



# Wireless network data traffic: worldwide trends and forecasts 2019–2024



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# About this report

This report presents 5-year forecasts of wireless data traffic worldwide, in eight regions and in selected countries. It analyses the key trends in, and drivers and inhibitors of, data traffic. The forecast dataset underpinning this report covers:

- **mobile data:** data delivered over cellular networks to handsets, mid-screen devices (typically tablets) and USB modems, routers and other standalone data devices
- **Wi-Fi data:** data delivered over private Wi-Fi connections (at home or at work) to handsets and mid-screen devices, and data delivered to all devices using public Wi-Fi connectivity.

## KEY QUESTIONS ANSWERED IN THIS REPORT

- To what extent will cellular data traffic continue to grow in developed and emerging markets between 2018 and 2024?
- What are the key factors that explain the significant variations in average cellular data usage across different markets?
- Which devices are likely to generate the most cellular data traffic growth in the future?
- What will be the impact of 5G roll-outs on cellular data traffic trends?
- What will be the continuing role of Wi-Fi as cellular data traffic continues to grow?

## GEOGRAPHICAL COVERAGE

- Central and Eastern Europe (CEE)
- Developed Asia-Pacific (DVAP)
- Emerging Asia-Pacific (EMAP)
- Latin America (LATAM)
- Middle East and North Africa (MENA)
- North America (NA)
- Sub-Saharan Africa (SSA)
- Western Europe (WE)

## KEY METRICS

- Mobile data**
- Total volume and average usage for: handsets, mid-screen devices and USB modems and routers.
- Wi-Fi data**
- Total volume and average usage for: handsets, mid-screen devices (split by mobile-connected and Wi-Fi-only devices) and laptops (public Wi-Fi connectivity only).

## WHO SHOULD READ THIS REPORT

- Executives in strategy departments of mobile and fixed operators that want to understand future dynamics in wireless network traffic, as well as future enablers of, and barriers to, growth.
- Executives in strategy departments of network equipment vendors that need to understand how quickly wireless traffic will grow across different markets and thus, where the demand for their products may be the greatest.

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- 10. The substitution of wireline broadband is a very important driver of cellular data traffic growth in emerging markets
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- 12. 5G will only have a limited impact on prevailing cellular data traffic trends
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## Executive summary: increased usage at home is likely to be the biggest driver of cellular data traffic growth in the long term

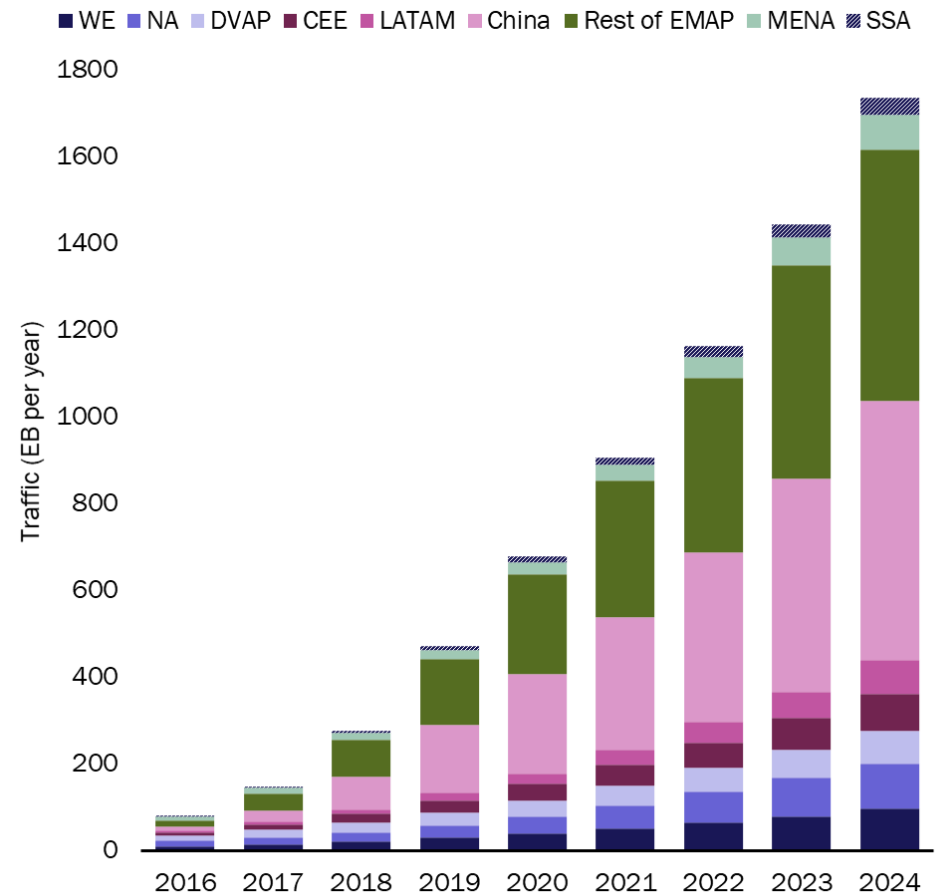
We expect that the cellular data traffic growth rate will decline from 87% in 2018 (up from 82% in 2017) to just 20% in 2024. Indeed, we forecast that the total global growth in cellular data traffic will decline to 70% in 2019.

