

COVID19: FTTH Forecast for EUROPE

European FTTH/B status

Market forecast by 2020 and 2026 reviewed after COVID-19 initial wave during 2020

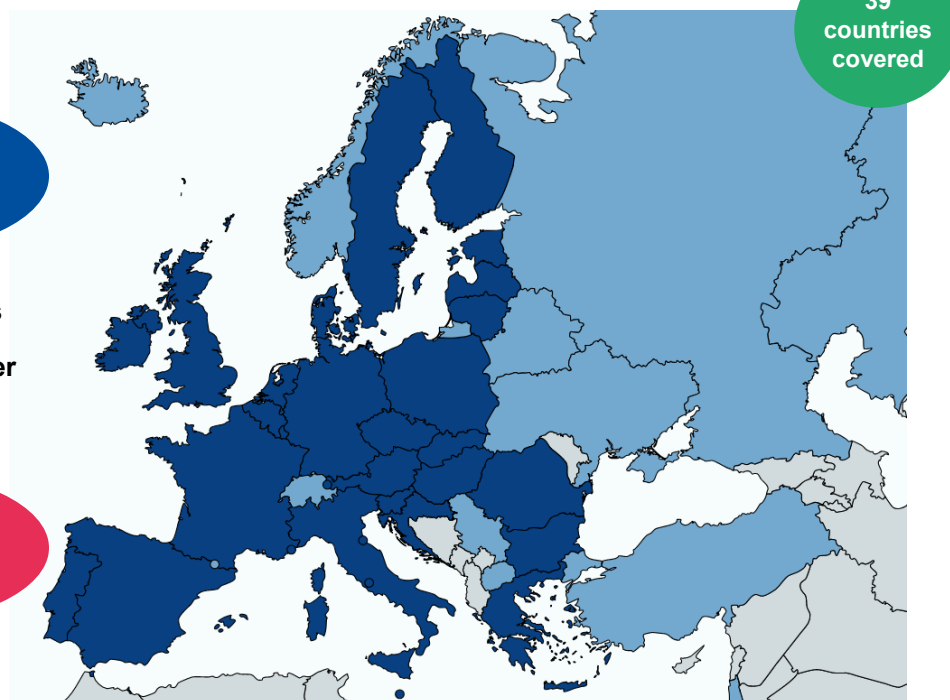
FTTH Council Europe Conference –2020

Market Panorama Revisited - FTTH/B figures as of September 2019

As measured during September 2019 in EU39:

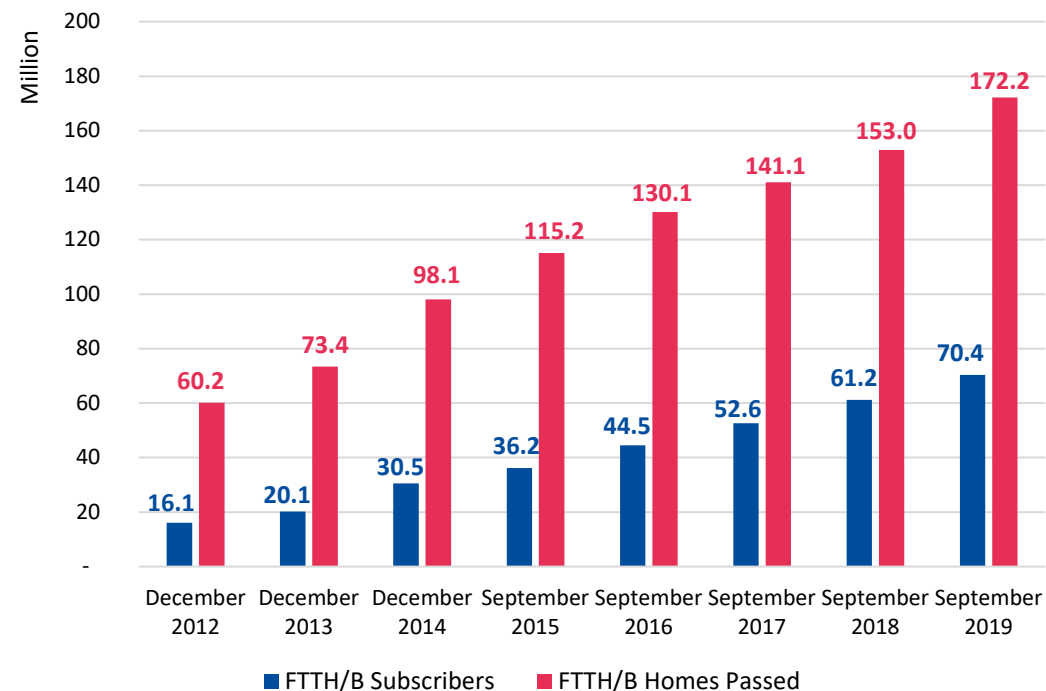
- **70.4 million FTTH/B subscribers**
- **Almost 172 million FTTH/B Homes Passed**

FTTH Council Europe scope at September 2019



FTTH/B European market evolution (EU39)

In terms of Homes Passed and Subscribers (2012-2019)



Source: IDATE for FTTH Council EUROPE

Trends from 2012 to 2019

FTTH/B Subscribers

x 4.4

Homes Passed evolution

x 2.9

Methodology

- Mission on behalf of the **FTTH Council Europe – 18th edition**
- Provide a forecast overview of FTTH/B European markets by **2020** and **2026**
- This is an updated version once COVID-19 impacted in Q2 in Europe. Many plans and budget in Europe were reformulated according to the new reality in terms of broadband demand and financial resources

ACTIONS

Scope



- Individual analysis of 15 countries based on Top 15 countries by Homes passed
- Study of EU27+UK and EU38+UK (1) countries
- Based on feedback from all main operators, service provider associations and regulatory contacts in each country

Bottom-up methodology



- Desk research
- Direct contacts with leading players and IDATE partners within countries
- Information exchange with FTTH Council Europe members
- Information was compared to previous forecast efforts.
- Apply Forecast Model based on Supply/Demand Criteria.

Results



- Both quantitative and qualitative data
- Adjusted Forecasts for years 2020 and 2026 after COVID-19 impacted
- Results are compared with local intelligence sources, including regulator and other recent publications where available and appropriate.

(1) EU39 = EU27 (excl. Cyprus) + 4 CIS countries, UK, Andorra, Iceland, Israel, Macedonia, Norway, Serbia, Switzerland, Turkey

Forecast study – Factors taken into account

Supply criteria

- **Strategic plans** from telecom players towards high-speed broadband deployments once COVID-19 impacted in the European region.
- **Public Funds** allocated from governments to deploy fibre networks.
- New Initiatives from **Municipality/utility players to accelerate fibre development in remote areas**, where private operators don't have any incentives to deploy.
- **Copper switch off** initiatives delimited by many players.
- **Cable operators migrations to FTTH/B**
- **Green-field housing** and systematic deployment of FTTH in any new build housing

Demand criteria

- **Broadband services take-up.**
Average speeds continue to rise for households and new dynamics after COVID-19 impacted
- **Data consumption keeps growing** due to new confinement dynamics (teleworking and remote studying) that force the intensive use of **video content, high-definition streaming** which demand **high bandwidth capacity**.
- Demands to accomplish **EC Digital Agenda goals** by 2020 and 2025
- People in **rural areas** still not covered by high-speed connections demanding access to **NGNs. People moved to rural areas as a way to reduce virus exposure.**
- **National and Digital Agendas** pushing to accelerate fibre deployments

Others

- Impact of **infrastructure costs**
- Impact of **copper-based DSL improvements** with new emerging variants, such as G.Fast.
- Impact of cable-based networks with DOCSIS 3.1 and coming DOCSIS 4.0
- Impact of **networks sharing** agreements and new deployments based on **co-investment** among players.
- **Regulatory changes at European and national level** to create a common commitment to deploy FTTH networks.
- Impact of **macroeconomic environment and economical trends: teleworking as a new dynamic and the creation of new business models.**
- **We recognize that plans for FTTH rollout may be impacted by buildout resource availability (Manpower).**

Indicators affecting the FTTH adoption

Positive criteria



COVID-19 has pushed data traffic and new broadband demands since people need to stay at home. This is pushing towards a scalable technology, like fibre, with higher bandwidth and lower latency needs (Resilience, symmetry of Bandwidth)



Many players have announced the switch-off of their copper-based infrastructure and migration towards full fibre solutions



Municipalities/Utilities have announced the expansion of fibre networks in remote areas where not always economically viable for private players. Increase in FTTH network sharing agreements between players. including more appetite for single-build deployments utilising wholesale and infrastructure-centric network builders.



Governments are promoting the deployment of fibre networks as part of their digital agendas to provide higher data speeds to more people. These initiatives also include the allocation of public funds in order to reach also rural areas with FTTH. More people doing teleworking activities in more isolated areas to avoid virus exposure.



More plans have been announced in European countries towards 5G's implementation. These plans are pushing fibre deployments which makes FTTH services closer to end users.

