

European fibre rollout ramps up

Fibre-optic broadband is the main technology in moving towards a Gigabit society. In these two articles, we explain the state of play and future plans of full-fibre rollout across Europe

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Not quite halfway home

In Europe's Gigabit Society, full-fibre networks will play a major role. The rollout of fibre across the 27 EU countries plus the UK, however, shows big differences in the percentage of homes with fibre access, the number of subscribers and the penetration rates. In the year to September 2020, full-fibre broadband became available for an additional 16 million homes in Europe, an increase of almost 20% on the previous period. The increase refers to where fibre is available to households even if they do not subscribe.

In 14 out of 28 European countries, 50% or more of all homes can be connected to fibre. As some of the bigger countries lag behind in rolling out fibre to the home (FTTH), only 44% of all European households can connect to fibre. However, if the current level of deployment is maintained, 2021 will see half of all households having access to full fibre.

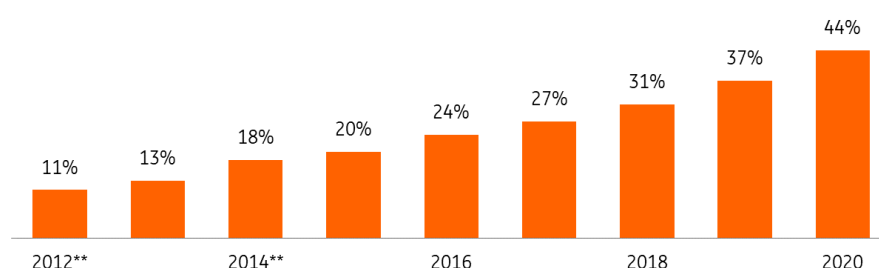
Altnets continued to drive rollout

The rollout in 2020 was again driven by alternative internet service providers (altnets), such as CityFibre and Deutsche Glasfaser, increasing their market share from 55% to 57% of homes. Incumbents now have a market share of 39% of homes that can be connected to fibre (without

further installation of a substantial fibre optic cable plant). The trailing position of incumbents reflects the fact that most of them have to phase out their existing copper networks when deploying fibre.

More and more households can access full fibre internet

Full fibre internet coverage rate of EU27 and UK households*



Source: FTTH Council Europe * homes passed as % of households ** per end of year, as of 2015 per September
 Note: FTTH Council Europe figures refer to both FTTH and FTTB

UK and Germany trail in rolling out fibre

The state of FTTH rollout differs widely from country to country. The top five consist of both Nordic and Southern European countries. Latvia is in the lead with 92% of homes having access to full-fibre. Of the biggest countries, Spain leads the way (88%). The main reason for the quick fibre deployment in Spain has been the relatively low cost of deployment due to above-ground connections, the ability to use pre-existing physical infrastructure such as ducts, poles and manholes, and relatively low labour costs.

Baltic countries lead full-fibre rollout

Top five and bottom five countries in ranking homes passed as a % of households

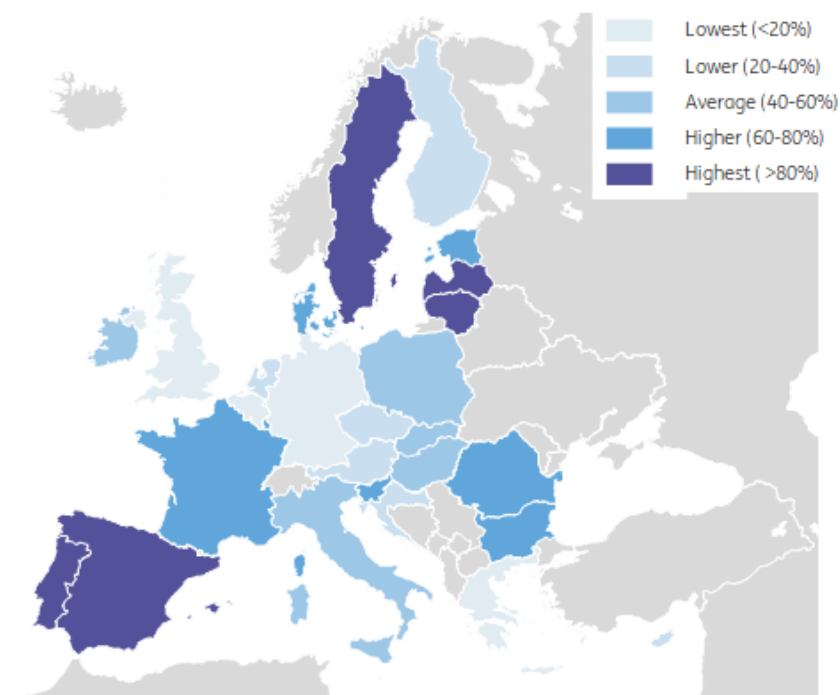
| Top 5 | Coverage rate | Bottom 5 | Coverage rate |
|-----------|---------------|----------------|---------------|
| Latvia | 92% | Austria | 21% |
| Lithuania | 90% | Germany | 16% |
| Spain | 88% | United Kingdom | 15% |
| Portugal | 83% | Greece | 10% |
| Sweden | 81% | Belgium | 6% |

