

# Global 5G Landscape

## Q4 2020

January 2021



The GSMA represents the interests of mobile operators worldwide, uniting more than 750 operators with nearly 400 companies in the broader mobile ecosystem, including handset and device makers, software companies, equipment providers and internet companies, as well as organisations in adjacent industry sectors. The GSMA also produces the industry-leading MWC events held annually in Barcelona, Los Angeles and Shanghai, as well as the Mobile 360 Series of regional conferences.

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## This quarter's five key takeaways

5G will be a key pillar of the era of intelligent connectivity, supporting economic growth, transforming businesses and delivering innovative new services. With 5G at a nascent stage, GSMA Intelligence's quarterly review identifies key developments in areas influential to the development of next-generation networks and the wider 5G ecosystem.

This report aggregates our latest data on 5G connections, adoption and coverage, as well as information on network trials/launches and spectrum assignments that occurred over the past quarter.

1

**Spectrum:** In a strong quarter for spectrum assignments in Europe, four of the five countries assigned 5G spectrum in Q4 2020 were from the continent. Three European countries awarded spectrum in the 700 MHz band. Europe is lagging behind on low band allocation, with more than half of European countries missing the EC extended deadline at the end of 2020.

2

**Launches:** 25 operators across 17 countries launched commercial 5G services during the quarter. This included FWA offerings from Fastweb and Linkem in Italy. At the end of Q4 2020, 5G was commercially available from 135 operators in 52 markets worldwide.

3

**Forecasts:** Despite the global pandemic, operators across East Asia and North America remain optimistic about 5G and are continuing to expand coverage. With nearly 50 operators launching 5G in Europe, we forecast meaningful adoption in the region in 2021. However, with its massive base and investment alongside the availability of local devices, China will continue to dominate global 5G connections.