Indicators affecting the FTTH adoption

Negative impacts



Improvement in current copper-based technologies (G.Fast, Vectoring) or cable-based technologies (DOCSIS 3.1/4.0) could delay FTTH rollout in many countries up to 2023



Mobile 5G / LEO technology may substitute FTTH in non economically viable areas



The ability for network builders to build Fibre infrastructure in line with existing plans (and 2025 goals) is a growing industry concern.



Deployment costs are still very high for FTTH technologies versus wireless solutions



Some digital agendas have set a delimited data speed without mentioning FTTH as the specific technology to deploy. This will promote technology diversification, but it will make FTTH deployment slower.

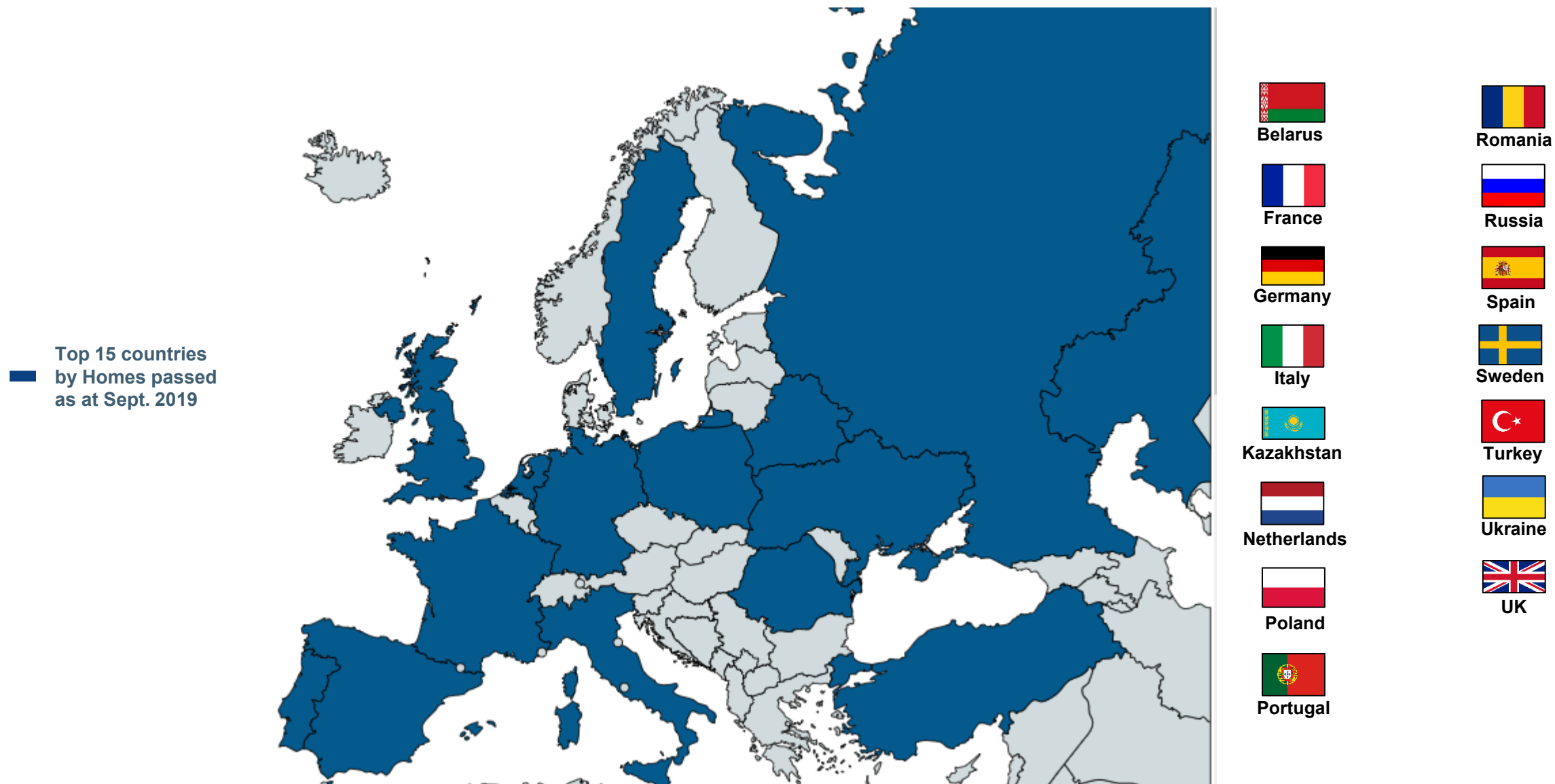


Lack of voucher schemes in many countries is delaying FTTH demand and copper switch off implementation.



Initiatives to deploy full fibre solutions in dense and remote areas is not yet a common message in Europe. Therefore, public funds to deploy fibre in rural areas could be restricted.

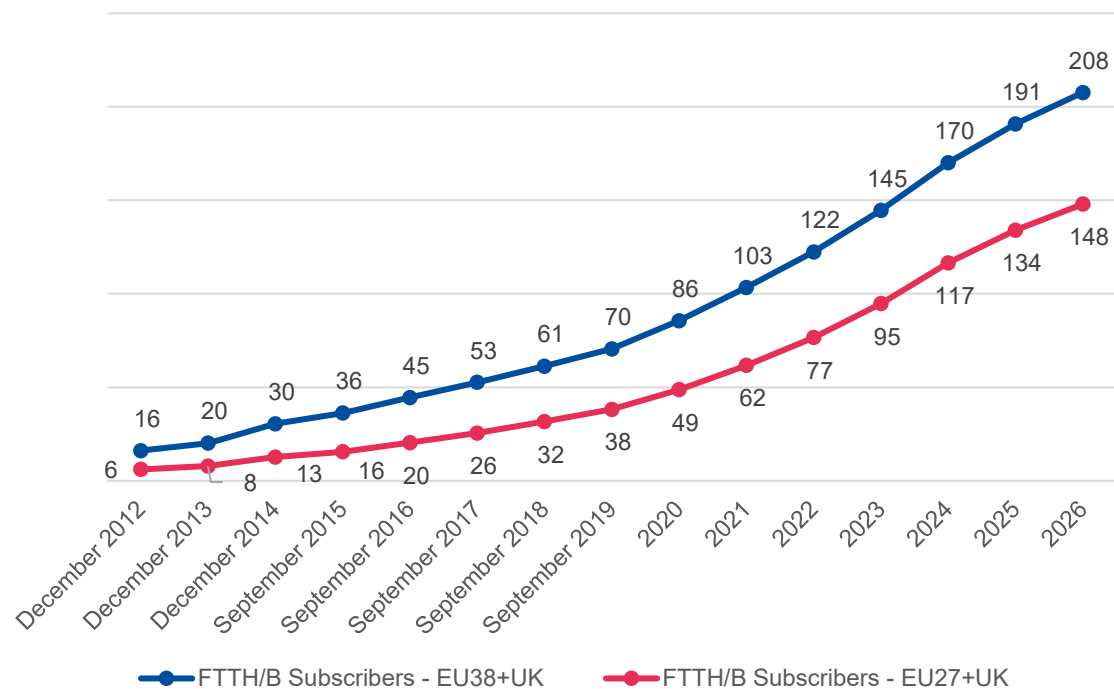
Forecast study – Individual analysis of 15 European countries



European FTTH/B Historical and Forecasts (2012-2026)

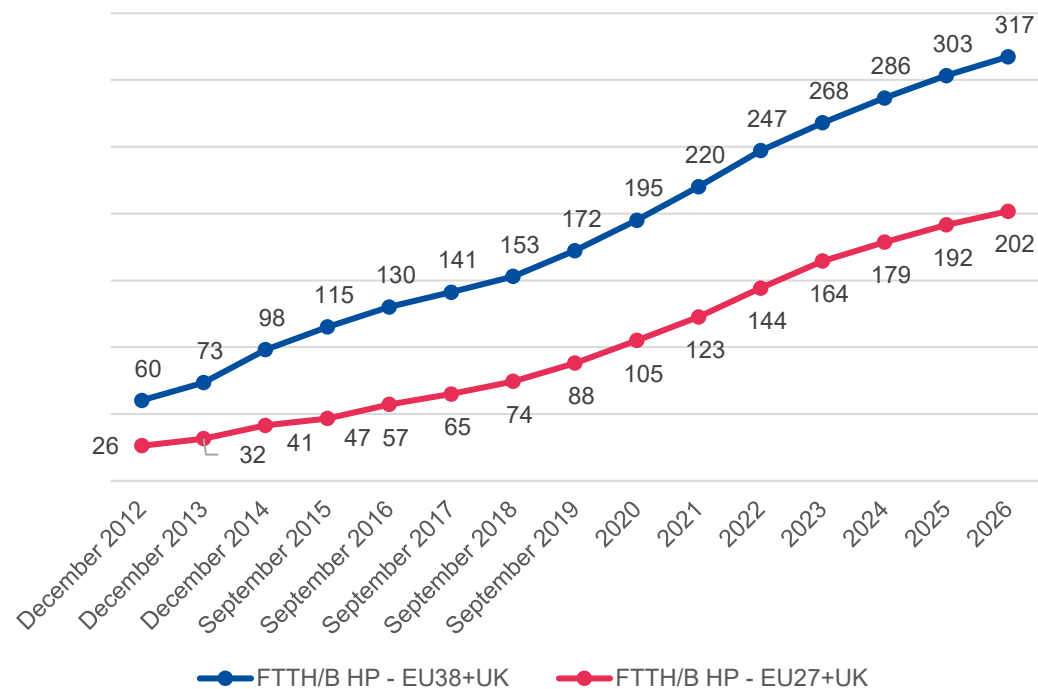
FTTH/B Subscribers Forecasts (million)

