

More people will benefit from 5G connection in 2024 but speed improvements vary

5G already covers densely populated areas, however, a lot of effort is required to add network capacity and to optimise the use of frequencies. Therefore, speed improvements currently vary widely



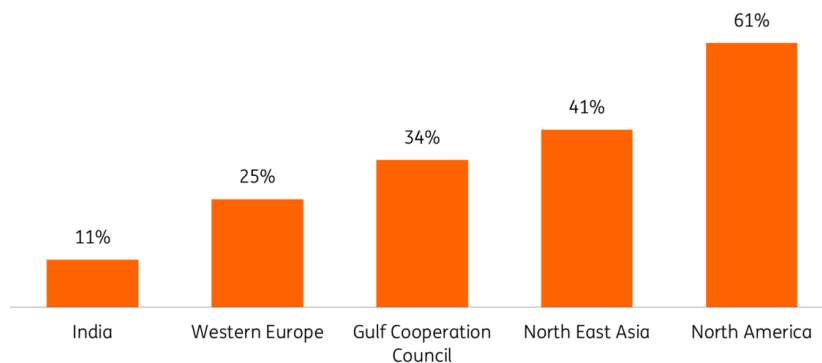
Strong growth of 5G subscriptions expected to continue in 2024

The rollout of the 5G network and the availability of (affordable) handsets has seen 5G services take off. In its 2023 mobility report, Ericsson estimates that at the end of last year, 20% of all mobile subscriptions globally were a 5G subscription, this amounts to 1.6 billion global 5G subscriptions. So, 5G subscriptions showed strong growth in 2023; roughly 600 million new subscriptions were added, a year-on-year growth rate of 63%. Ericsson also estimates that in 2029, more than five billion people will be connected to 5G networks, and 85% of the global population will have coverage access by then.

Meeting the estimated number and coverage rates of 5G connections in 2029 would require a 22% compound annual growth rate in the next six years. This, in turn, requires higher penetration rates across the globe. Currently, North America has the highest penetration rate, followed by North East Asia, the Gulf Cooperation Council, and Western Europe. Higher penetration rates hinge on affordable smartphones, such as the Samsung Galaxy A14 and Motorola Moto G Stylus 5G that sell for under €200, meaning that fast 5G connections are available to an increasing number of people.

5G penetration rates by region

Regions below 10% are excluded



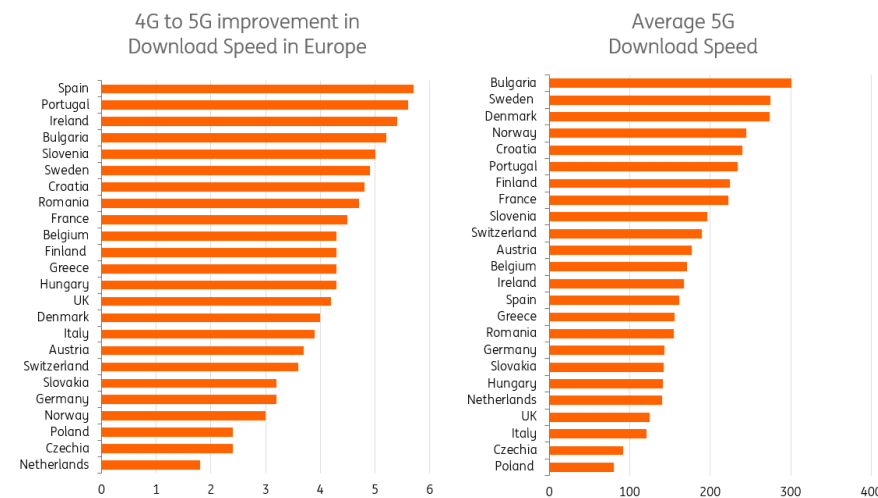
Source: Ericsson Mobility Report November 2023

5G speeds and speed improvements vary across Europe

Despite increasing 5G adoption, average download speeds and speed improvements vary widely across Europe. There are several reasons why speeds vary across regions. In densely populated areas, public networks that deal with a lot of traffic can have connectivity issues as towers have limited capacity to manage requests from many devices at once. In addition, proximity to a 5G tower and the surrounding environment/interference matters for speed. Moreover, the hardware used matters, as well as the speeds that the network is capable of. Lastly, in several countries, spectrum clearing and auctioning, as well as equipment deployment need more time and effort to improve.

