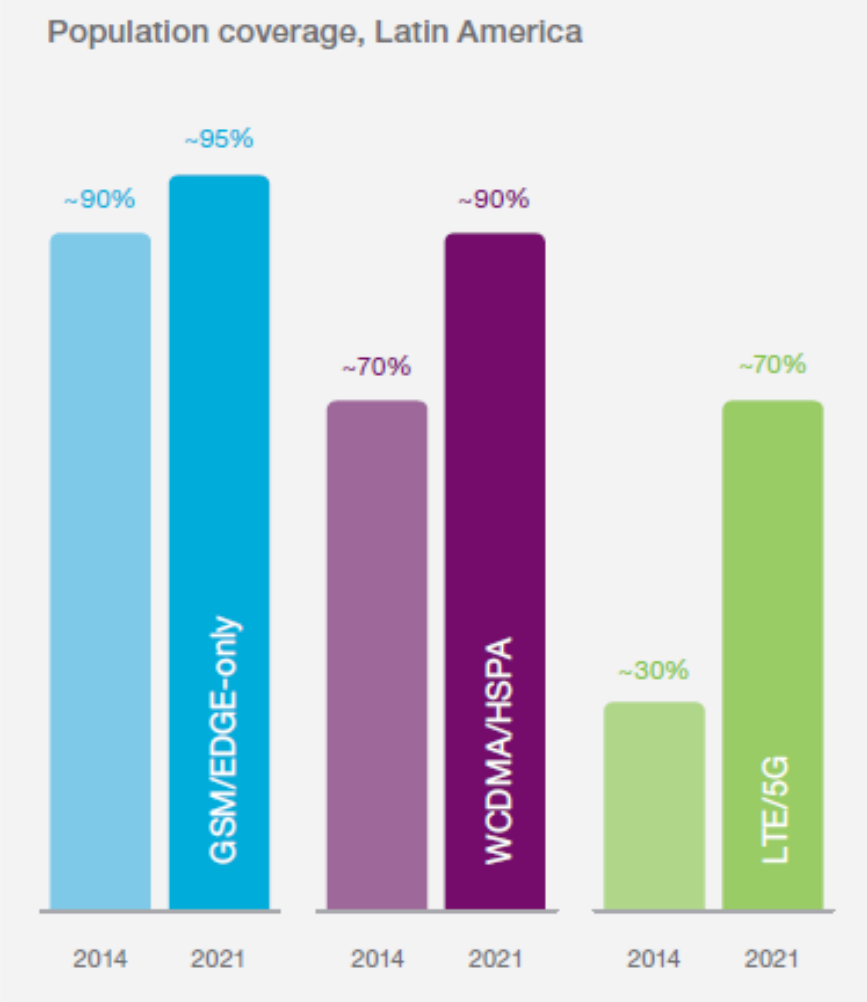




Effect of apps on network quality importance, and network quality satisfaction level, Brazil

