



Incentives to foster investment for digital services

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ITU Regional Economic Dialogue on Information
and Communication Technologies for Europe
and CIS

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THE GSMA
WAS FOUNDED IN

1987

Intelligently Connecting Everyone and Everything to a #BetterFuture



The mobile industry is the first to formally commit to the UN Sustainable Development Goals

Representing the interests of



750+
MOBILE
OPERATORS



NEARLY

400

COMPANIES
IN THE BROADER
MOBILE ECOSYSTEM



Hosting the world's leading mobile industry events, MWC Barcelona, MWC Shanghai, MWC Los Angeles and the Mobile 360 Series attract

230,000

people from across the globe

The GSMA works to deliver a regulatory environment that creates value for consumers by engaging regularly with



MINISTRIES
OF TELECOMS



TELECOMS
REGULATORY
AUTHORITIES



INTERNATIONAL &
NON-GOVERNMENTAL
ORGANISATIONS



8.7 bn+

MOBILE
CONNECTIONS
WORLDWIDE



InfoCentre²

Member-only platform connects **23,000+**

industry experts

100+ TECHNICAL
WORKING
GROUPS

Promote industry best practice, harmonise
operational frameworks and standards

Public funding

Mobile ecosystem contribution to public funding (before regulatory and spectrum fees)

\$12bn

2018



Employment

2018

270,000



Jobs

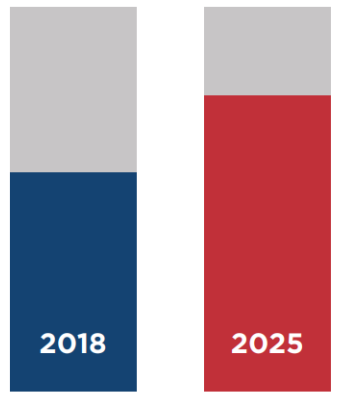
directly supported by the mobile ecosystem

Plus 350,000 indirect jobs

Smartphone adoption

(as a proportion of total connections)

57% 77%



Licensed cellular IoT connections

27m 2018

87m 2025



4G connections*

2018

101m

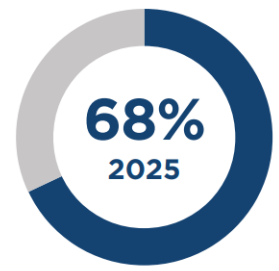
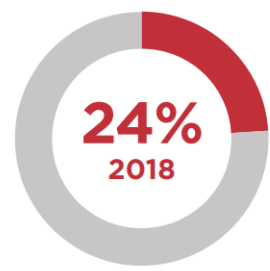
2025

292m



Adoption

(as a proportion of total connections)



5G connections* in 2025

(13% of total connections)