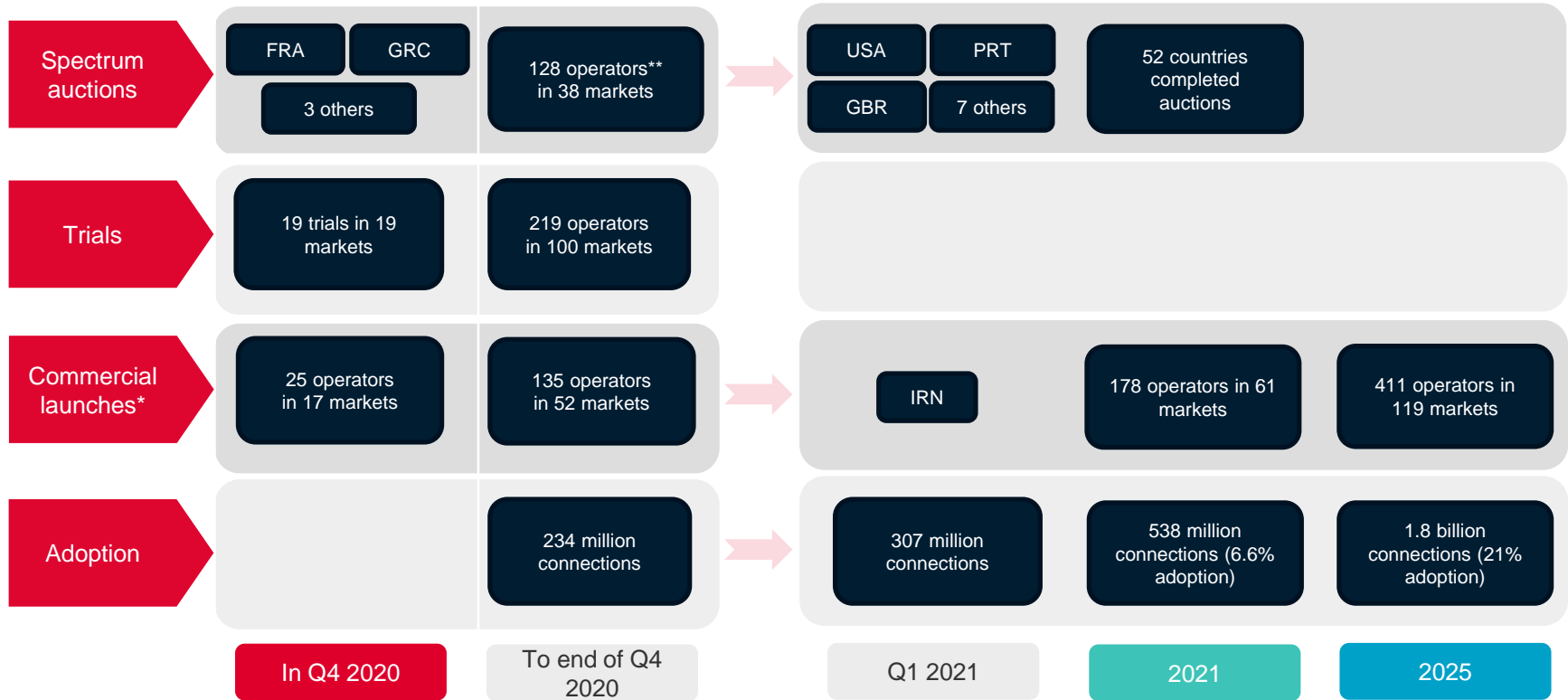
4

**Consumer interest in 5G is on the rise:** Intention to upgrade is growing in most markets. While interest in 5G is strong globally, it has grown rapidly in China over the past year – in fact, consumers in China now lead the world in terms of 5G upgrade intention.

5

**5G use cases:** Although concrete consumer 5G use cases have only just begun to emerge, those who are already using 5G are highly satisfied with the speed, coverage and value for money that the new networks provide. Positive word of mouth should continue to boost demand.

# 5G at a glance: global outlook

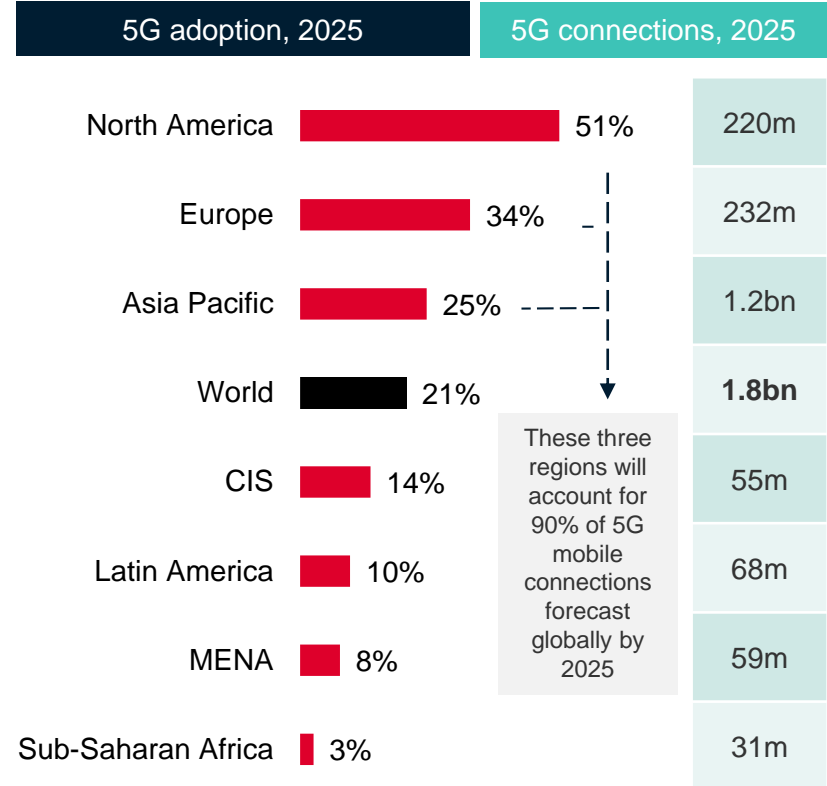


\* Launches of commercial mobile + FWA 5G services

\*\* Excludes regional US and Canada operators

## Regional breakdown

- 25 operators across 17 markets launched 5G services in Q4 2020, taking the total number of 5G operators to 135 in 52 markets.
- While most launches continue to be mobile based, Fastweb and Linkem in Italy launched FWA offerings.
- With 5G already available across East Asia and North America, the majority of new launches continue to be in Europe. We therefore expect to see significant connections growth across the region in 2021.
- Despite the increasing number of operator launches across the world, China – with its massive base and local device availability – will continue to dominate global 5G connections. By 2025, China will still account for nearly half of global consumer 5G connections.
- By 2025, we forecast global 5G connections to reach 1.8 billion.