Source: FTTH Council Europe

Near the bottom of the rankings, we find Germany (16%), the UK (15%) and Belgium with less than 6% of homes connected to full-fibre broadband networks. The low rate of connected homes in Germany and Belgium reflects widespread cable coverage and amongst other things, the high upfront costs to incumbents of deploying fibre networks, as existing infrastructure cannot easily be used and therefore new digging is required. In the UK, full-fibre rollout remains at a lower rate because of the earlier success of rolling out slower hybrid fibre.

Fibre rollout across Europe shows diverse picture

Share of households that can access full-fibre internet



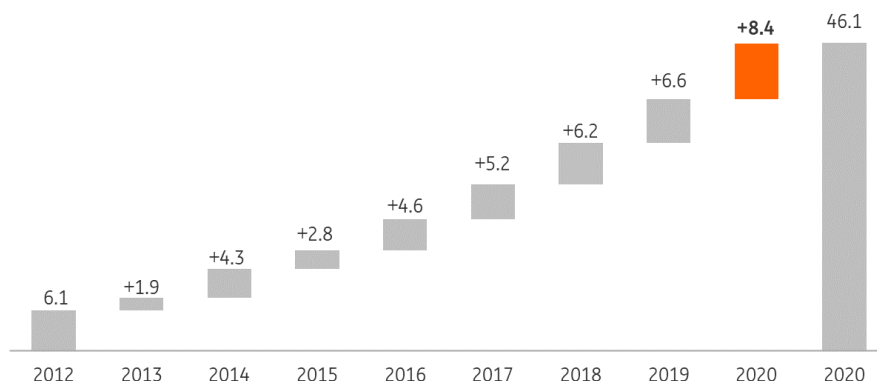
Source: FTTH Council Europe

More than eight million subscribers added

As of September 2020, Europe had some 46 million subscribers to full-fibre broadband, up 22% from the previous year. Partly driven by the pandemic, with working from home driving a need for stable, high bandwidth connections, fibre providers added a record 8.4 million additional subscribers. France and Spain show the biggest rise with 2.8 and 1.4 million subscribers added, respectively. Spain also has the highest number of subscriptions per 100 households: 63. With limited fibre deployment, Germany, the UK and Belgium also find themselves in the lower regions with five or fewer subscribers per 100 households.