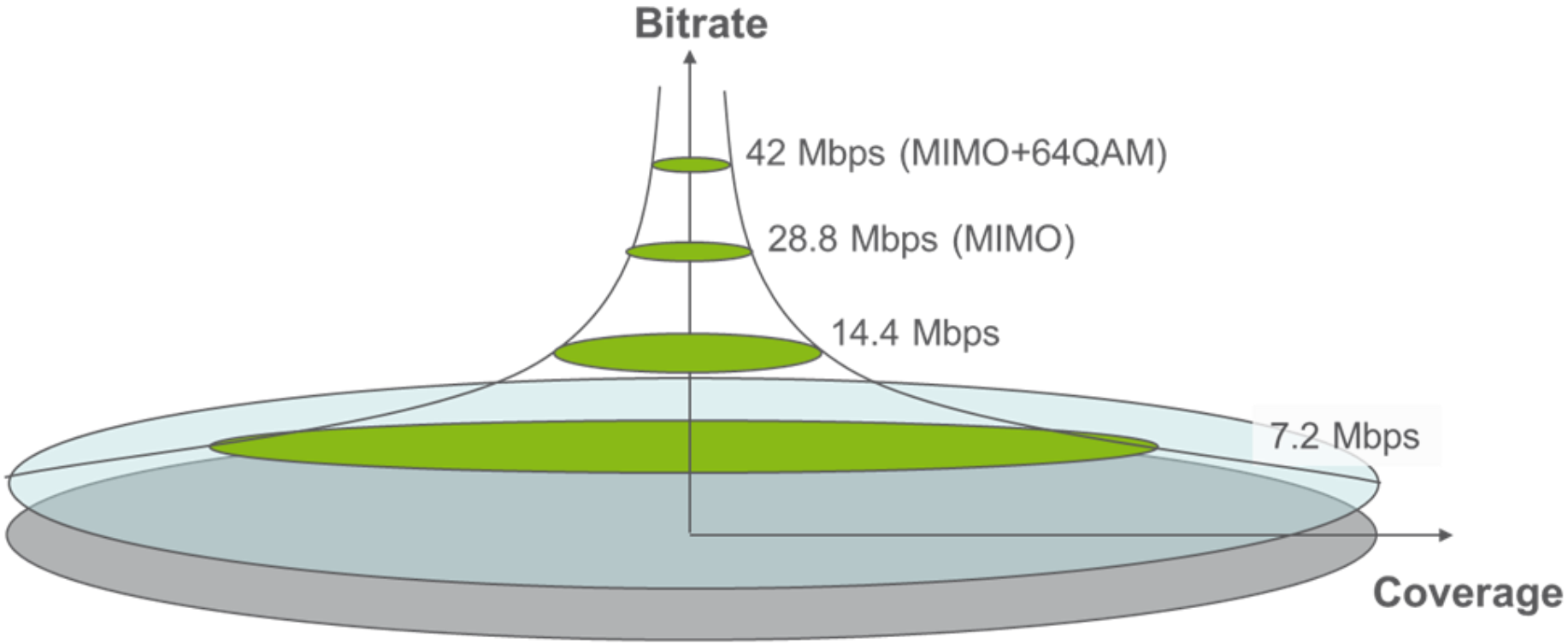
Licensed spectrum per band, Latin America




Population coverage, Latin America
~90%
~95%
~70%
~90%
~30%
~70%
GSM/EDGE-only
WCDMA/HSPA
LTE/5G
2014
2021
2014
2021
2014
2021

Tecnología	Velocidad promedio de bajada	Velocidad promedio de subida
GSM (2G)	1.8 kB/s	1.8 kB/s
GPRS (2.5G)	7.2 kB/s	3.6 kB/s
CDMA2000 1×RTT	18 kB/s	18 kB/s
EDGE (2.75G)	29.6 kB/s	29.6 kB/s
UMTS 3G	48 kB/s	48 kB/s
EDGE (type 2 MS)	59.2 kB/s	59.2 kB/s
EDGE Evolution (type 1 MS)	148 kB/s	59 kB/s
EDGE Evolution (type 2 MS)	237 kB/s	118 kB/s
HSPA (3.5G)	1,706 kB/s	720 kB/s
HSPA+	5.25 MB/s	1.437 MB/s
LTE (2×2 MIMO)	21.625 MB/s	7.25 MB/s
LTE (4×4 MIMO)	40.750 MB/s	10.750 MB/s

¡OJO! la velocidad de trasferencia en esta tabla está expresada en kB/s (KiloByte por segundo) y MB/s (MegaByte por segundo).