Comparison EU27+UK / EU38+UK



Evolution of FTTH/B Homes Passed (million)

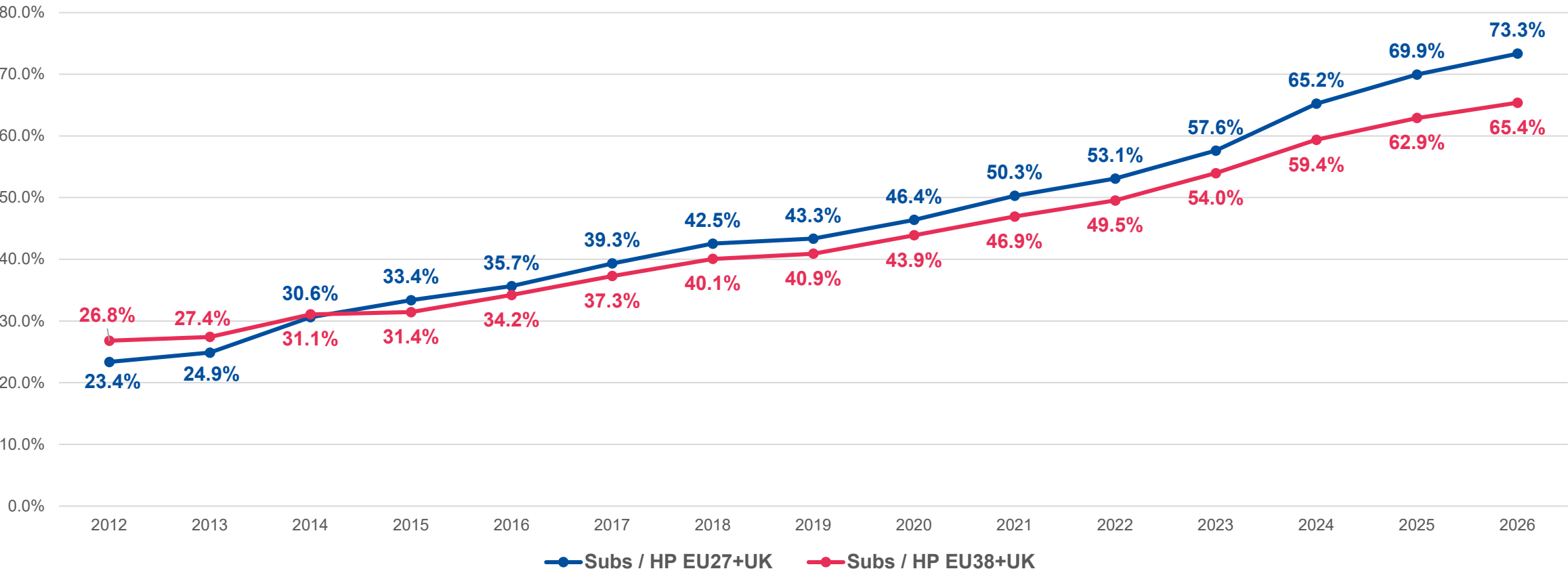
Comparison EU27+UK / EU38+UK



Source: IDATE for FTTH Council EUROPE

European FTTH/B Historical and Forecasts (2012-2026)

FTTH/B Take-up Rates Forecasts (Subs over Homes Passed, in %)
Comparison EU27+UK / EU38+UK



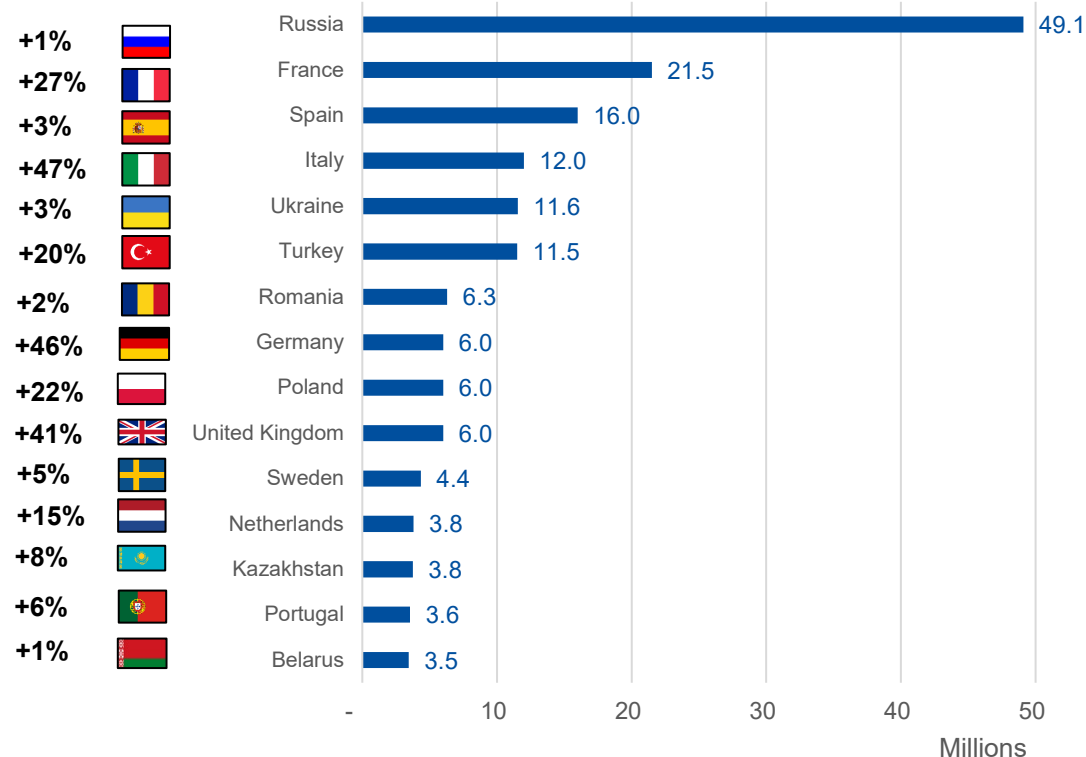
Top 15 Countries by FTTH/B Homes Passed in 2021 & 2026

European ranking in terms of FTTH/B Homes passed (in million homes)

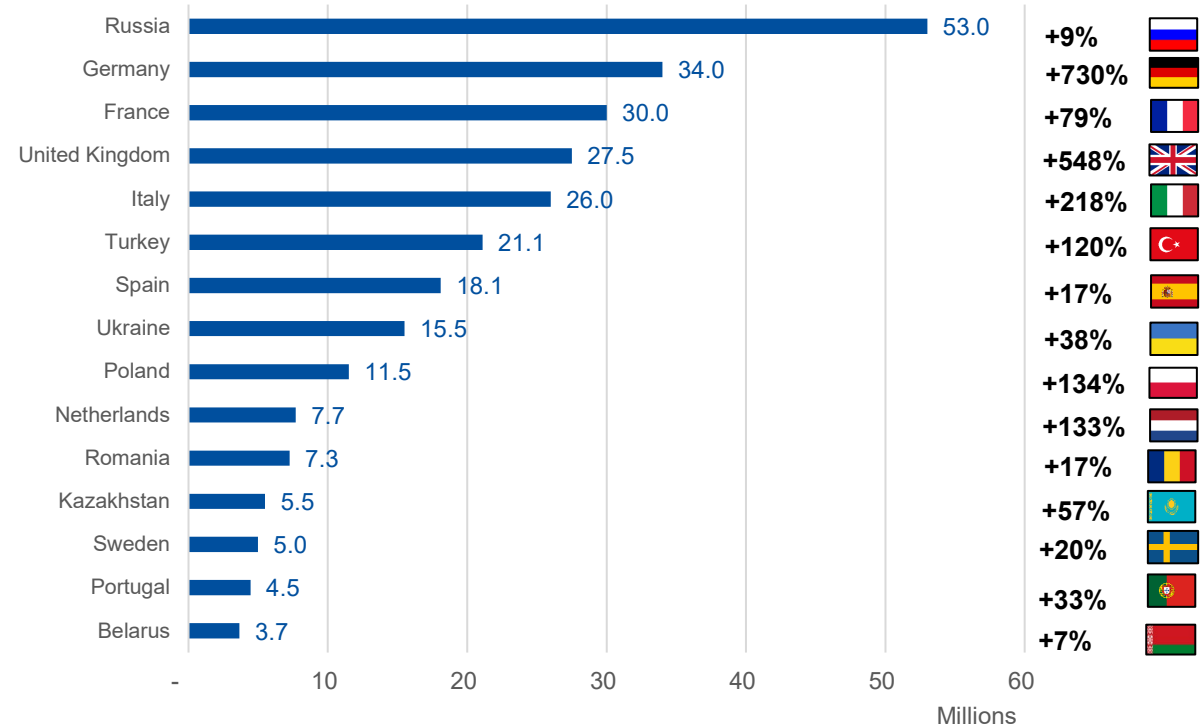
2026 Forecasts
EU28 : ~202m FTTH H.P.
EU39 : ~317m FTTH H.P.