Highest growth in number of subscribers to fibre added in 2020

Overall number of subscribers and number of subscribers added



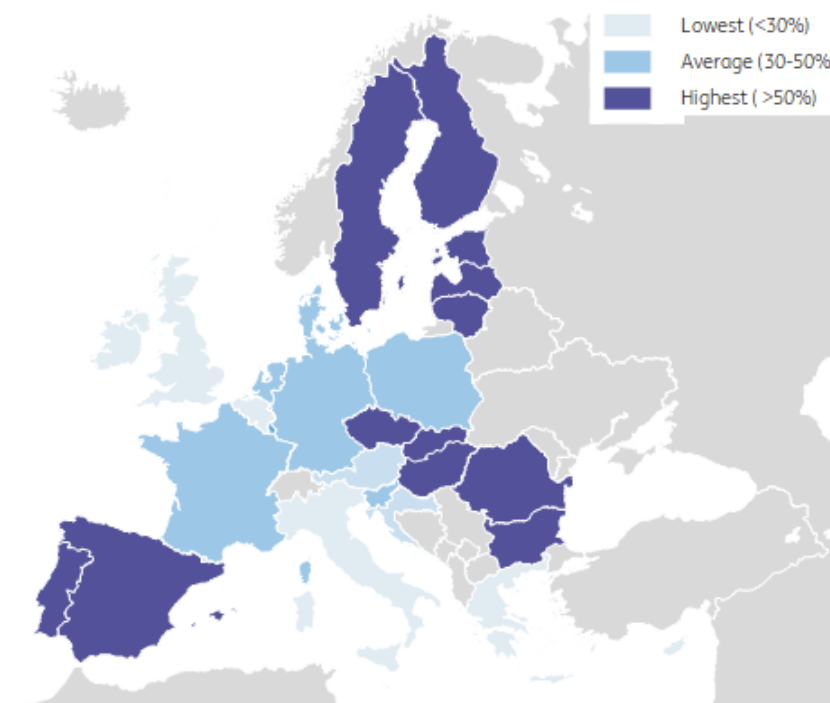
Source: FTTH Council Europe

Take-up of fibre broadband moves towards 50%

Approximately 47% of all homes where access is offered subscribe to full-fibre broadband. This take-up rate has almost doubled since the end of 2012. Take-up also differs vastly between countries and is usually higher in countries where full-fibre has been around for a longer time and networks using intermediate technologies are (almost) absent. In Italy, only 14% of homes that can subscribe to full-fibre broadband actually do (with Spain and Portugal showing take up of 71% and 60%, respectively). Telecom Italia is replacing its hybrid fibre network with a limited number of clients switching to full-fibre. In Spain and Portugal, take-up was driven up by offering cross-subsidising bundles (quadruple-play; internet, TV, fixed telephony and mobile).

Take-up rates highest in Nordic, Iberian and Central and Eastern European countries

Subscriptions to full fibre internet as a percentage of homes that can be connected (homes passed)



Source: FTTH Council Europe

Future growth: expect more from incumbents

Multiple factors stimulate the further deployment of fibre networks in Europe. Infrastructure investors and pension funds are keen to invest in fibre, removing the investment limitations while governments stimulate further deployment.

National governments have their national broadband plans, while regional authorities also plan to lay fibre optic cables in remote areas. A fifth of the €672.5 billion EU Recovery and Resilience Facility (RRF) is directed to plans focused on improving digital capabilities, with a prominent role for fibre rollout. Take-up, meanwhile, is boosted by the desire for cloud access by companies and institutions and working from home, along with increased consumer demand for digital entertainment. Altnets have been driving fibre deployment across Europe in the past. In the current environment, however, incumbents are expected to pick up the pace in rolling out full-fibre to remain competitive. After all, more and more clients will want to benefit from the digital infrastructure of the future. Find out more about rollout plans in [this article](#).

Fibre rollout: the hardest part is yet to come

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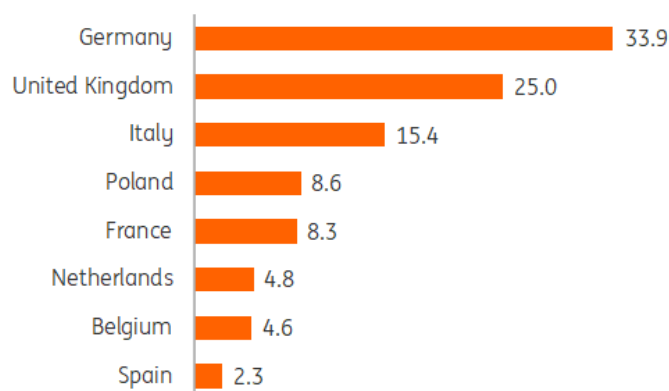


Towards a Gigabit society

The European Commission set a target for all European households to be covered by a Gigabit network by 2030. This is more ambitious than the goals set in the Broadband Europe plan, of access to at least a 100 Megabit per second (Mbps) connection for all households and a 1 Gbps for so-called socio-economic drivers such as schools, universities, hospitals, digital-intensive businesses and transport hubs, by 2025. Although goals are formulated on speeds, not technology type, the EC focuses on fibre to the home (FTTH) and 5G. In general, governments and local authorities rely on commercial initiatives. To achieve 100% broadband connectivity, public financial support is usually necessary, especially in rural zones.

Germany has most homes yet to be passed by FTTH

Homes not passed by FTTH, September 2020, in mln.