54m

*Excluding licensed cellular IoT



Mobile industry contribution to GDP

4.7%

of GDP

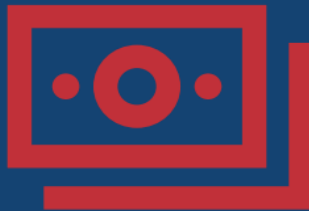
5.1%

\$101bn 2018

\$122bn 2023

Operator revenues and investment

Total revenues



\$23.1bn 2018

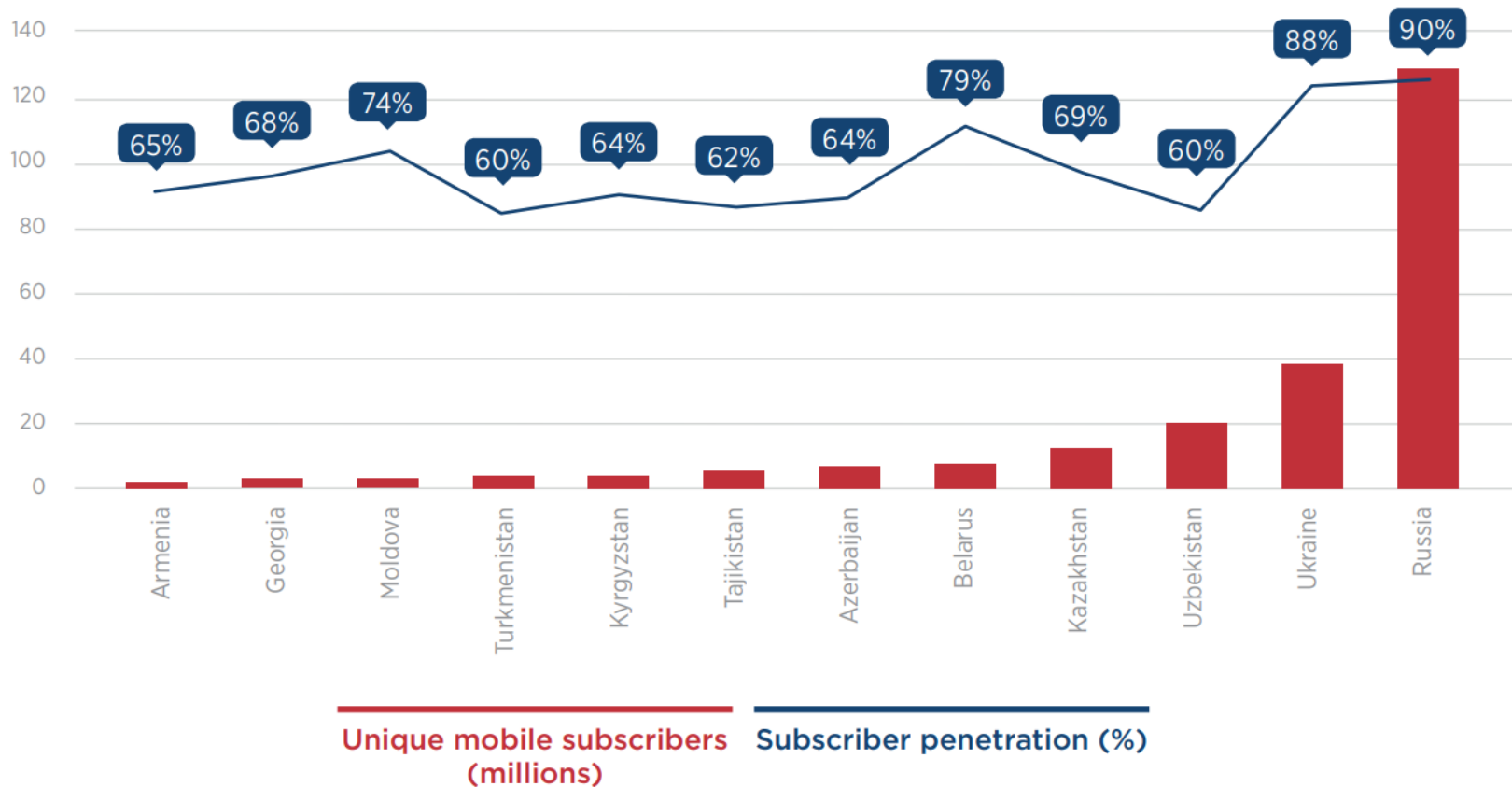
— 2025

\$24.2bn

Operator capex of **\$38.8 billion** for the period 2019-2025



The CIS is a diverse geography, with headline numbers masking markets at different stages of development

