

# Methodology

## Forecast methodology

Ericsson makes forecasts on a regular basis to support internal decisions and planning, as well as market communications. The forecast time in the Ericsson Mobility Report is six years and this moves forward one year in the November report each year. All estimates in Ericsson Mobility Report are for the month of December each year. The subscription and traffic forecast baseline is established using historical data from various sources, validated with Ericsson internal data, including measurements in customer networks. Future developments are estimated based on macroeconomic trends, user trends, market maturity and technological advances. Other sources include industry analyst reports, together with internal assumptions and analyses.

Historical data may be revised if the underlying data changes – for example, if service providers report updated subscription figures.

## Mobile subscriptions

Mobile subscriptions include all mobile technologies. Subscriptions are defined by the most advanced technology that the mobile phone and network are capable of. Our mobile subscriptions by technology findings divide subscriptions according to the highest-enabled technology they can be used for. LTE (4G) subscriptions, in most cases, also include the possibility for the subscription to access 3G (WCDMA/HSPA) and 2G (GSM or CDMA in some markets) networks. A 5G subscription is counted as such when associated with a device that supports New Radio as specified in 3GPP Release 15, and connected to a 5G-enabled network. Mobile broadband includes radio access technologies HSPA (3G), LTE (4G), 5G, CDMA2000 EV-DO, TD-SCDMA and Mobile WiMAX. WCDMA without HSPA and GPRS/EDGE are not included. FWA is defined as a connection that provides broadband access through mobile network enabled customer premises equipment (CPE).

This includes both indoor (desktop and window-mounted) and outdoor (rooftop and wall-mounted) CPE. It does not include portable battery-based Wi-Fi routers or dongles.

## Rounding of figures

As figures are rounded, summing up data may result in slight differences from the actual totals. In tables with key figures, subscriptions have been rounded to the nearest 10th of a million. However, when used in highlights in the articles, subscriptions are usually expressed in full billions or to one decimal place. Compound annual growth rate (CAGR) is calculated on the underlying, unrounded numbers and is then rounded to the nearest full percentage figure. Traffic volumes are expressed to two significant figures.

## Subscribers

There is a large difference between the numbers of subscriptions and subscribers. This is because many subscribers have several subscriptions. Reasons for this could include users lowering traffic costs by using optimized subscriptions for different types of calls, maximizing coverage and having different subscriptions for mobile PCs/tablets and mobile phones. In addition, it takes time before inactive subscriptions are removed from service provider databases. Consequently, subscription penetration can be above 100 percent, which is the case in many countries today. However, in some developing regions, it is common for several people to share one subscription, for example via a family- or community-shared phone.

## Mobile network traffic

Ericsson regularly performs traffic measurements in around 100 live networks covering all major regions of the world. These measurements form a representative base for calculating worldwide total mobile network traffic. Mobile network data traffic also includes traffic generated by FWA services.

More detailed measurements are made in a select number of commercial networks with the purpose of understanding how mobile data traffic evolves. No subscriber data is included in these measurements. Please note that the Ericsson Mobility Report data traffic forecast, both global and regional, represents the estimated traffic volume in all networks over the duration of one month in December. Traffic (in terms of throughput) in high-traffic areas will be much higher than the average traffic.

## Population coverage

Population coverage is estimated using a database of regional population and territory distribution, based on population density. This is then combined with proprietary data on the installed base of radio base stations (RBS), together with estimated coverage per RBS for each of six population density categories (from metro to wilderness). Based on this, the portion of each area that is covered by a certain technology can be estimated, as well as the percentage of the population it represents. By aggregating these areas, world population coverage per technology can be calculated.

## Disclaimer

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## Ericsson Mobility Visualizer

Explore actual and forecast data from the Ericsson Mobility Report in our interactive web application. It contains a range of data types, including mobile subscriptions, mobile broadband subscriptions, mobile data traffic, traffic per application type, VoLTE statistics, monthly data usage per device and an IoT connected device forecast. Data can be exported and charts generated for publication subject to the inclusion of an Ericsson source attribution.

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