Source: FTTH Council Europe, Eurostat, ING Research

Incumbents in lagging countries have big ambitions

In countries where the rollout of full-fibre was slow in the past, a significant increase in pace can be seen to make networks future-proof. In Belgium, Germany and the UK, homes passed by fibre networks, grew by more than 60% in the year to September 2020. Proximus plans to pass 2.4 million homes by 2026 and 4.2 million by 2028. This requires a significant increase in the speed of deployment resulting in the yearly addition of almost 0.5 million homes, which coincidentally is the current number of homes passed in total. In Germany, Deutsche Telekom plans to have a fibre network of 10 million homes passed in 2024, eventually passing 2.5 million premises a year. Openreach (BT) wants to connect 4 million homes per year, rolling out FTTH to 25 million premises in 2026, up from 4.5 million today.

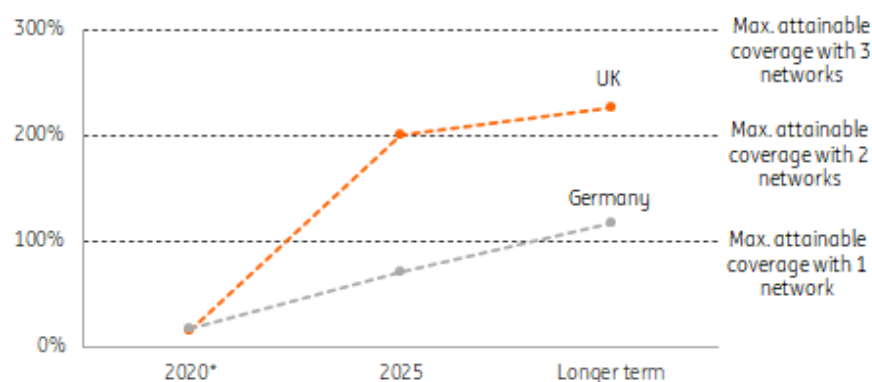
Build-out plans in UK and Germany indicate ambitious targets and overbuild

In the two markets with the least FTTH homes passed (Germany and the UK), there is a substantial risk of overbuild. If the announced plans of both incumbents and altnets are executed and cable networks are upgraded to full-fibre (as indicated), the cumulative effect would be a coverage ratio of over 100%. The UK will show the quickest rise to over 100% coverage if plans come to fruition. By the end of 2025, Openreach, Virgin/ O2 and the altnets would cover over 60 million premises or 200% of households with full-fibre. While it is likely that overbuild will materialise in the most attractive areas, the ambitions of altnets still seem very optimistic. They expect to grow from 2.5 million premises passed today to 30 million in 2025. Overbuild in broadband between a telco and cable offering is common practice, but plans are likely to be adjusted if multiple networks are already in place.

In Germany, planned growth seems more benign, but this may draw in even more competitors (which we already see with Liberty announcing a return). By 2025, Deutsche Telekom, Deutsche Glasfaser, Telefonica, Tele Columbus and the regional altnets plan to have some 30 million homes passed (70%). Towards 2030, coverage will move to over 100%.

Full fibre rollout plans indicate overbuild

Number of planned fibre connections as % of households



Source: ING Research calculations based on FTTH Council Europe, BREKO, Inca / Point Topic, companies, ONS, Statistisches Bundesamt * Based on roll out plans of different companies

Italy aims to have full Gigabyte coverage by 2026

In Italy, the rollout pace has also been picking up, with 2.8 million homes added by September 2020. Prime Minister Mario Draghi has put digitisation at the heart of his agenda, aiming for superfast connections of 1 gigabyte available to all Italians by 2026. OpenFiber, which is partly state owned, aims to reach 19 million homes eventually. FiberCop (TIM) sets out to deploy to 13.6 million homes by 2026. The creation of a state-sponsored entity, merging the two networks, seems on hold, which will possibly slow down the pace of the rollout.

In the Netherlands, KPN will be the main driver of FTTH, planning to add approximately 0.5 million homes annually, with Open Dutch Fiber together with T-Mobile aiming at 200,000 premises passed per year.