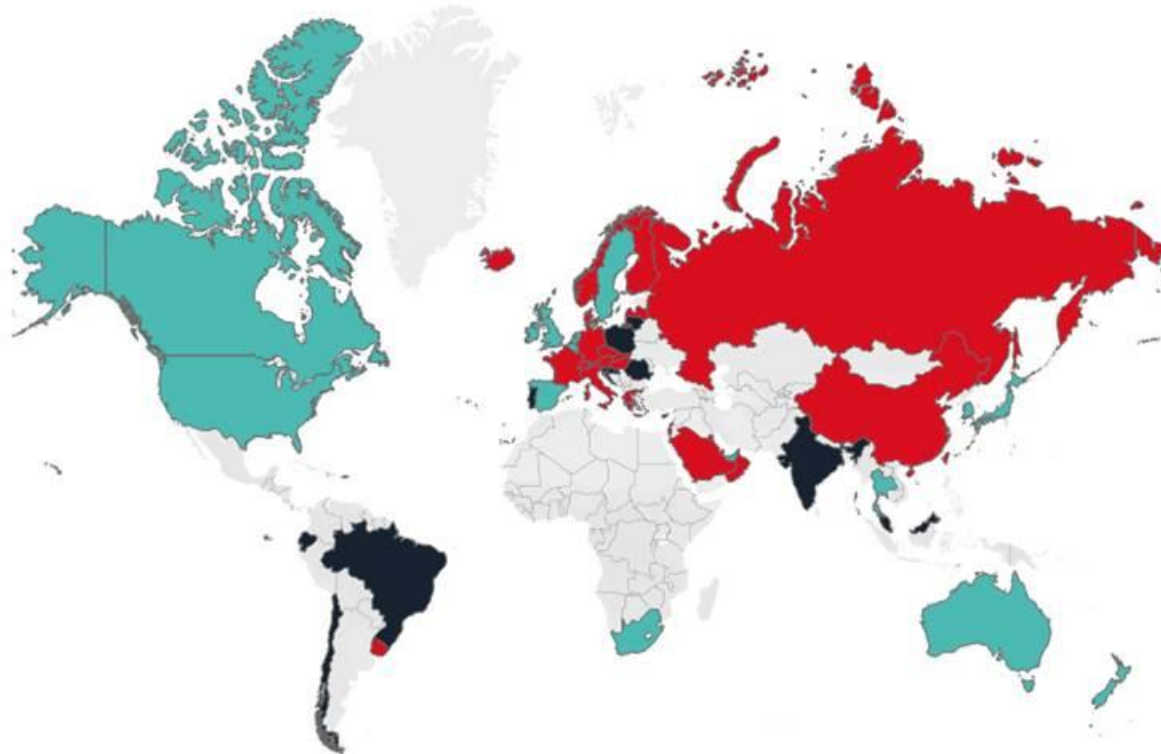
## 5G spectrum assignments, Q4 2020

Country	Date	Bands	Bandwidth	Upfront fees	\$/MHz/pop/yr (PPP adj.)	No. of winners
France	Oct 2020	3500 MHz	310 MHz	\$3,325 million	\$0.009	4 – Bouygues Telecom, Free Mobile (Iliad), Orange (France Telecom), SFR (Vivendi)
Czechia	Nov 2020	700 MHz	60 MHz	\$178.4 million	\$0.033	5 – O2 (Telefónica), Vodafone, T-Mobile, CentroNet, Nordic Telecom
		3500 MHz	200 MHz	\$71.8 million	\$0.005	
Slovakia	Nov 2020	700 MHz	60 MHz	\$116.5 million	\$0.031	3 – O2 (PPF), Slovak Telecom (Deutsche Telekom), Orange
Greece	Dec 2020	700 MHz	60 MHz	\$180.9 million	\$0.028	3 – Cosmote (OTE), Vodafone, Wind (Largo)
		3500 MHz	390 MHz	\$117.5 million	\$0.003	
		26 GHz	1000 MHz	\$19.3 million	\$0.000	
Australia	Dec 2020	26/28 GHz	Undisclosed	Undisclosed	N/A	15 – including Telstra and Optus

# 5G spectrum assignments pipeline



\*Q2 2021+ data not exhaustive; preference by date



Assignments planned
  Assignments completed and planned
  Assignments completed

## Completed assignments

- As of Q4 2020, 'new' spectrum specifically earmarked for 5G had been assigned in 38 markets.
- 128 operators have received spectrum across low, mid and high bands to date:\*
  - 48\*\* operators in low band
  - 99 operators in mid band
  - 41\*\* operators in high band.

