Access speeds determine the applications the Internet can be used for – by both businesses and consumers. In terms of retail (consumer) service offers, speeds vary considerably, with most consumer fixed broadband subscriptions already marketed at over 10 Mbps. Nevertheless, a significant proportion of subscriptions still offer between 2 Mbps and 10 Mbps. As of 2017, the leading advertised download speed in OECD countries was 10 Gbps (10 000 Mbps), though only a small number of consumer offers were available at that level. Offers marketed at 1 Gbps are increasingly common in countries where fibre to the premises or upgraded cable broadband networks are in place. This is particularly the case in countries with high population densities, such as Japan and Korea, as well as in an increasing number of cities in the United States. Gigabit speeds are most commonly found where there is either strong infrastructure competition between operators or competition between retail providers using wholesale networks.

Business users, educational institutions, and the public sector can often access tailored high-speed products such as leased lines between specific locations. However, these cannot be analysed separately in the statistics currently available.

Many OECD countries have on-going national broadband strategies setting objectives for speeds and coverage. Targets of 100 Mbps or more are becoming increasingly common; by 2020, the United States aims to have broadband speeds of 100 Mbps or more available to 80% of households, while the targets in Norway and Austria are for 90% and 99% coverage, respectively. In Australia, the "National Broadband Network" aims to deliver peak wholesale download data rates of at least 25 Mbps to all premises by 2020. Some smaller countries can target even greater speeds: Luxembourg aims to have 1 Gbps connections for all businesses and households in place by 2020, and Sweden is aiming for 98% coverage by 2025 (OECD, 2018a). As strategies are implemented, their impacts will be reflected in indicators of Internet speed.

Even in countries where connections advertised at 1 Gbps or greater are available, delivering these speeds to all geographical locations remains a challenge. It is also common for the actual speed experienced by users to be below the advertised speed. Different approaches exist for gauging Internet speed, each with its own limitations and caveats. It is important to examine multiple sources on speeds to obtain a rounded view of performance. Measurements from Ookla and M-lab, which allow users to self-test their connection speeds, provide complementary measures that contrast with contracted speed tiers data. For example, in Switzerland 84% of subscriptions have a contracted speed greater than 100 Mbps, as do over 60% in Sweden and Portugal. Average speeds measured by Ookla are just over 100 Mbps in Sweden and Switzerland, and slightly less (70 Mbps) in Portugal, but M-lab measurements typically show markedly lower speeds. Together, these sources give a complementary and nuanced, although still partial, view of experienced speeds.

DID YOU KNOW?

In Europe, Switzerland, Sweden, Portugal and Belgium have the greatest uptake of fast broadband with over 50% of connections being faster than 100 Mbps.

Definitions

Internet speed relates to the amount of data passing through a network connection in a second. The most fundamental unit of digital data is the "bit" (a 0 or 1 in binary code). A kilobit is 1 000 bits, a megabit is 1 000 kilobits, and a gigabit is 1 000 megabits. Speed is therefore expressed in kilobits per second (Kbps), megabits per second (Mbps), and Gigabits per second (Gbps).

Measurability

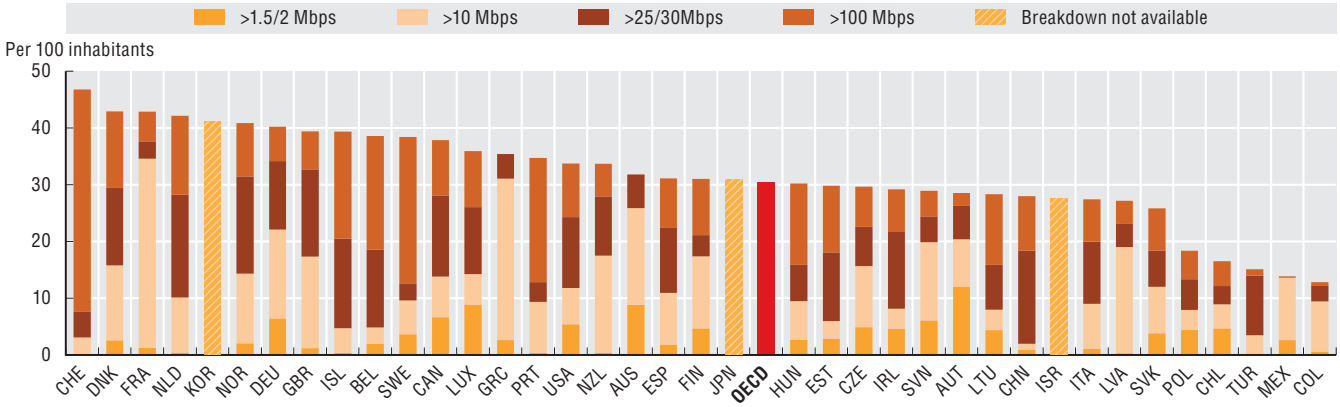
These data focus on download speed (i.e. of data flowing from the Internet to the user's device). This is a function of data availability and the fact that this measure is the most widely used performance metric. Nevertheless, the speed at which data moves in the opposite direction (upload speed) is also an important aspect of overall connection quality, along with reliability. This is especially relevant for businesses that rely increasingly on large amounts of data and digital products flowing in both directions (e.g. as a result of adopting cloud computing services or Internet of Things devices).