Taken together, these factors explain why speeds and speed improvement from 4G to 5G across countries diverge. Spain, for instance, saw speeds improve almost six times, whereas speed in the Netherlands has only increased 1.8-fold. Furthermore, Bulgaria, Sweden, Denmark and Norway top the list for the highest average download speeds in Europe, while the Netherlands, UK, Italy, Czechia and Poland lag behind.

Download speeds



OpenSignal

Speeds per network operator also vary

Speeds also differ depending on the network operator, and market leaders tend to offer the fastest connections. In Norway, market leader Telenor offers an average download speed that is roughly 30% faster and an upload speed that is about 12% faster than the second-fastest network (Telia).

In the Netherlands, the picture is very similar. Market leader KPN has download speeds that are 20% faster than the number two (T-Mobile) and 70% faster than those of Vodafone. Upload speeds also differ: KPN is nearly 10% faster than T-Mobile and almost twice as fast as Vodafone.

Conversely, the fastest operator in the UK (Three) is not the market leader. Yet, it offers download speeds that are more than three times faster than the slowest operator (O2), and upload speeds that are roughly 60% higher than those of O2.

In short, 5G differs per region and city. Telecom operators with a large market share and/or provide the fastest speeds have opportunities to monetise these advantages. In addition, market leaders may be able to offer new services such as applications that require low latency like livestreaming or high-frequency trading.

For 2024, we expect that the rollout of 5G standalone will gain traction while we see more trials with private networks based on 5G technology. Companies like Telia in Finland have completed a 5G standalone network, which means that they operate with a modern cellular infrastructure based on 5G radio technology, but also based on a 5G core network. This will improve the operating efficiency of the mobile network and unlock further services such as private networks. Companies such as Verizon and Deutsche Telekom have offered, in trials, private wireless networks to customers which are based on a new 5G technology, network slicing. The broader 5G technologies will therefore gain further traction in 2024 also because more spectrum will become available and the user experience will be enhanced further as a result.

Author

Diederik Stadig

Senior Economist, Healthcare & Technology

diederik.stadig@ing.com

Jan Frederik Slijkerman

Senior Sector Strategist, TMT

jan.frederik.slijkerman@ing.com

Disclaimer

This publication has been prepared by the Economic and Financial Analysis Division of ING Bank N.V. (“ING”) solely for information purposes without regard to any particular user's investment objectives, financial situation, or means. *ING forms part of ING Group (being for this purpose ING Group N.V. and its subsidiary and affiliated companies)*. The information in the publication is not an investment recommendation and it is not investment, legal or tax advice or an offer or solicitation to purchase or sell any financial instrument. Reasonable care has been taken to ensure that this publication is not untrue or misleading when published, but ING does not represent that it is accurate or complete. ING does not accept any liability for any direct, indirect or consequential loss arising from any use of this publication. Unless otherwise stated, any views, forecasts, or estimates are solely those of the author(s), as of the date of the publication and are subject to change without notice.

The distribution of this publication may be restricted by law or regulation in different jurisdictions and persons into whose possession this publication comes should inform themselves about, and observe, such restrictions.

Copyright and database rights protection exists in this report and it may not be reproduced, distributed or published by any person for any purpose without the prior express consent of ING. All rights are reserved. ING Bank N.V. is authorised by the Dutch Central Bank and supervised by the European Central Bank (ECB), the Dutch Central Bank (DNB) and the Dutch Authority for the Financial Markets (AFM). ING Bank N.V. is incorporated in the Netherlands (Trade Register no. 33031431 Amsterdam). In the United Kingdom this information is approved and/or communicated by ING Bank N.V., London Branch. ING Bank N.V., London Branch is authorised by the Prudential Regulation Authority and is subject to regulation by the Financial Conduct Authority and limited regulation by the Prudential Regulation Authority. ING Bank N.V., London branch is registered in England (Registration number BR000341) at 8-10 Moorgate, London EC2 6DA. For US Investors: Any person wishing to discuss this report or effect transactions in any security discussed herein should contact ING Financial Markets LLC, which is a member of the NYSE, FINRA and SIPC and part of ING, and which has accepted responsibility for the distribution of this report in the United States under applicable requirements.

Additional information is available on request. For more information about ING Group, please visit www.ing.com.