

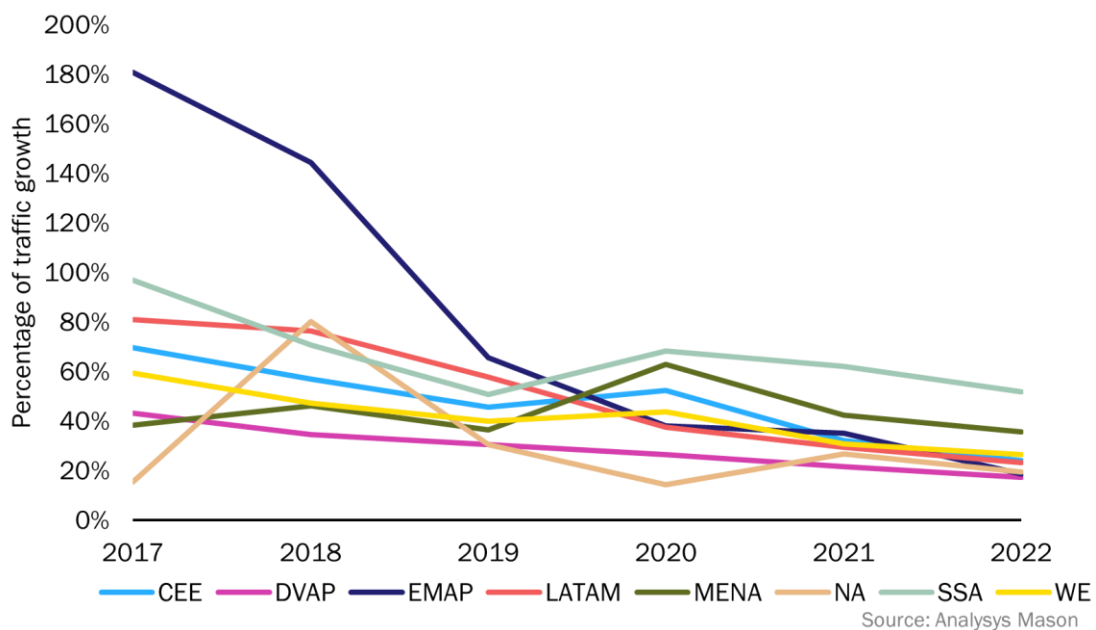
Operators and vendors need to plan for more conservative mobile data growth in the near future

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The telecoms industry is fixated on the idea of a constant and dramatic increase in data consumption by cellular network users. However, the growth rates are no longer increasing. The annual growth in cellular data traffic slowed, worldwide, from more than 90% in 2018 to 34% in 2021 and again to around 22% in 2022. These figures include a surge in cellular data traffic generated by customers with fixed-wireless access (FWA) services. FWA customers (due to time spent watching TV and video streaming) often generated more than 200-500GB per month which is 16 times more than an average mobile cellular data customer, in 2022. This means there is an even steeper decline in the growth of data traffic generated by mobile handsets, decreasing from an annual rate of 104% in 2018 to 21% in 2022.

Figure 1: Cellular data traffic growth rates by region, 2017-2022



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

A near-term return to dramatic cellular data traffic growth rates looks increasingly unlikely

5G was expected to propel cellular data usage onto a new growth trajectory. However, this is not taking place. Following the launch of 5G services, operators reported very high initial 5G data usage rates. This was primarily

caused by the heaviest LTE users upgrading to 5G handsets and services. This migration simultaneously caused a decline in the average traffic generated by users with LTE handsets. The impact of the early adopters was subsequently diluted as less-intensive users upgrade to 5G handsets and services. Then, organic growth in usage started to mask some of the effects of the migration. Over time, though, we can look at whether the total growth in usage across all handset types is sustained. South Korea is a good example to look to. In South Korea, there was an initial surge in data usage the year 5G was introduced, but this effect was short-lived. Average data use by subscribers with 5G handsets fell from its high starting point, became flat and then started to rise once more but only at a low single-digit rate. Average usage by LTE handset owners has been steadily decreasing. Overall, average data traffic growth across all handset types has slowed for 3 years in a row.