% Evolution
2019 / 2020

2020 Forecasts



2026 Forecasts



Source: IDATE for FTTH Council EUROPE

Top 15 Countries by FTTH/B Subscribers in 2020 & 2026

European ranking in terms of FTTH/B Subscriptions (million)

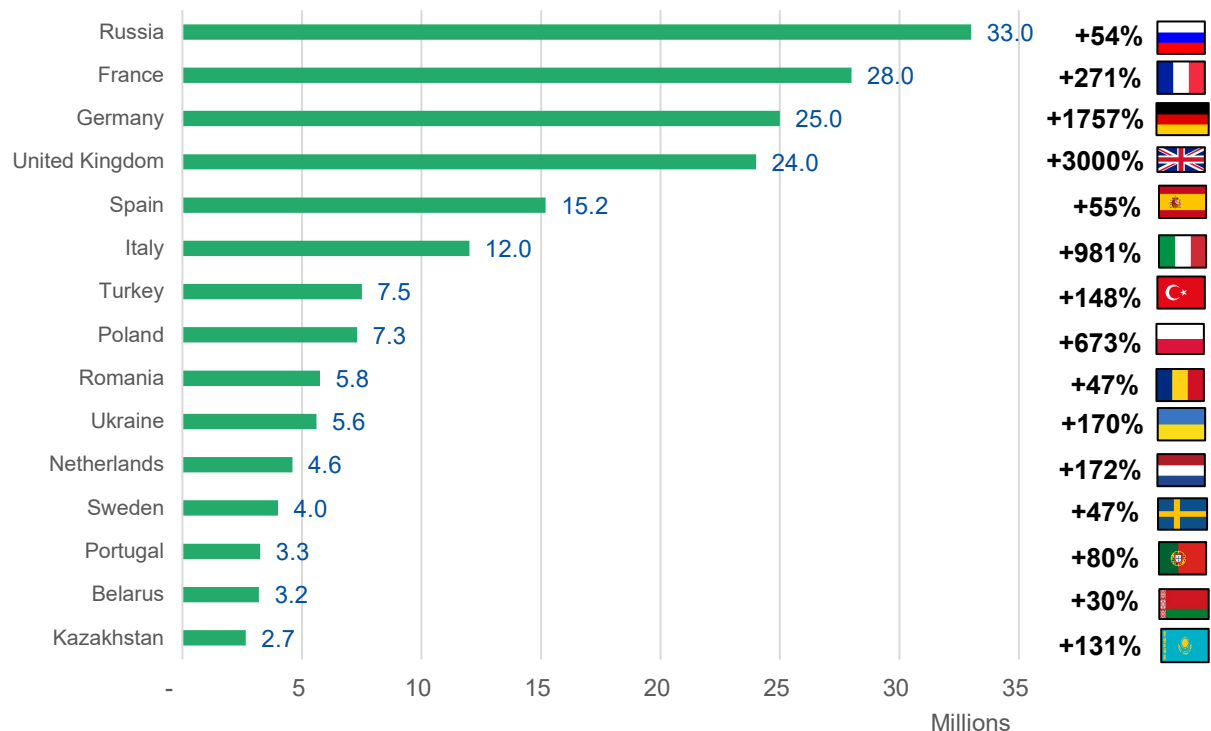
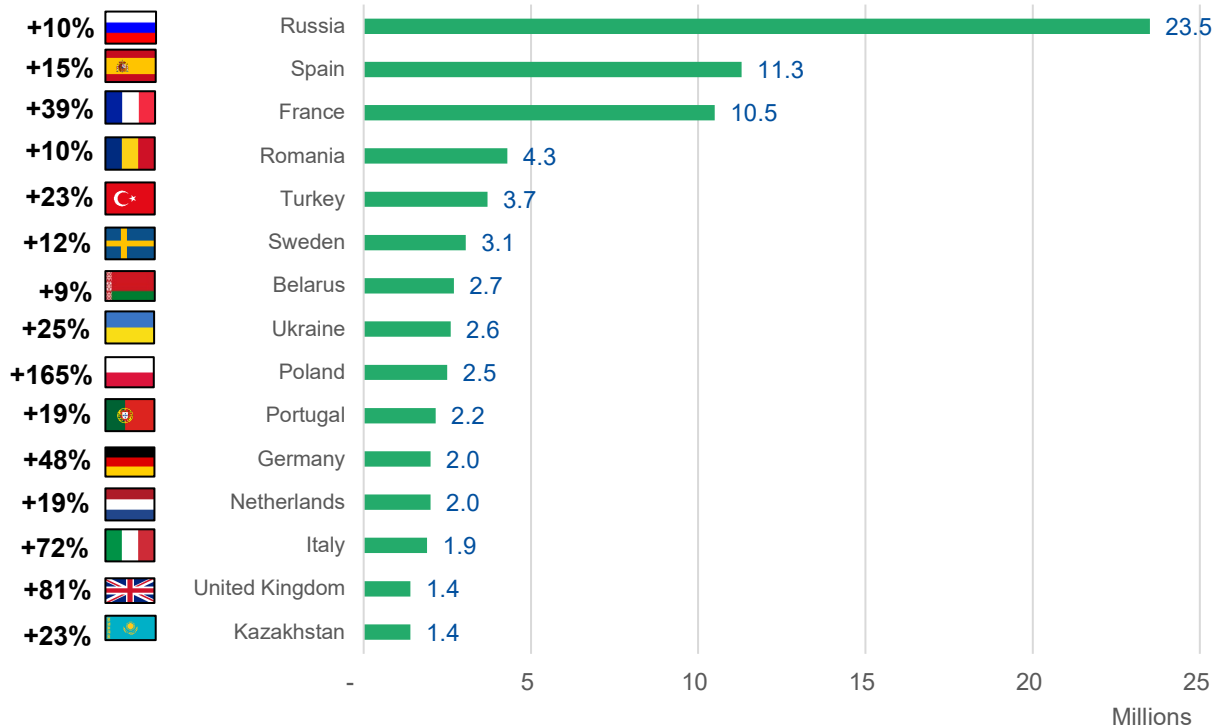
% Evolution
2019 / 2020