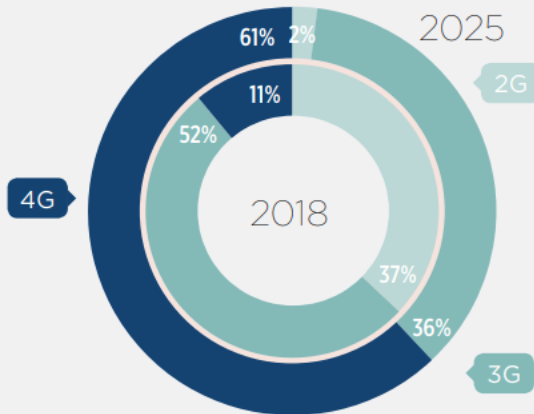


Snapshot: Ukraine

Ukraine



TECHNOLOGY MIX*



SUBSCRIBER PENETRATION



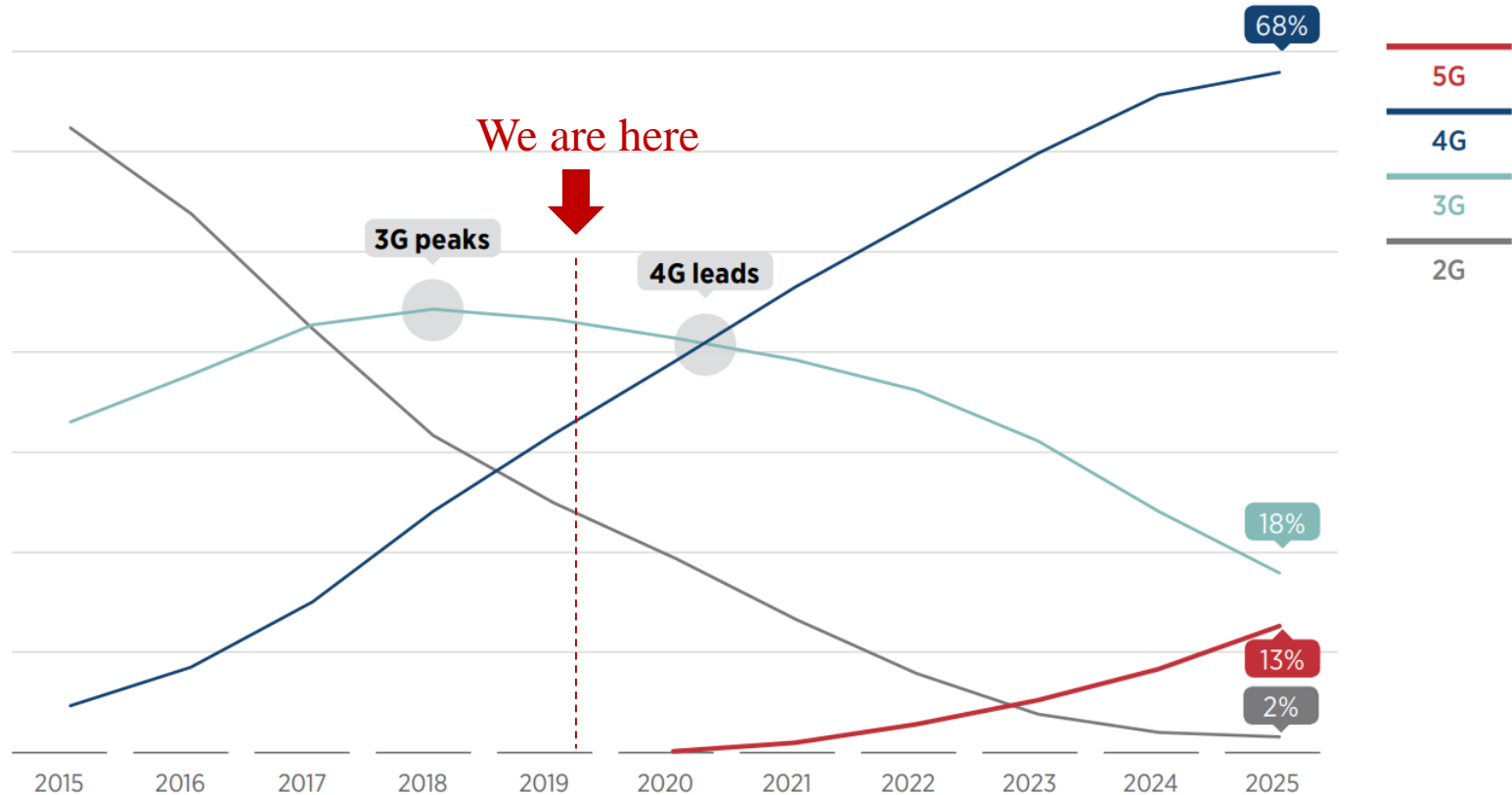
SMARTPHONE ADOPTION





Following 3G's peak, 4G is set to take the lead in 2021, reaching 290 million connections by 2025