\* Low = <1 GHz, mid = 1–6 GHz, high = >6 GHz

\*\* Excludes US and Canada regional operators/winners

# 5G trials

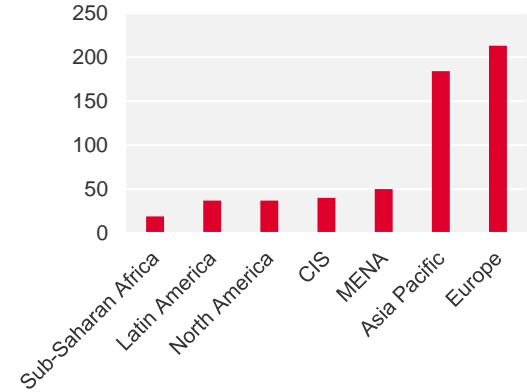
- To date, **219** operators across **100** markets have conducted a total of **580** 5G trials.
- In Q4 2020:
  - **19** trials were conducted by **19** operators.
  - no markets carried out their first trial.



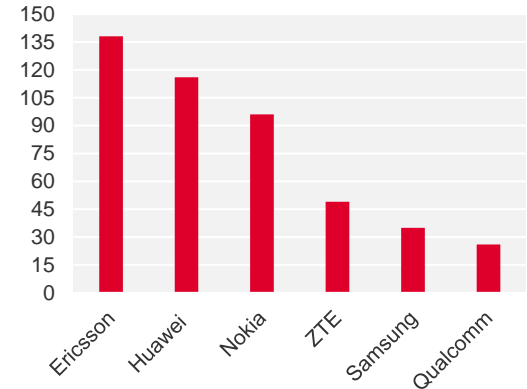
■ Markets launching their first 5G trial in Q4 2020

■ Markets launching their 5G trials before Q4 2020

5G trials by region



5G trials to date by vendor



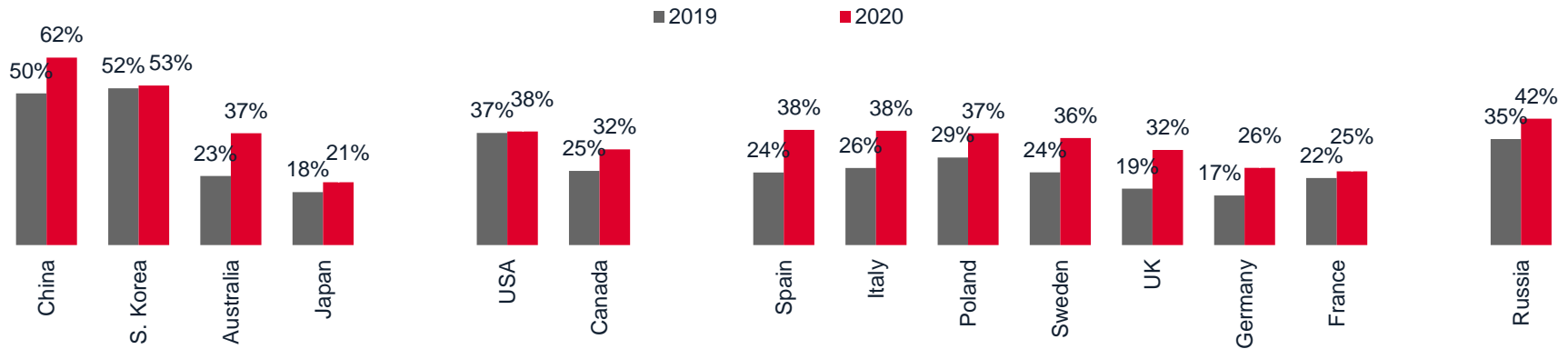
Data correct to 31 December 2020.  
For updates, see [gsmaintelligence.com](https://www.gsmaintelligence.com)