2020 Forecasts

2026 Forecasts
EU28 : ~148m FTTH Subs.
EU39 : ~208m FTTH Subs.

2026 Forecasts

% Evolution
2019 / 2026



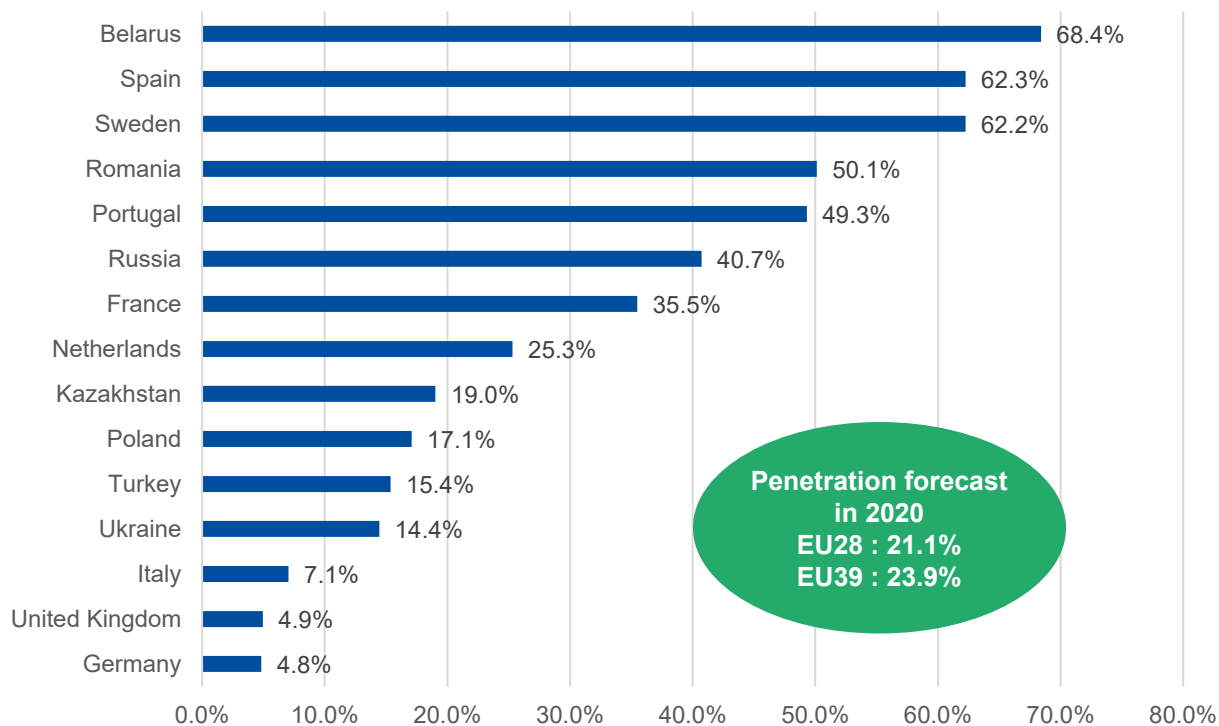
Source: IDATE for FTTH Council EUROPE

Top 15 Countries by FTTH/B Household penetration

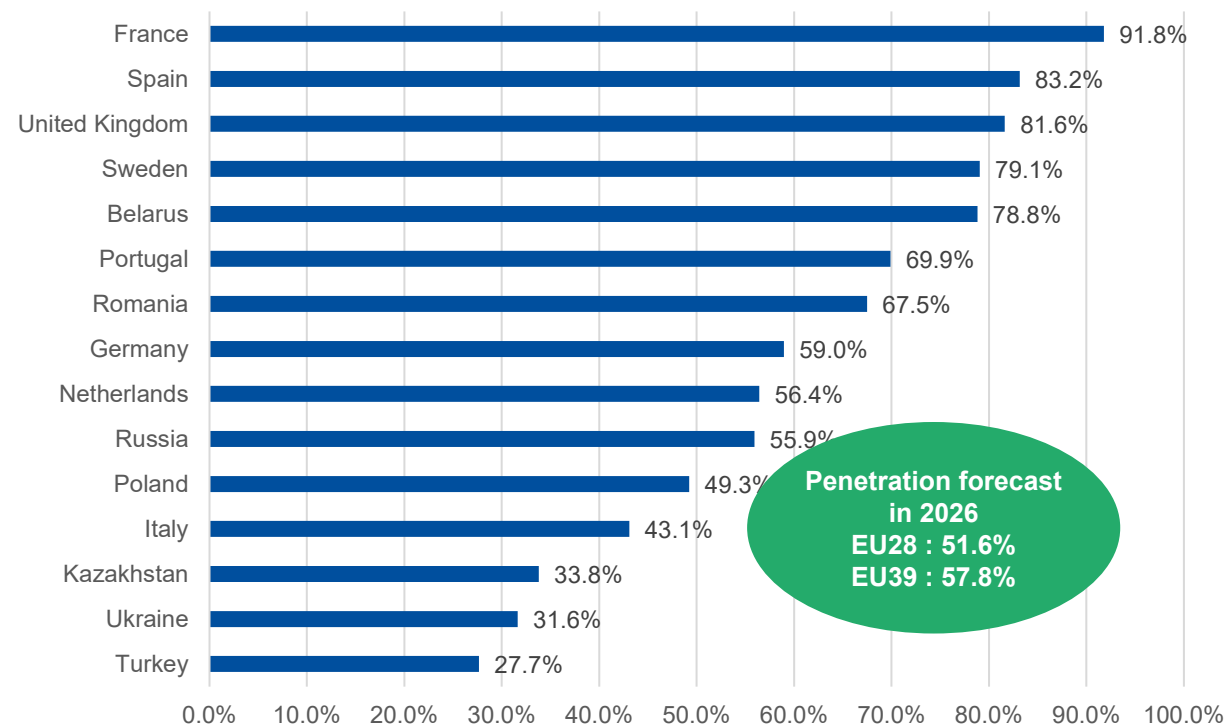
European ranking in terms of FTTH/B Household penetration

FTTH/B Subscriptions / Households (in %)

2020 Forecasts



2026 Forecasts



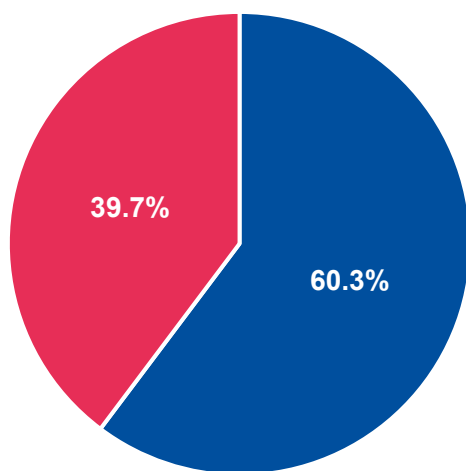
Source: IDATE for FTTH Council EUROPE

FTTH Architecture & Technology trends

FTTH / FTTB architecture

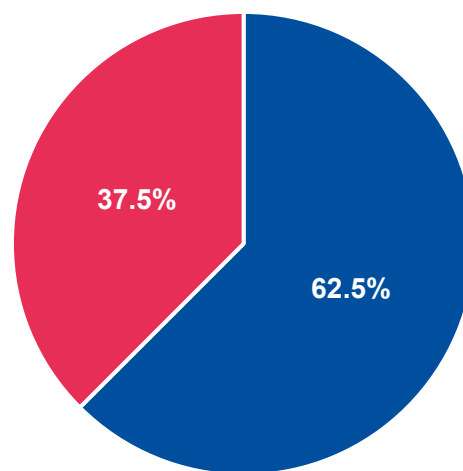
Positive FTTH evolution : Fibre closer to end-users by 2026

FTTH/B at Sept. 2019



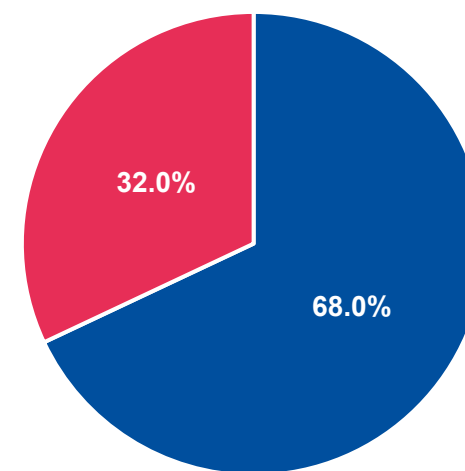
■ FTTH ■ FTTB

2021 Forecasts



■ FTTH ■ FTTB

2026 Forecasts



■ FTTH ■ FTTB

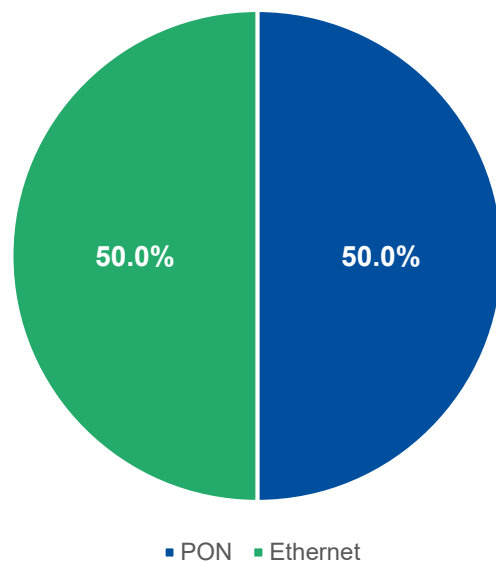
Source: IDATE for FTTH Council EUROPE

FTTH Architecture & Technology trends

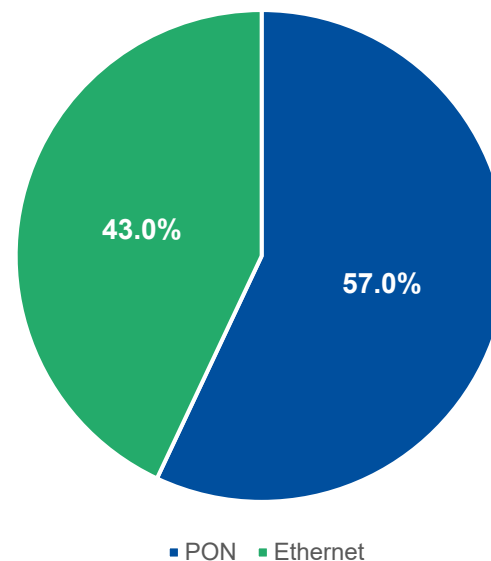
PON / Ethernet

PON solutions will continue to be predominant in the coming years

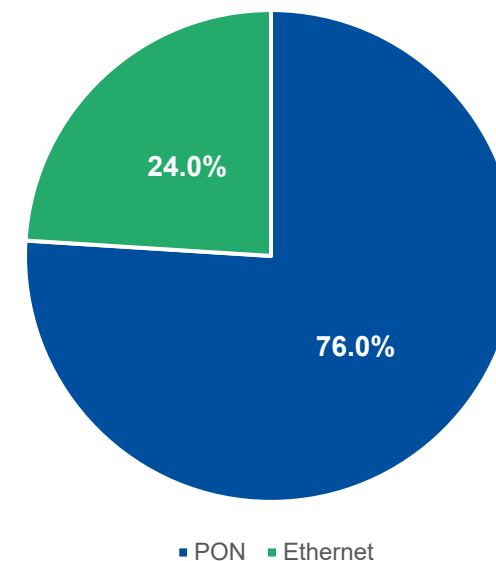
PON/Ethernet ratio at
Sept. 2019



2021 Forecasts

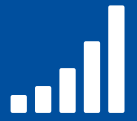


2026 Forecasts



Source: IDATE for FTTH Council EUROPE

Key conclusions



GROWTH

- COVID-19 crisis has impacted on data traffic and new broadband demand. Certainly it is confirmed in 2020 that major players are moving towards full fibre solutions and now they have set goals and actions to expand FTTH solutions in the coming years. It includes migration from their existing copper-based and cable-based networks (e.g. BT in UK / Orange / Telefonica).
- Goals and public funds have been announced from governments in order to deploy FTTH/B sockets throughout Europe, in special in rural areas.
- A new digital gap for teleworking performance is now present.