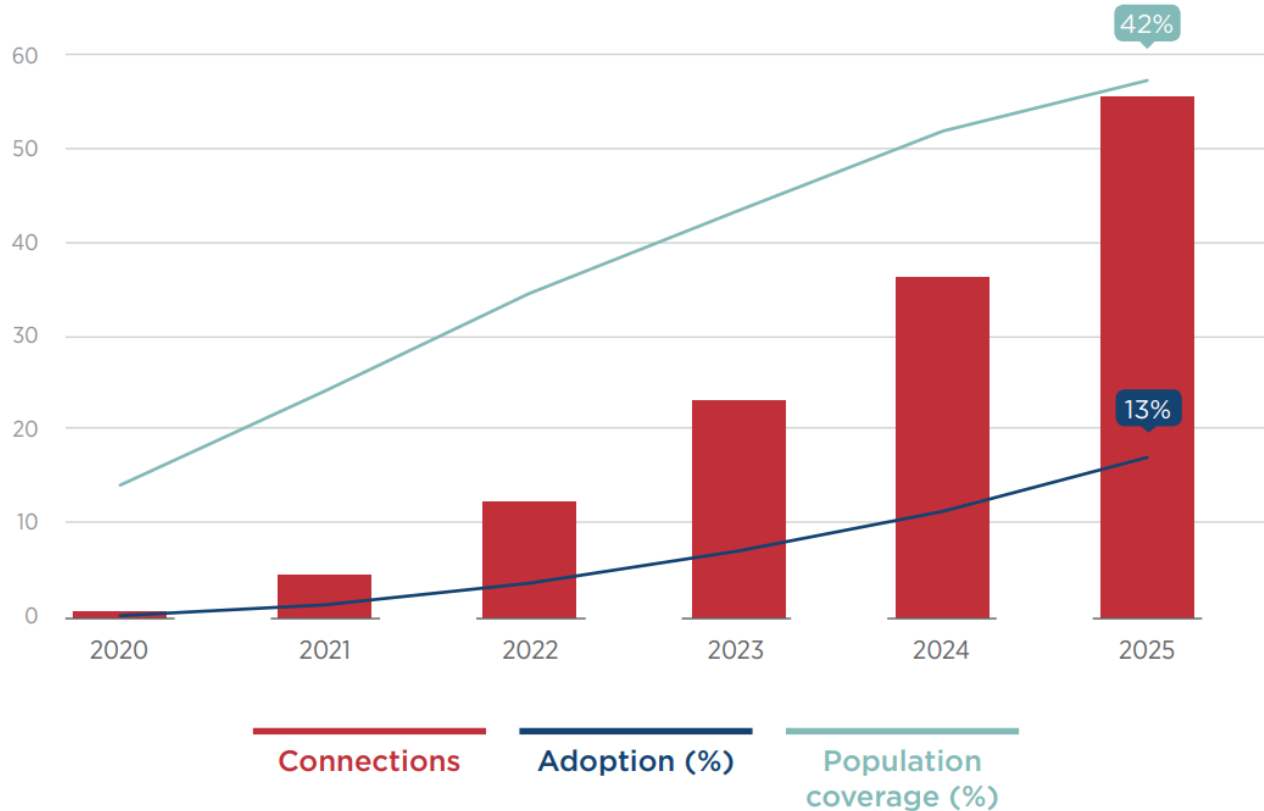
Percentage of connections (excluding licensed cellular IoT)





With the majority of launches a few years away, critical mass for 5G in the CIS is still some way off