# Amid a pandemic, global 5G upgrade intention soars

- **Overcoming obstacles** – Despite delays to 5G rollouts in certain markets due to Covid-19, the outlook for 5G connections remains strong. In fact, our forecast for 5G connections for 2021 is greater now than it was before the pandemic, with an average of eight new network launches per month in 2020.
- **China is the new epicentre of 5G** – Intention to upgrade to 5G increased in most markets, but nowhere is enthusiasm as strong as it is in China. By contrast, South Korea remained virtually unchanged year on year.
- **Europe surges, but the West is still playing catch up** – Europeans were much more likely to want to upgrade to 5G in 2020 than in 2019. However, Europeans and North Americans are still less enthusiastic about the technology than their counterparts in China and South Korea. The launch of the new 5G iPhone in Western markets, where Apple holds significant brand cache, should convert much of this latent upgrade intent into new 5G subscriptions, laying the groundwork for a strong 2021 for 5G globally.

## Intention to upgrade to 5G



+8 pp

+4 pp

+10 pp

+7 pp

Average regional YoY growth

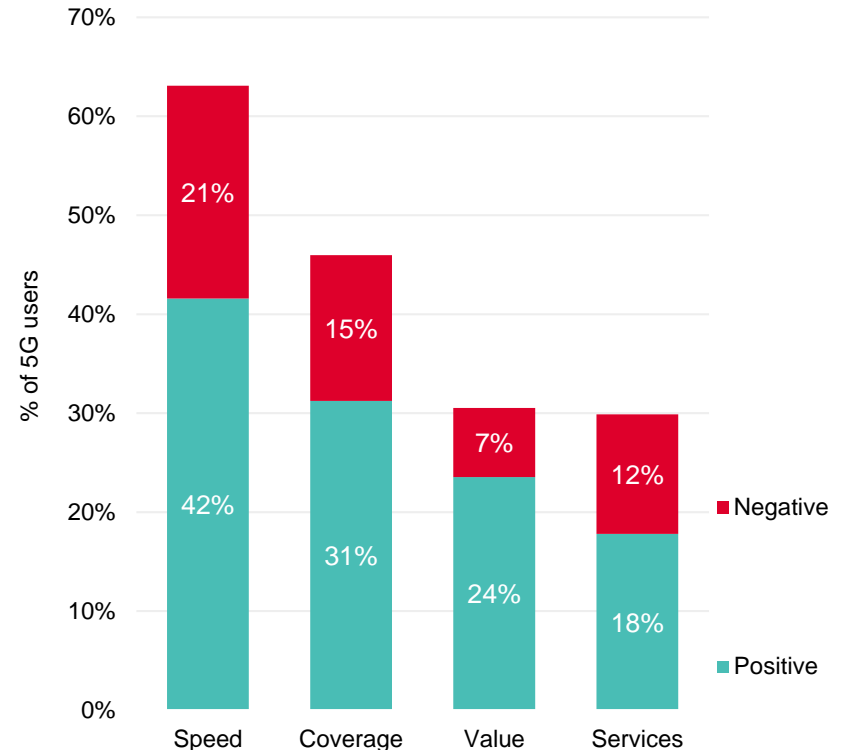
Source: [Future of Devices: 5G and services shape new market frontiers](#)

N=18,468. Figures weighted by smartphone penetration in each market to estimate national upgrade intention.

## Positive word of mouth for 5G points to strong 2021

- The reviews are in** – The experience for those who have already upgraded to 5G has been mostly positive, with 67% of consumers reporting that the new network has met or exceeded their expectations.
- Speed is king** – Not surprisingly, 5G subscribers are most likely to remark on the network’s speed, with those impressed by the speeds outnumbering those who are not by nearly 2 to 1. Coverage, often thought to be a potential source of frustration for 5G users, is also satisfactory more often than not for current users. The most polarising aspect of 5G is the services currently on offer that take advantage of the new network, with users roughly evenly split between positive and negative impressions. That said, few make note of services one way or the other, which perhaps reflects that there are as yet few 5G-specific services available.
- Mounting evidence** – As subscribers continue to use the new networks, 5G becomes an increasingly important feature for their next phone: 49% of current 5G customers say that 5G capability will be a very important factor for their next phone purchase, compared to 34% among those who have not yet tried 5G. We expect uptake to accelerate as positive word of mouth starts to spread.

Feedback on 5G experience from current users



N=458

Source: [5G Consumer Scorecard](#)

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