BUSINESS
EVOLUTION

- Alternative operators are arising in areas not covered by major FTTH/B players. This is promoting competition and diversifying the digital market with new actors in white areas.
- Agreements to deploy or to share FTTH services between private players, utilities companies and local authorities are evolving towards a convergent portfolio where different services can be provided using the same infrastructure (telecom services, smart cities solutions and utilities)



TECHNO-
SYMBIOSIS

- 5G needs a fibre-based infrastructure. Many mobile operators are taking advantage to also expand its fibre footprint and to provide full fibre services to end-users.
- Cable-based and copper-based ISPs have started to diversify its core technologies towards fibre. The service portfolio to their customers now includes a set of different technology that best suit customer demands.

Realities moving post COVID-19 first wave

- FTTH Deployments in Europe continue to be resilient, during and post COVID-19
- 2020 – Homes Passed growth impacted negatively by 10% across Europe in Q3/Q4 2020*
- Subscribers growth increase significantly during this period (+5.6%)

Net adds – EU27+UK

- **2020:** 1.1M / (+4%) subscriber growth by end 2020.
- **2021:** 3.4M FTTH/B estimated subscriptions (+5.8%) and +1.1M FTTH/B Homes Passed (+0.9%).
- **2026:** 18.3M FTTH/B estimated subscriptions (+14.2%) and +17.4M FTTH/B Homes Passed (+9.5%).

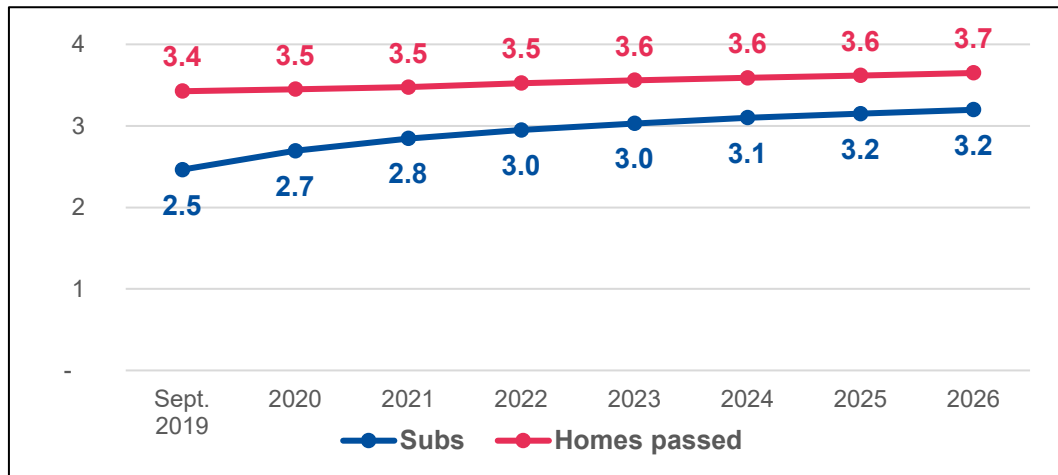
Net adds – EU38+UK

- **2020:** 2.2M / (+2.6%) subscriber growth by end 2020
- **2021:** 6.1M FTTH/B estimated subscriptions and (+8.9%) +6.6M FTTH/B Homes Passed (+3.1%).
- **2026:** 22.4M FTTH/B estimated subscriptions (+12.2%) and +21.3M FTTH/B Homes Passed (+7.2%).

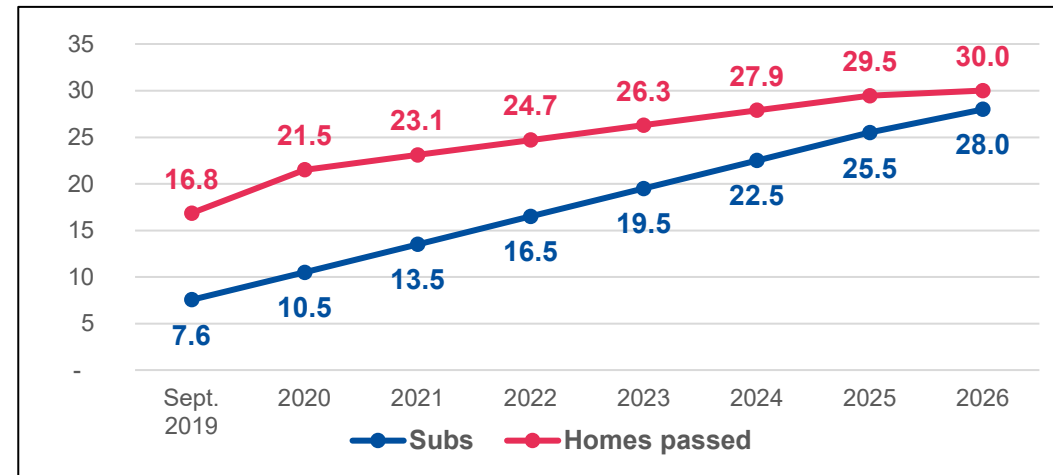
| Appendix

Appendix – FTTH/B Homes Passed/Subscribers YoY (in millions)

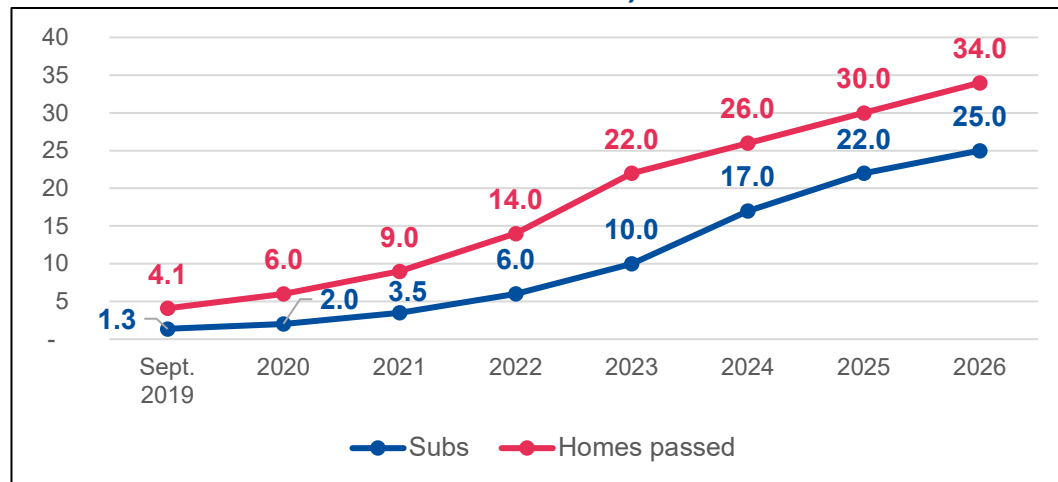
Belarus (87% Coverage / 71% Take-up / 62% Homes connected)



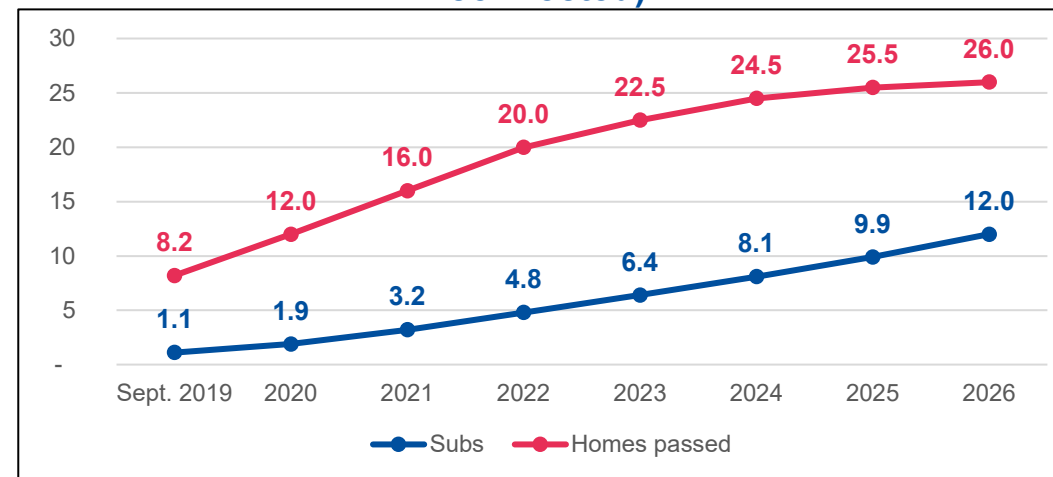
France (57% Coverage / 45% Take-up / 25% Homes connected)