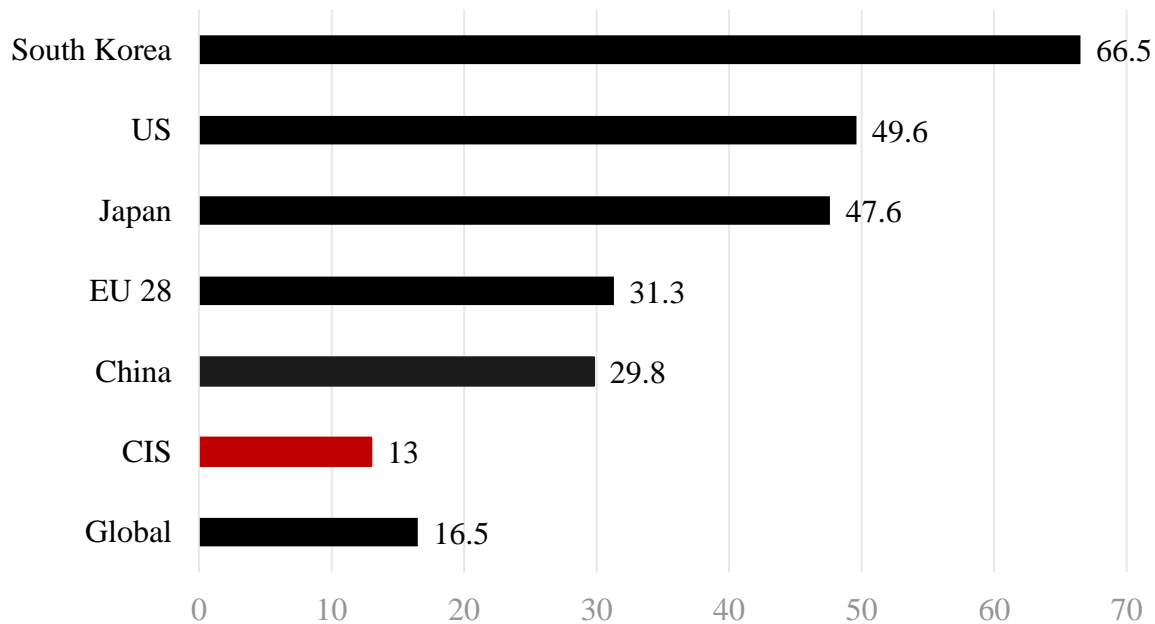
Millions



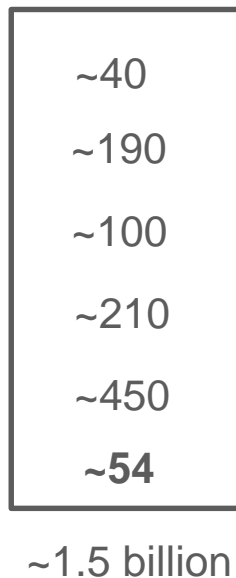


2025 view – 5G customer adoption

5G as % of total mobile connections*



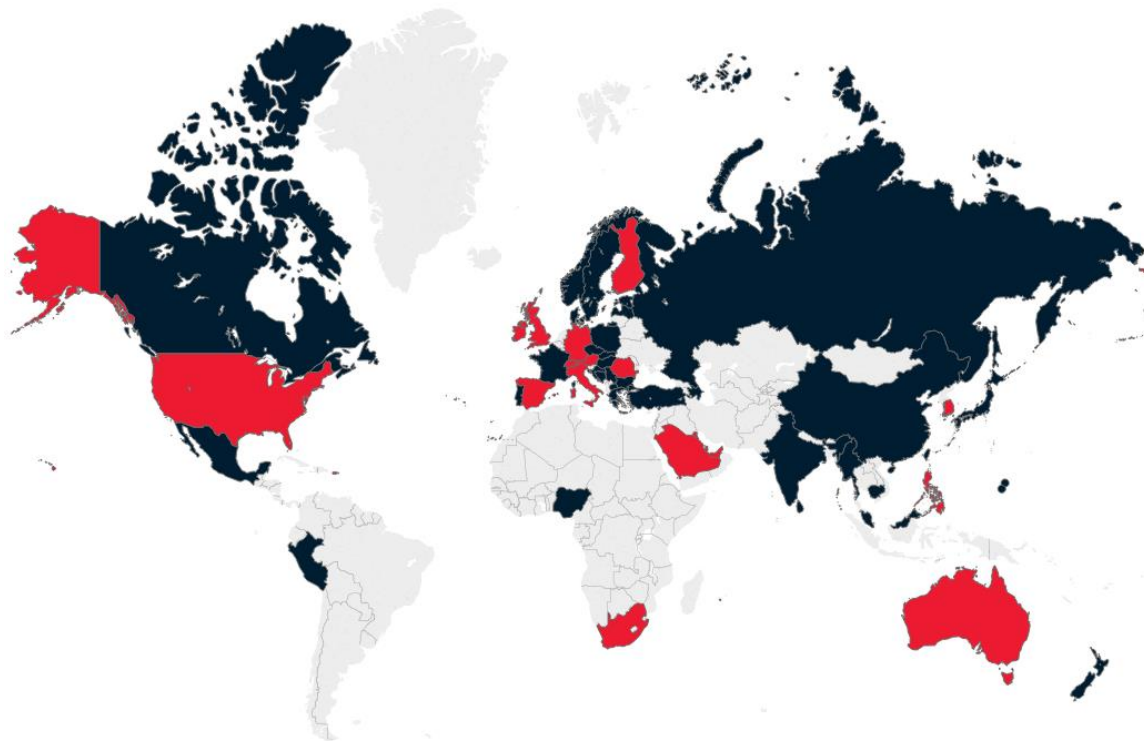
5G connections (mln)*





These five economies will account for ~70% of the 1.5 billion 5G mobile connections expected globally by 2025