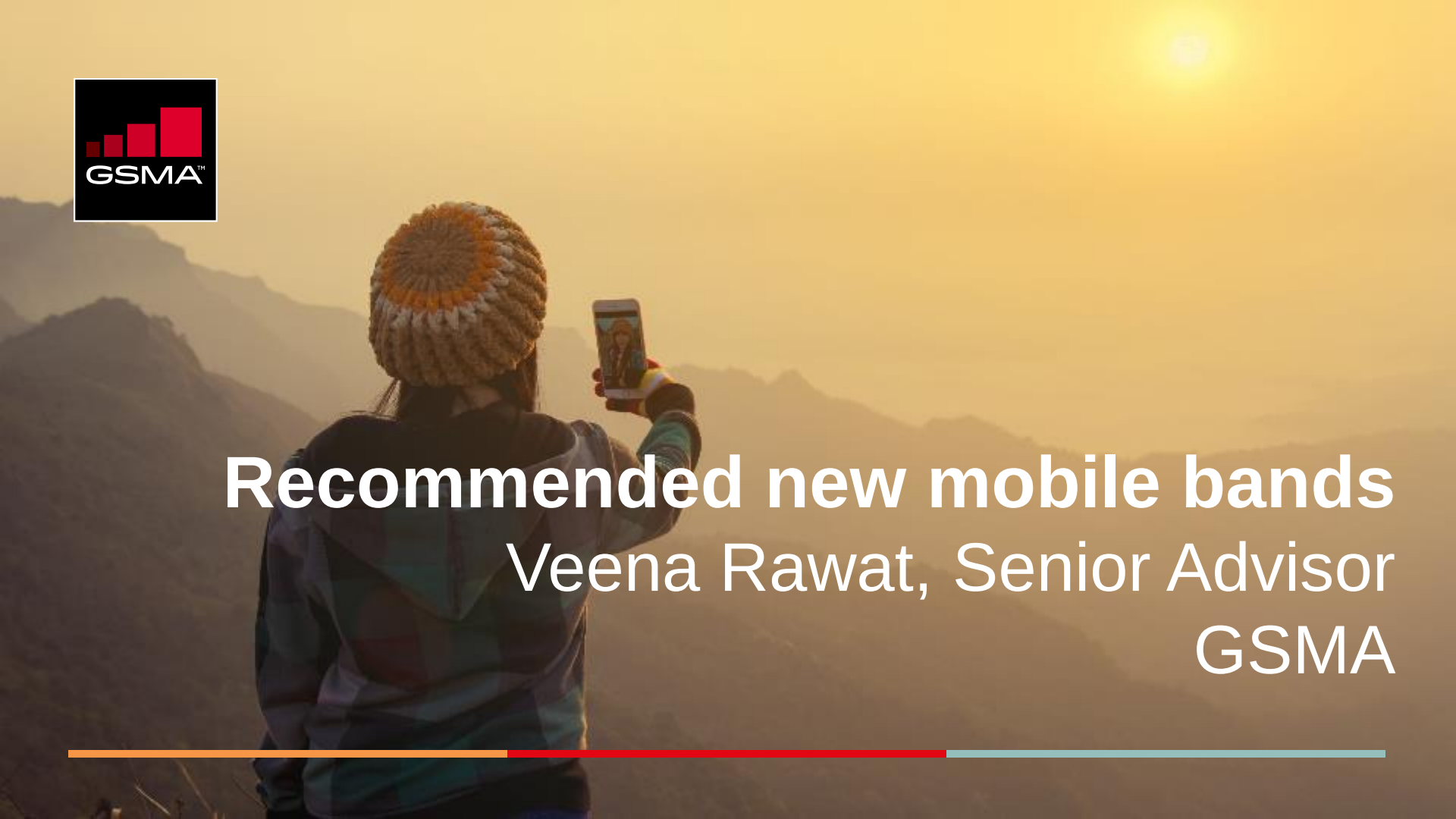

Bitrate
42 Mbps (MIMO+64QAM)
28.8 Mbps (MIMO)
14.4 Mbps
7.2 Mbps
Coverage

Key figures: Latin America and the Carribean

	2015	2021	CAGR 2015–2021
Mobile subscriptions (million)	740	850	2%
Smartphone subscriptions (million)	370	640	10%
Data traffic per active smartphone (GB/month)	1.2	6	30%
Total mobile traffic (EB/month)	0.5	3.5	40%



ERICSSON



Recommended new mobile bands

Veena Rawat, Senior Advisor
GSMA

GSMA recommended new mobile bands

Sub-700 MHz UHF

(470-694/8 MHz)



The key to the future of widespread mobile broadband coverage

L-band

(1350-1400 MHz & 1427-1518 MHz)



A good mixture of coverage and capacity

2.7-2.9 GHz



A good capacity band that would allow use of existing 2.6GHz cell sites

C-band

(3.4-3.8 GHz & 3.8-4.2 GHz)