Operators in many markets are already offering very large or even unlimited cellular data allowances, so supply-side constraints on usage have already been reduced. Time spent on smartphones outside of homes and offices is also beginning to stagnate as it reaches saturation point.

The ability of a number of highly touted disruptive forces to reinvigorate traffic growth rates appears to be more limited than expected. For instance, new applications such as AR and VR remain unproven in terms of subscriber interest. New device classes such as foldable phones also seem to have limited potential to drive renewed cellular data traffic growth.

In this context, it is becoming more apparent that cellular usage at home will be the most important driver of cellular data traffic growth in the long run. This need not be in the form of fixed-wireless broadband (although 5G fixed-wireless will play a role in some markets); smartphones may be used in cases where consumers do not have a fixed broadband connection. The potential for such substitutive usage is generally higher in emerging markets that have a lower fixed broadband penetration than developed markets.

Figure 1: Cellular data traffic, by region, 2016–2024



Source: Analysys Mason

## 5G fixed–wireless, cloud gaming, AR and VR are all areas that could drive data traffic growth, but the impact of 5G fixed–wireless is more certain

### 5G fixed–wireless will only affect data traffic growth in some countries.

5G fixed–wireless could affect the data traffic growth in some countries, but this will be far from universal. In countries such as China and South Korea, wireline next-generation access (NGA) has been deployed by all MNOs, so it is hard to envisage that 5G fixed–wireless will make much impact. In general, we expect that 5G fixed–wireless subscribers will use more data than 4G fixed–wireless users. 5G fixed–wireless offers are highly likely to be unlimited (as is the case with Verizon in the USA and Optus in Australia), but this is often not the case for 4G fixed–wireless.

### Cloud gaming, AR and VR have the theoretical potential to drive further cellular data traffic growth.

It could be argued that 5G is a significant enabler of cloud gaming, AR and VR due to the lower latencies and higher speeds that it offers. As such, cloud gaming, AR and VR have the potential to drive significant data traffic growth as they may require higher resolution video with a higher frame rate. For example, cloud gaming could require 60 frames per second (fps) and VR could require 90fps to avoid user nausea. 60fps video could easily consume 50% as much traffic as a comparable 30fps video. In addition, there will be a need for 360 degree content for AR and VR. 360 degree video consumes around four times as much traffic as standard video. In this way, even if cloud gaming, AR and

VR did not lead to users spending more time on smartphones and AR and VR devices they could still boost cellular data traffic growth.