5G commercialisation



 Commercial 5G network

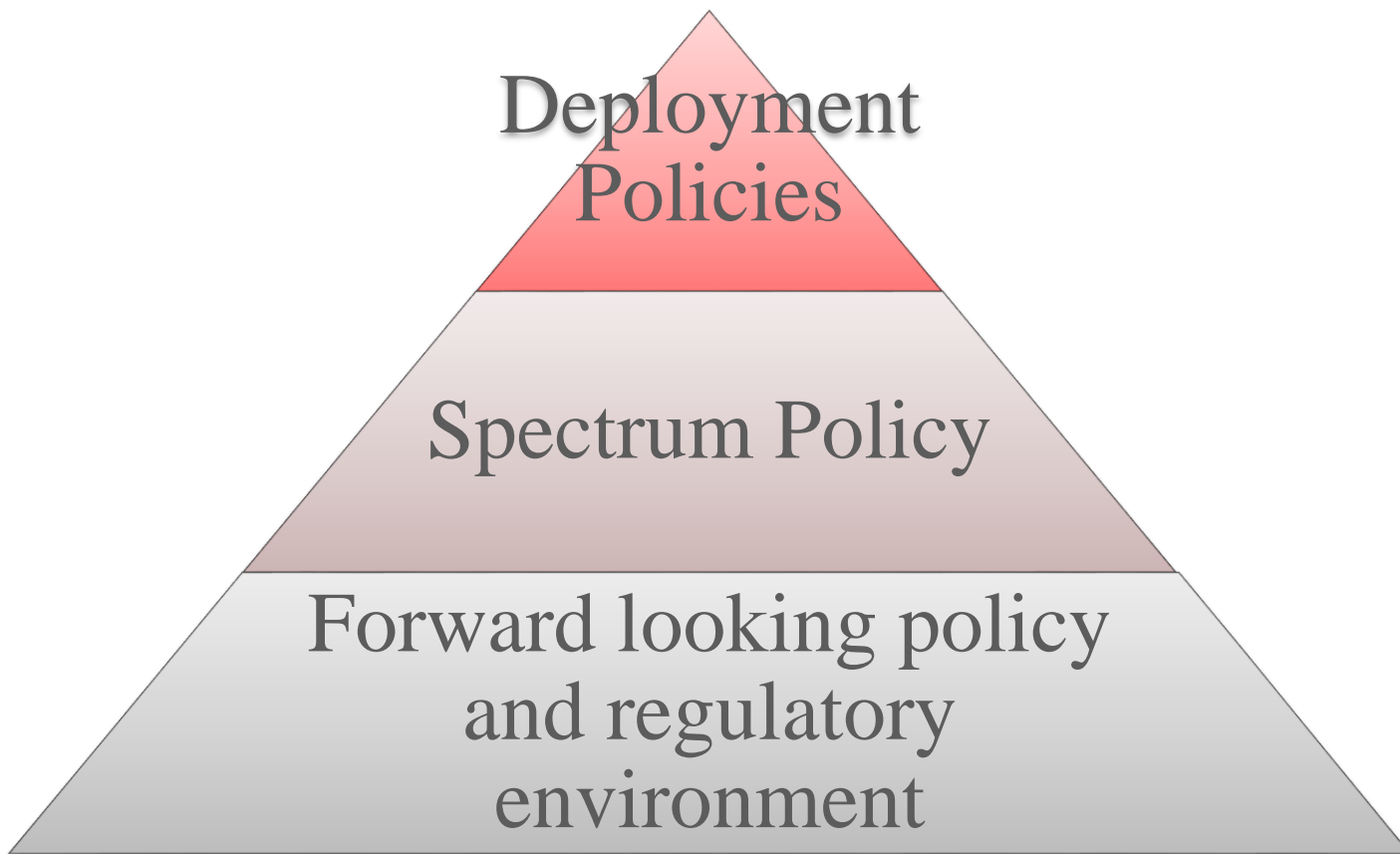
 Planned 5G network

Country	Operator	Country	Operator
Australia	Optus Telstra	Philippines	Globe Telecom
Austria	3 CK Hutchison Deutsche Telekom	Qatar	Vodafone
Bahrain	Batelco Viva	Romania	Digi Mobil Vodafone
Finland	TeliaCompany Elisa	South Africa	Rain
Germany	Vodafone	Hungary	Vodafone
Ireland	Vodafone	Saudi Arabia	STC
Italy	TIM Vodafone	Spain	Vodafone
South Korea	KT LG Uplus SK Telecom	Switzerland	Sunrise Swisscom
Kuwait	Ooredoo Viva Zain	UAE	du Etisalat
Maldives	Dhiraagu	UK	Three EE O2 Vodafone
Monaco	Monaco Telecom	USA	AT&T Sprint T-Mobile Verizon Wireless

*Data correct to 28 October 2019
For updates, see [gsmainelligence.com](https://www.gsmainelligence.com)*



The policy challenges





Policy and Regulatory foundation



Ambition



How strongly Countries believe in the benefits 5G will bring to its citizens and economy