Large bandwidth could provide capacity to support high-speed mobile broadband

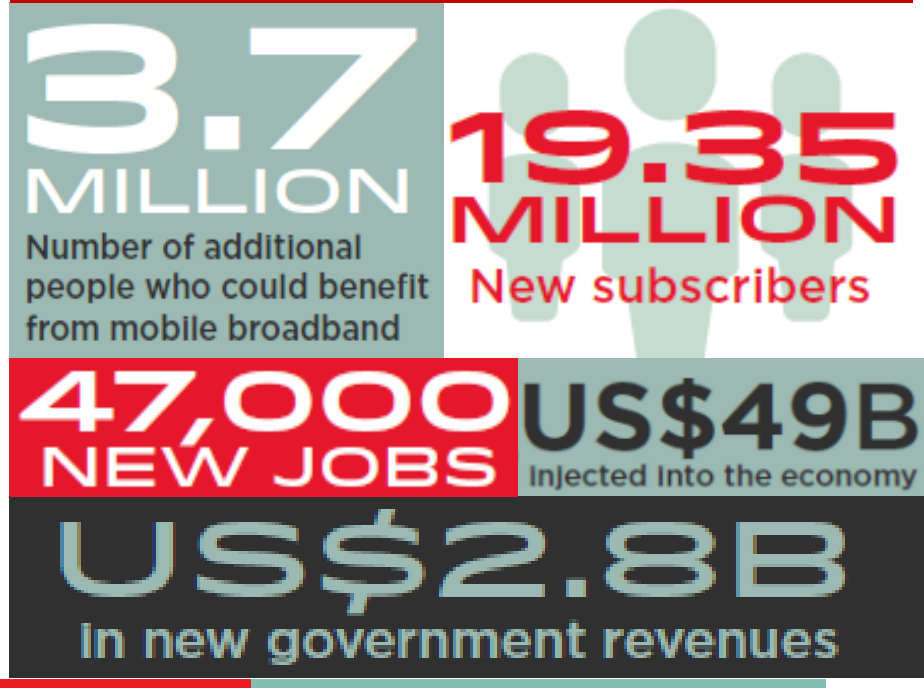
Sub-700 MHz (470-694/8 MHz)

Last chance for more flexibility until WRC-23

- IMT identification gives countries flexibility to use a portion for mobile when admins choose
- Broadcasting allocation and use protected
- 3 multi-country proposals from 3 ITU regions
- Many will plan DSO around IMT in 600MHz
- US incentive auction means low cost devices
- Can't reconsider band until WRC-23 which would delay mobile deployments until 2030
- 700 MHz band will reach capacity before then

PLEASE REVIEW THE IMT MULTICOUNTRY PROPOSALS CONSIDERING YOUR COVERAGE REQUIREMENTS THROUGH TO 2030

Why use a portion for IMT in Region 2?



Source: Telecom Advisory Services (2014)

Sub-700 MHz: Relevant footnotes

Some countries in these footnotes are identifying IMT in the multi-country proposal. The others in these footnotes can deploy mobile but we encourage them to join the proposal to add an IMT identification

- **5.293** *Different category of service:* in Canada, Chile, Cuba, the United States, Guyana, Honduras, Jamaica, Mexico, Panama and Peru, the allocation of the bands 470-512 MHz and 614-806 MHz to the fixed service is on a primary basis (see No. **5.33**), subject to agreement obtained under No. **9.21**. In Canada, Chile, Cuba, the United States, Guyana, Honduras, Jamaica, Mexico, Panama and Peru, the allocation of the bands 470-512 MHz and 614-698 MHz to the mobile service is on a primary basis (see No. **5.33**), subject to agreement obtained under No. **9.21**. In Argentina and Ecuador, the allocation of the band 470-512 MHz to the fixed and mobile services is on a primary basis (see No. **5.33**), subject to agreement obtained under No. **9.21**. (WRC-12)
- **5.297** *Additional allocation:* in Canada, Costa Rica, Cuba, El Salvador, the United States, Guatemala, Guyana, Honduras, Jamaica and Mexico, the band 512-608 MHz is also allocated to the fixed and mobile services on a primary basis, subject to agreement obtained under No. **9.21**. (WRC-07)
- **5.309** *Different category of service*: in Costa Rica, El Salvador and Honduras, the allocation of the band 614-806 MHz to the fixed service is on a primary basis (see No. **5.33**), subject to agreement obtained under No. **9.21**..