Figure 2: Cellular network data traffic growth, South Korea, December 2018–December 2022

Monthly usage (MB)	December 2018	December 2019	December 2020	December 2021	December 2022
4G smartphone traffic per subscriber	8177	9753	9650	8619	7591
5G smartphone traffic per subscriber		27 282	26 744	26 834	27 589
4G smartphone usage growth	21%	19%	-1%	-11%	-12%
5G smartphone usage growth			-2%	0%	3%
Average growth (2G, 3G, 4G and 5G handsets)	23%	38%	18%	15%	10%

Source: Analysys Mason

Only new services will unlock annual growth rates of 30% or more

Operators are currently using FWA to fill the gap between capacity and demand in their 5G networks, but the revenue per megabyte that they generate from FWA services is much lower than that for mobile cellular data services. Relying on FWA traffic to fill 5G networks will not satisfy mobile operators' investors in the long run. Some operators will also need to limit FWA availability because without the careful management of FWA traffic on 5G networks, there could be negative impacts on the quality of service for non-FWA users.

Only new applications and services will unlock future annual growth rates of 30% or more. However, it is unlikely that the types of services that could significantly accelerate cellular data traffic growth will have a substantial near-term impact.

- Higher definition video and TV services could potentially drive a new wave of data usage. Device capability is an obstacle to this possibility, as most mobile handsets are either not capable of displaying high-definition content or the screen size is too small for users to see the difference. A surge in the use of tablets to view TV on mobile networks could change this – although tablet users tend to use Wi-Fi as their primary means of connectivity. A few mobile operators have introduced mobile cellular data packages that include subscriptions to on-demand TV. This has the potential to drive up data traffic, but there are limits to the amount of time people can spend watching TV when they are away from their homes. Lack of time is likely to prevent excessive mobile TV consumption away from the home. Within the home – even when they have unlimited mobile data packages – users don't tend to switch to their mobile networks. They

typically continue to use devices connected to their home fixed broadband and Wi-Fi for extended TV viewing.

- Connected cars have been regarded as a potential source of high-volume data traffic. But this will likely not happen soon. Most new cars equipped with a mobile connection still only have LTE capabilities, and most of those are only used for telematics. Some original equipment manufacturers (OEMs), as well as operators, have introduced service packages to encourage in-car use of services (based on embedded and aftermarket connections). Even still, usage volumes have been low even in luxury vehicles. Other potential drivers of traffic are C-V2X systems for intelligent transport networks and autonomous vehicles. But despite numerous tests and trials, C-V2X infrastructures are years away, and fully autonomous vehicles still have technical and regulatory hurdles to overcome before they are deployed in meaningful numbers.
- Metaverse services – including AR and VR, and services using haptics – have the potential to generate a high volume of data traffic. In the next 4 or 5 years, the number of users with AR and VR headsets is expected to reach 300–400 million, but faster take-up will be restricted by the cost of end-user equipment, and most image processing will be done using equipment within the home. Eventually, metaverse use cases could involve vast numbers of customers, with cloud processing of fully immersive environments and services requiring very low latency and very high bandwidth. However, most of the usage will take place indoors where a combination of fibre and Wi-Fi seems much more suited to the service requirements.

The volume of cellular data traffic is increasing in absolute terms, but the annual change measured in percentage terms is going to be much lower than what it has been historically. Analysys Mason's new report [Wireless network data traffic: worldwide trends and forecasts 2022–2028](#) evaluates the prospects for cellular data growth over the coming 5 years, with global cellular data traffic nearly tripling worldwide to 2.7ZB in 2028, with a limited metaverse uptick at the end of the period.