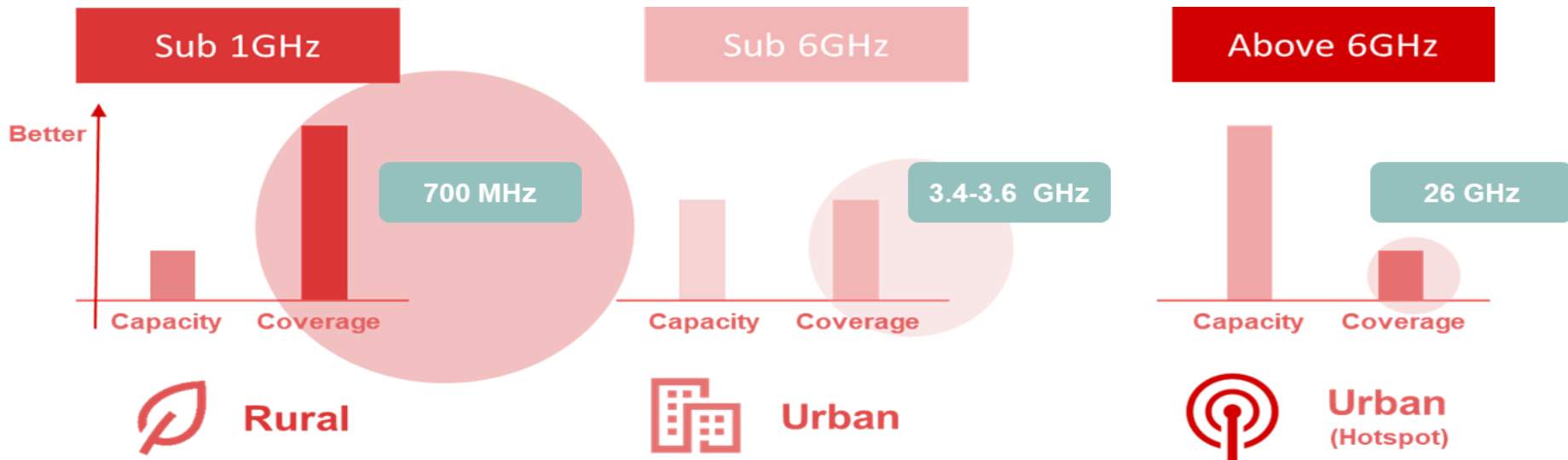
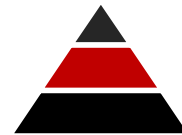
Leadership



Willingness to sacrifice the small short-term gains for the bigger, long-term, benefits