C-BAND (3.4-4.2 GHz)

EXCELLENT CAPACITY BAND – SUPPORTS SIGNIFICANT DATA & BEST EXPERIENCE

- Satellite & IMT can both use C-band proper coordination
  - Several markets already use the band for both services - including an LTE service in the UK
- Limited or no FSS in 3.4-3.6 GHz and little in 3.6-3.7 GHz
- 3GPP's TDD standard gives flexibility to use IMT in any part of 3.4-3.8 GHz and still benefit from global devices
- WRC-07 agreed provisions for cross border coordination
- Adjacent band compatibility for FSS in 3.7-4.2GHz can be provided with ITU recommendations and national rules

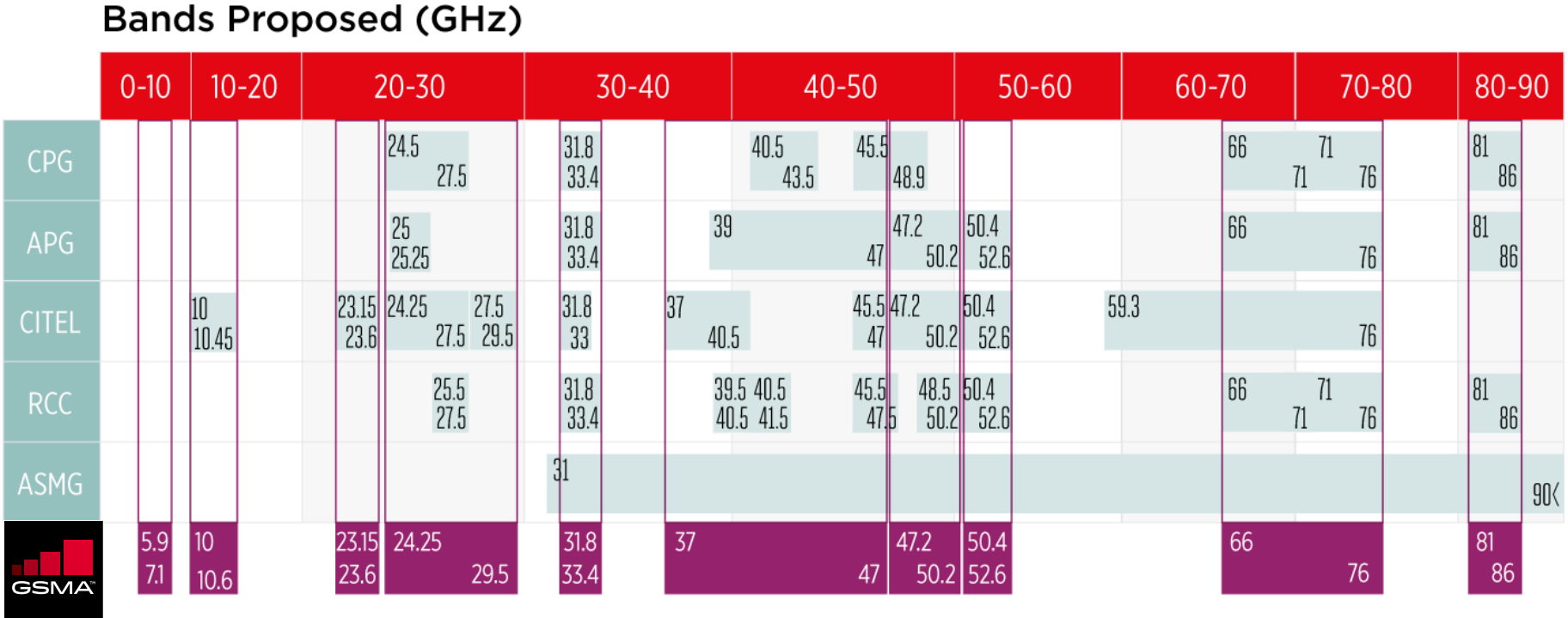


PLEASE CAREFULLY CONSIDER THE MULTICOUNTRY PROPOSALS FOR 3.4-3.7 GHz AND APPROPRIATE PROTECTIONS YOU WOULD REQUIRE FOR FSS

Enable the future of IMT: AI 10

IMT 2020 WILL RELY ON MUCH WIDER MOBILE BANDS

- WRC-19 Agenda Item needed for IMT identification > 6 GHz



Secure the future of mobile

THE FUTURE OF MOBILE BROADBAND IS AT RISK WITHOUT MORE SPECTRUM

- **No opportunity to secure more sub-6GHz spectrum until 2023**
- **Flexibility is essential to allow countries to react to their evolving situations**
- **Look at the multi-country proposals and consider how we can plan for the future of mobile while protecting existing users**



Any questions?