### There has been low interest in AR and VR devices so far.

The impact that AR and VR will have on data traffic is affected by the take-up of these applications and the accompanying devices. Consumers have shown limited interest in VR headsets and AR glasses so far, and there is no guarantee that this will change, even by the end of the forecast period. Cloud gaming presents more-promising opportunities for traffic growth since no specialist hardware is required.

### AR has more potential than VR to affect cellular data traffic

One could argue that 5G will be useful for VR since a wired VR device limits the user's ability to move around freely in the virtual world. However, there are already wireless VR headsets (for example, the Oculus Quest) which rely on Wi-Fi for wireless connectivity. Operators are keen to move VR away from being an at-home-only activity; such a move would probably require the use of a fixed broadband connection. For example, at the CES 2019 tradeshow, Audi, Disney and Holoride demonstrated an in-car VR game that was designed to mimic the sensations felt by the car passengers, although it is unclear if the demonstration used 5G. However, the value of AR outside the home is much clearer, because VR requires the viewer to cover their field of vision.



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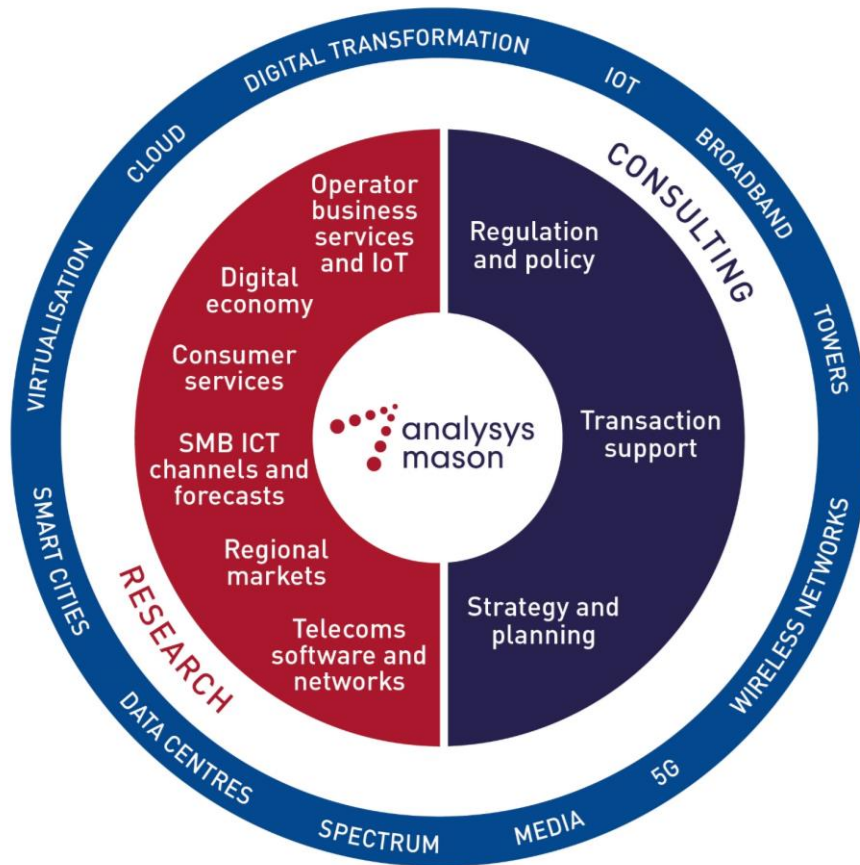
## About the author



**Stephen Wilson** (Principal Analyst) works across Analysys Mason's *Operator Investment Strategies* and *Consumer Services* practices. He is based in Analysys Mason's Singapore office, from where he closely follows market developments in the Asia–Pacific region. Recent areas of focus include how to accelerate a return on investment in FTTx deployments and how to drive prepaid to postpaid mobile migration. Stephen has more than 10 years of experience in the telecoms sector and is a graduate in Philosophy, Politics and Economics from St Catherine's College, Oxford University.

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