Spectrum: Policy Challenges



COVERAGE

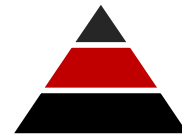
MORE FAVOURABLE PROPAGATION OF RADIO SIGNALS
ALLOWS FOR LARGER CELLS

MORE BANDWIDTH ALLOWS FOR MORE
INFORMATION TO BE SENT BY THE SYSTEM

CAPACITY



Spectrum: Policy Challenges



Supply



5G needs 80 to 100 MHz in the C-Band and around 1 GHz in the 26 GHz per operator

Conditions



Achievable and encouraging network investment

Award



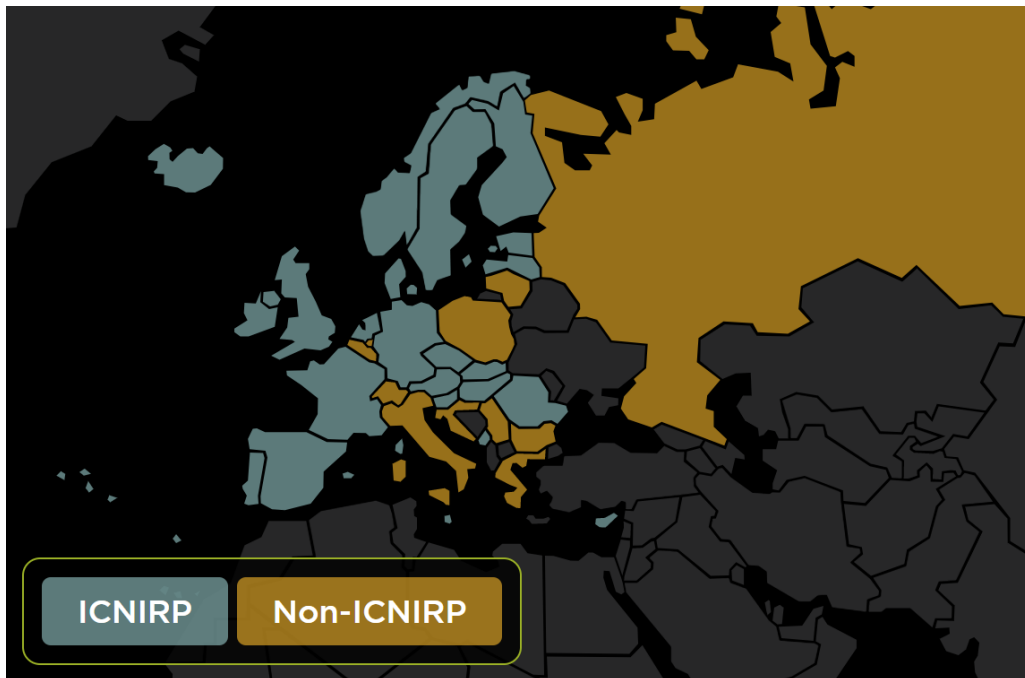
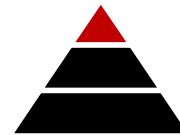
Only used when needed and following fundamental principles of best practice

Pricing



Greater connectivity and investment instead of short term state revenue

Deployment: EMF Policy

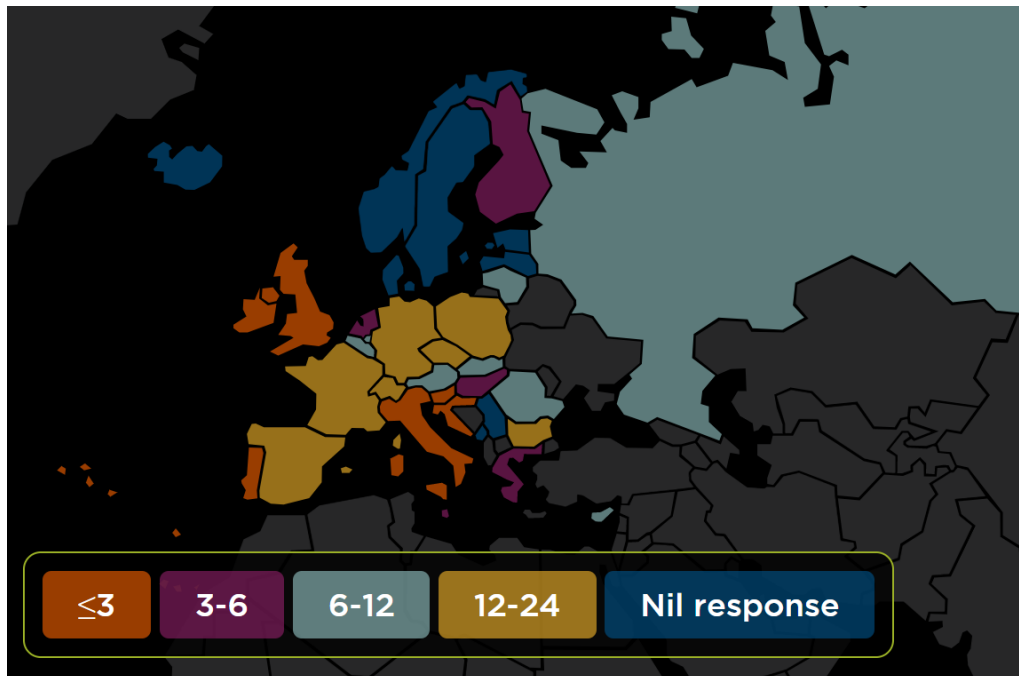
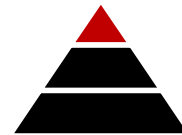


Several European and CIS countries do not apply the international ICNIRP guidelines

As a result, citizens are affected by less efficient mobile network deployment

EMF issues will be compounded given the propagation characteristics of 5G frequencies

Deployment: Siting Policy



Multi-layered (National, Regional, Local) and very bureaucratic with a heavy administrative burden

5G deployment will need a significantly higher number of sites (2-3x times) than previous generations

Streamlining and simplifying the process will significantly help 4G and 5G deployment



Concluding remarks

- Growth and development in the CIS region is going well
- Although 5G is sometime away, a solid 4G foundation will be fundamental
- Applying forward-look policies, especially on spectrum and deployment will have a big impact on investment