Germany (10% Coverage / 33% Take-up / 3% Homes connected)

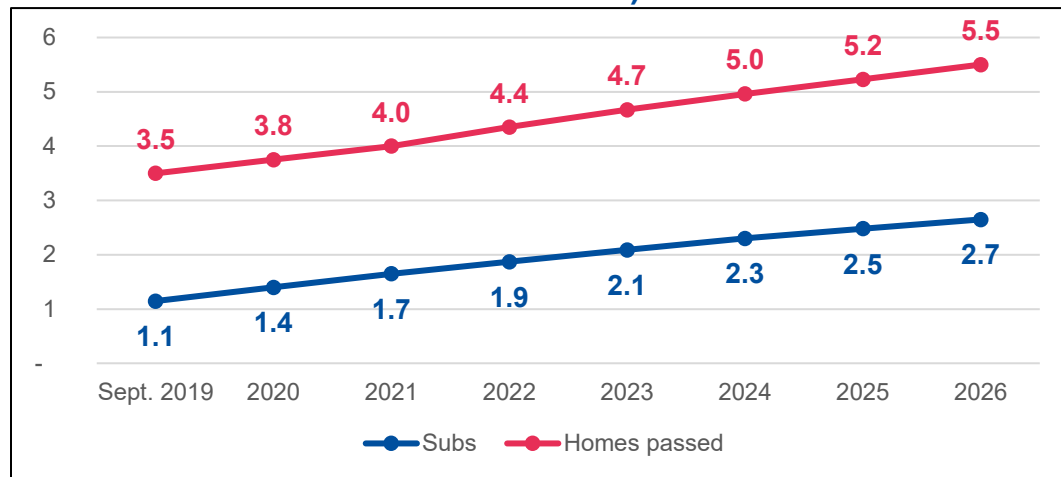


Italy (30% Coverage / 14% Take-up / 4% Homes connected)

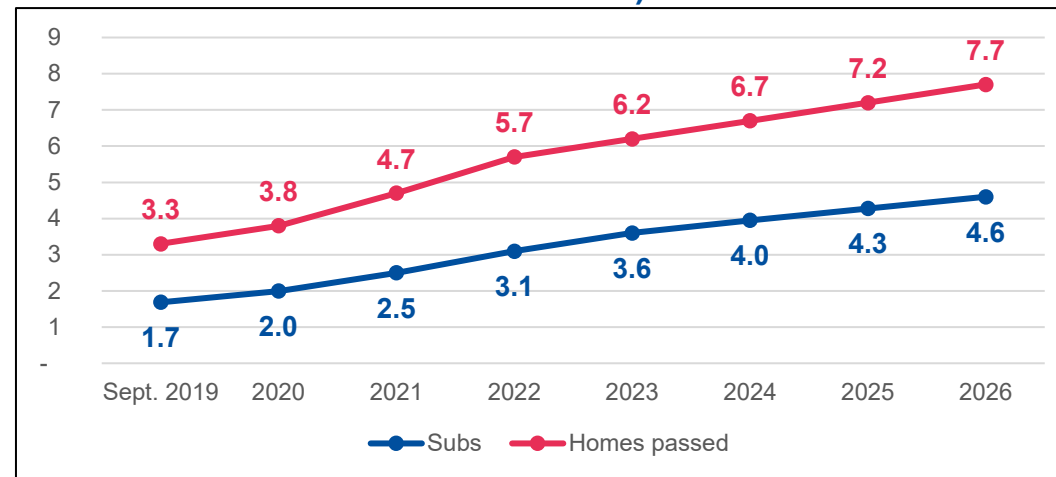


Appendix – FTTH/B Homes Passed/Subscribers YoY (in millions)

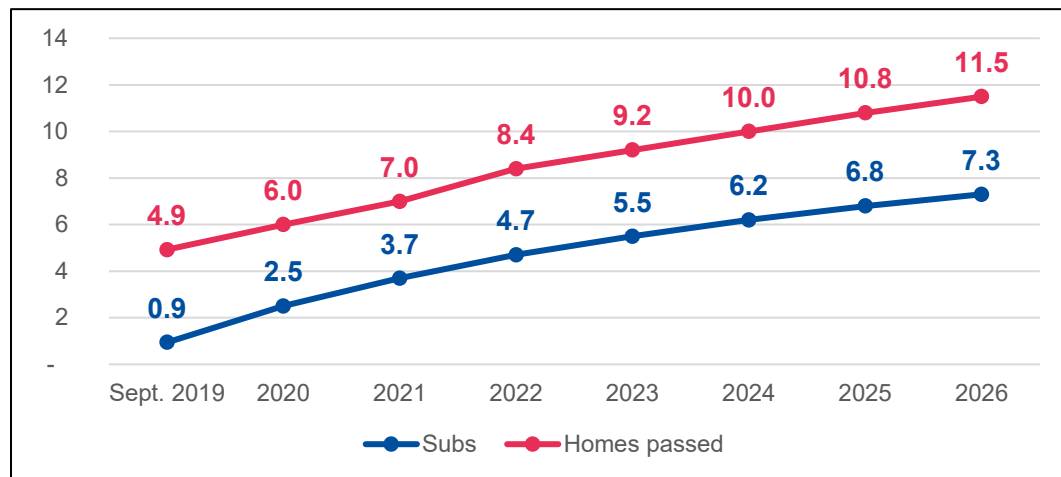
Kazakhstan (48% Coverage / 33% Take-up / 16% Homes Connected)



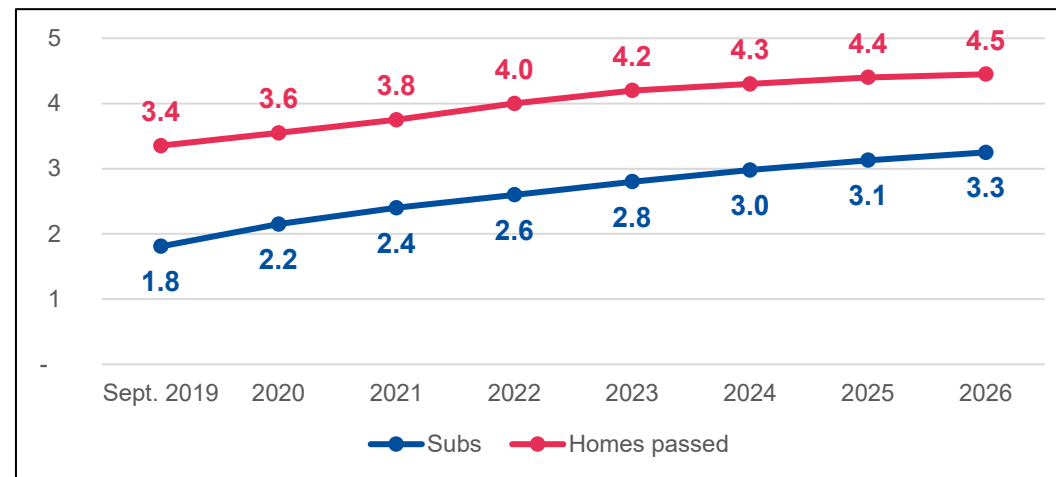
Netherlands (42% Coverage / 51% Take-up / 22% Homes Connected)



Poland (34% Coverage / 19% Take-up / 6% Homes connected)

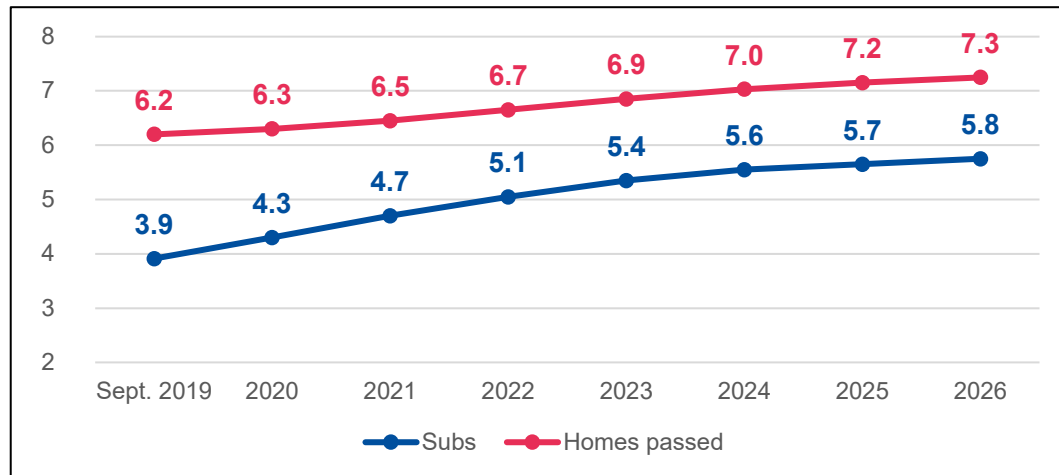


Portugal (78% Coverage / 54% Take-up / 42% Homes connected)