There is a potential gap between the speeds advertised to customers and those actually experienced by users. Regulators collect information on the advertised download speed of subscriptions and these are compiled to show subscriptions broken down by speed tiers - a view of the "theoretical" speed of subscriptions. It is necessary to select speed tiers that are useful for analysis and reflect the increases in advertised speeds over time. Such indicators are available on the OECD broadband portal: http://oe.cd/broadband.

Various tools can provide some insight on experienced download speeds, as well as other quality-of-service parameters. The Ookla measure reflects wired or wireless broadband speed achievable 'on-net', while the M-Lab Network Diagnostic test is primarily for identifying Internet bottlenecks rather than computing averages of upload and download speeds from different user populations. Neither fully represent the overall Internet experience and each provides only a partial view on of Internet speed. Nevertheless, they provide useful partial indicator available for both OECD and non-OECD countries. Broadband quality measurement, including speed measurement, is further addressed on page 3.7.

Fixed broadband subscriptions, by contracted speed tiers, December 2017

Per 100 inhabitants

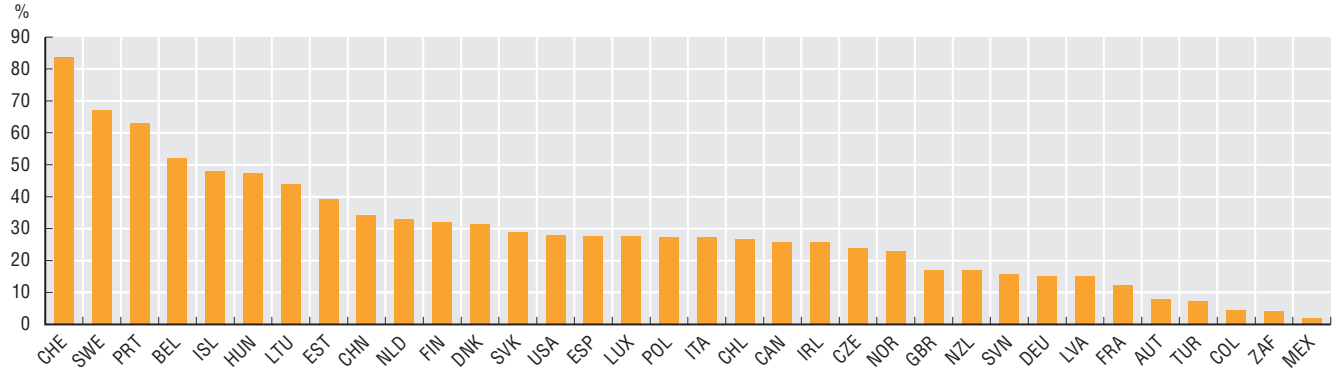


Source: OECD, Broadband portal, http://www.oecd.org/sti/broadband/broadband-statistics and ITU World Telecommunication/ICT Indicators Database, September 2018.

StatLink https://doi.org/10.1787/888933929604

Fixed broadband subscriptions with contracted speed faster than 100 Mbps, December 2017

As a percentage of fixed broadband subscriptions

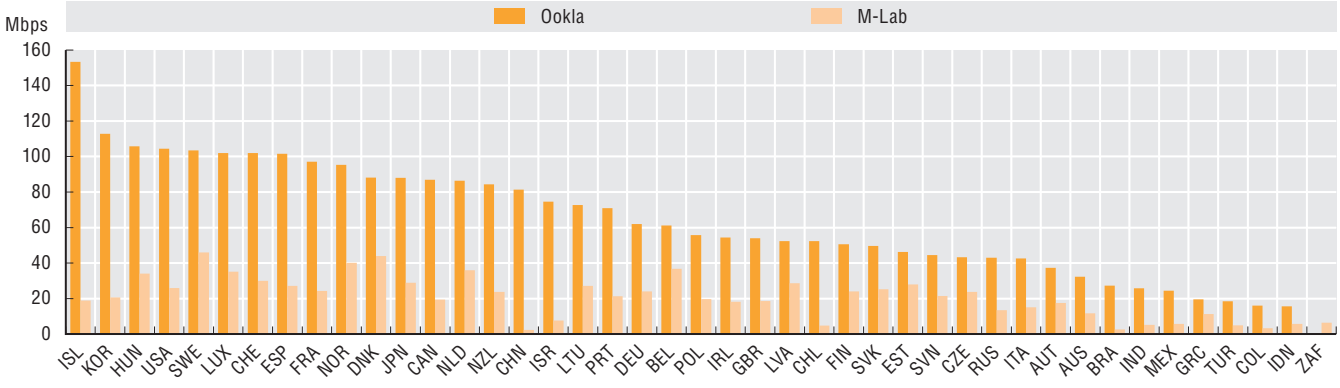


Source: OECD, Broadband portal, http://www.oecd.org/sti/broadband/broadband-statistics and ITU World Telecommunication/ICT Indicators Database, September 2018. See chapter notes.

StatLink https://doi.org/10.1787/888933929623

Average experienced download speed of fixed broadband connections, 2018

Ookla and M-lab measurements



Source: OECD, based on Ookla, October 2018 and M-Lab (Worldwide broadband speed league) as measured between June 2017 and May 2018.

StatLink https://doi.org/10.1787/888933929642