Long term plans and current state of European FTTH networks

| Company / Network | Homes passed, end of 2020 (mln.) | Homes passed planned end of 2021 (mln.) | Homes passed planned longer term (mln.) |
|------------------------|----------------------------------|---|---|
| Openreach (UK) | 4.5 | n.a. | 25 (2026) |
| Deutsche Telekom (Ger) | 2.2 | 3.5 | 10 (2024) |
| Orange (Fra) | 14.5 | n.a. | 23 (2023) |
| XP fibre / SFR (Fra) | 3.3 | n.a. | 8 |
| FiberCop / TIM (Ita) | 5.0 | n.a. | 13.6 (2026) |
| Open Fiber (Ita) | 8.5 | n.a. | 19 |
| Telefonica (Spa) | 25.2 | n.a. | 100% (2025) |
| Orange (Spa) | 15.3 | n.a. | 16 (2023) |
| KPN (NL) | 2.8 | 3.3 | 6.6 |
| Proximus (Bel) | 0.5 | 1.1* | 4.2 (2028) |

Source: FT, Telecompaper, Analysys Mason, ARCEP, CNMC, companies *2022

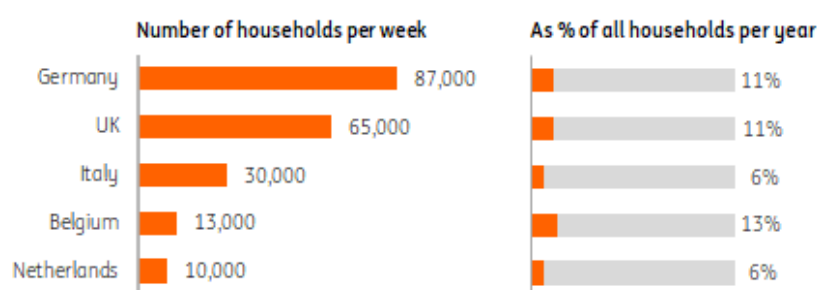
France and Spain already moving towards full coverage

In countries where deployment is in a much more advanced stage, such as France and Spain, it will be increasingly difficult to add a large numbers of homes to the network, as the commercially, most interesting and densely populated areas, have been tackled first. What remains is rural, sparsely populated regions.

In France, in these zones, fibre projects are financed and deployed using public funds to achieve full countrywide FTTH coverage. Most countries are unlikely to aim for full FTTH coverage, as there will be areas where the costs of deploying fibre will be deemed too high and alternatives such as fixed-wireless access (FWA) that partially use mobile networks, are more feasible.

Highest rollout speed needed in Germany and UK

Required speed of rollout in households per week if 70% of homes are to be connected by FTTH in 2025 and in % of households



Source: ING Research calculations based on FTTH Council Europe, Eurostat, ONS

Both incumbents and altnets should drive future growth

According to the FTTH Council / IDATE, the number of homes that can be connected to full-fibre in Europe (EU + UK) is expected to double to approximately 200 million by 2026. To reach that figure, a lot of fibre building needs to be done. The altnets were driving growth, but incumbents have set ambitious targets as well, requiring them to significantly increase building speed.

Costs per home passed vary between countries and areas. The costs are known to range from €200-€250 (urban areas Spain) to €1000 - €1500 and above (suburban areas Germany) requiring large investments. Connecting the remaining 34 million German homes without fibre, for instance, would imply an investment of at least €34 billion. We, therefore, see many telcos entering into partnerships with investors. For less densely populated areas, subsidies may be needed.

Labour shortages are the biggest constraint for fibre building

Although chip shortages also have an impact in the short-run (e.g. shortage of fibre optic modems) the key limiting factor for the rollout is likely to be construction capacity. Civil engineering works account for up to c. 75% of FTTH CapEx spend. Shortages in construction capacity can therefore have a major impact on FTTH deployment costs. In Germany, the labour market situation in civil engineering is considered tense, although more foreign companies are now offering their services. According to the number of jobs listed on the website glasfaserausbau.org, there currently are around 3,000 vacancies in Germany for skilled professionals in fibre construction and the amount

of people required is likely to rise in the coming years. Looking at the UK, Manpower estimates 15,000 new workers are needed in the coming years to deliver gigabit speeds to everyone. Given the limited labour supply in the coming years, companies are likely to try and secure this limited capacity, as this guarantees that a company can build out its network while making it more difficult for competitors.

For FTTH rollout, the hardest part is yet to come. The rollout speed needs to be very high in the countries that are lagging behind if they want to meet their objectives. This requires a significant investment and many new workers. In the countries leading the fibre rollout, the areas with a low commercial attractiveness remain to be covered. For networks to become future-proof, however, further fibre deployment is necessary (also in support of 5G-rollout). Building speed is also of importance, as the network that comes first may also be the one that actually gets to serve the majority of clients.

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