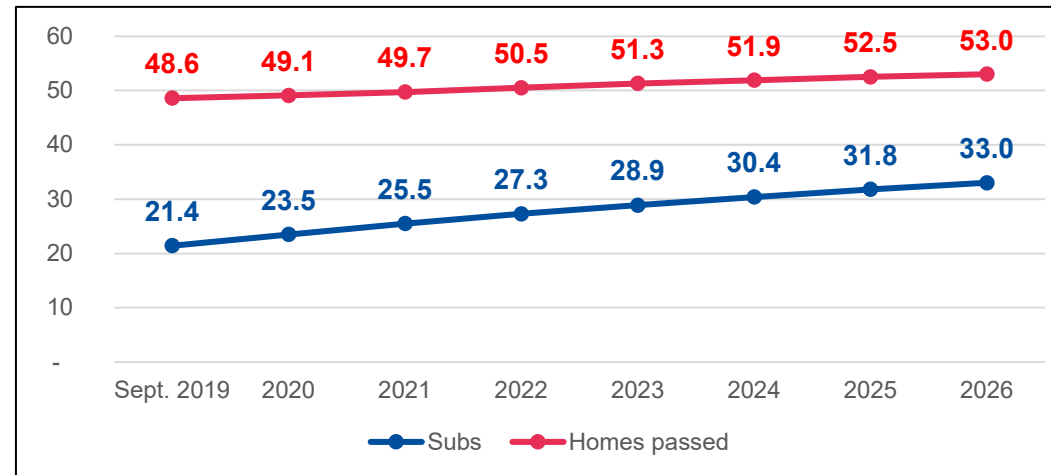


Appendix – FTTH/B Homes Passed/Subscribers YoY (in millions)

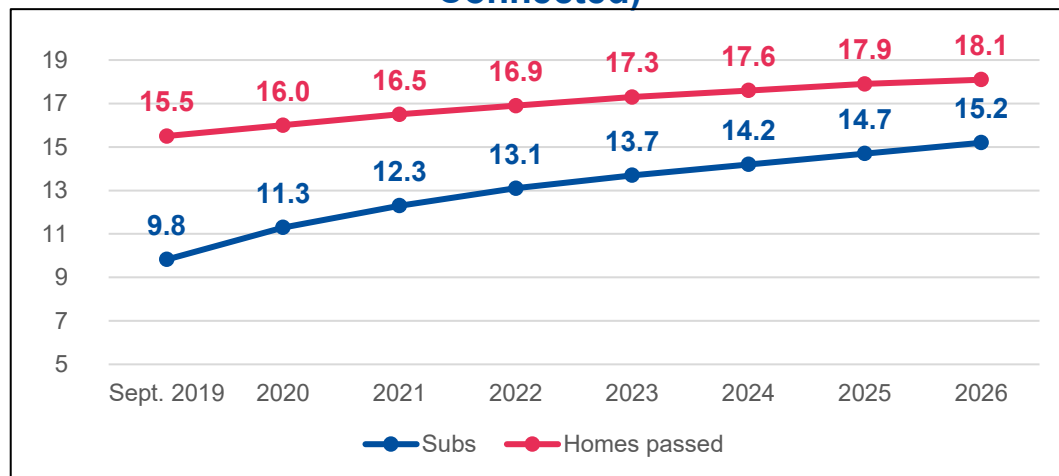
Romania (72% Coverage / 63% Take-up / 45% Homes Connected)



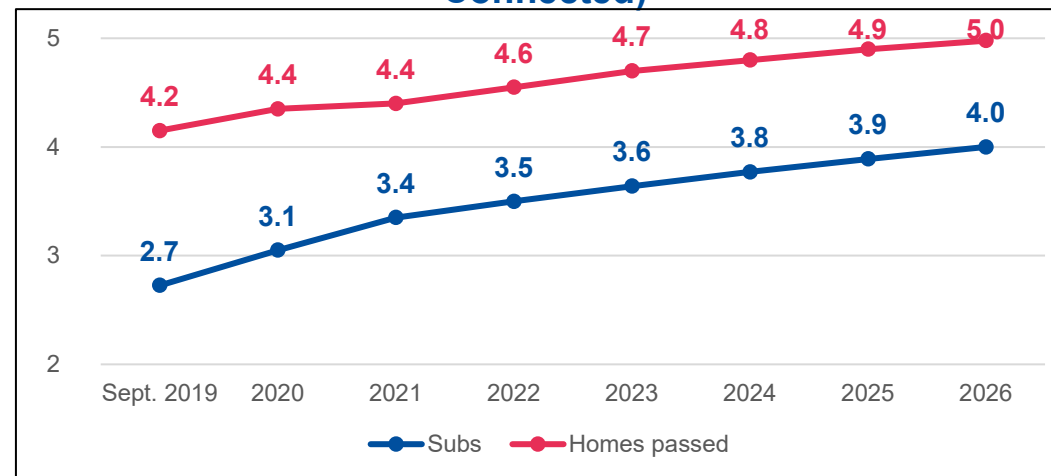
Russia (85% Coverage / 44% Take-up / 37% Homes Connected)



Spain (86% Coverage / 63% Take-up / 54% Homes Connected)

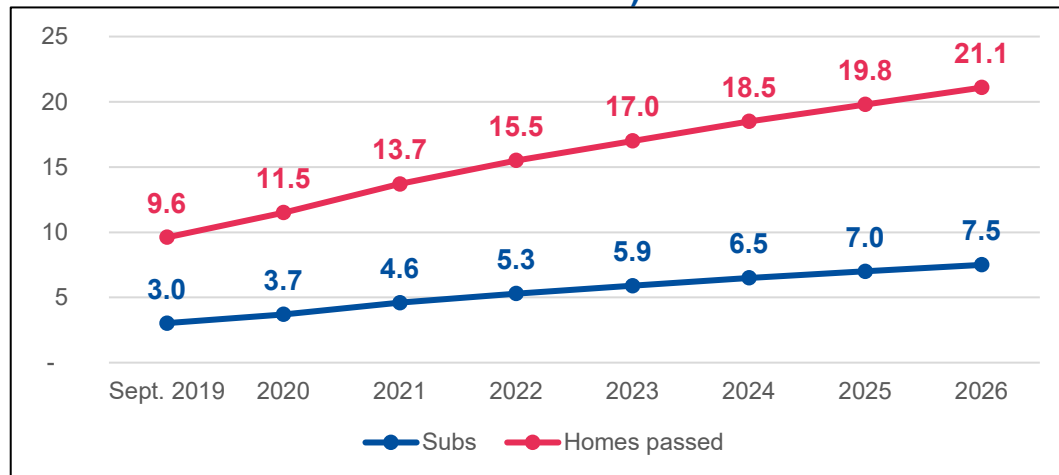


Sweden (87% Coverage / 66% Take-up / 57% Homes Connected)

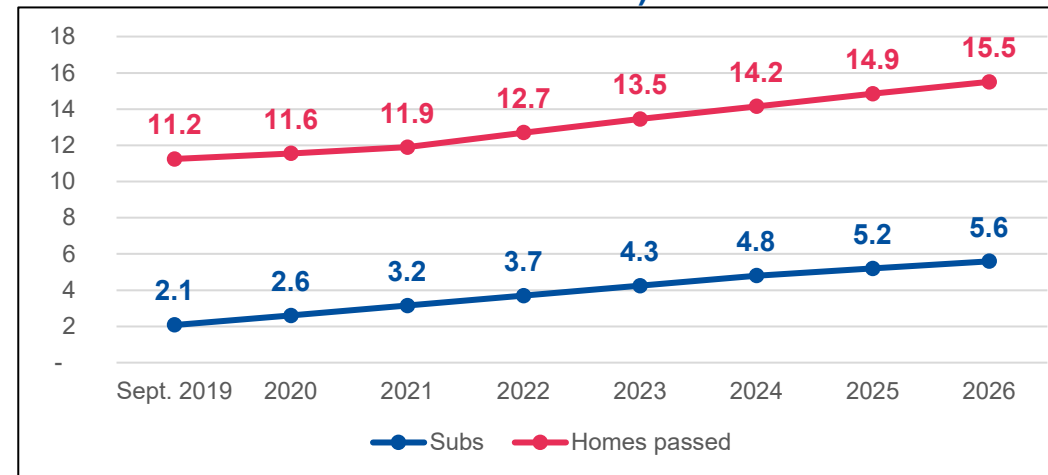


Appendix – FTTH/B Homes Passed/Subscribers YoY (in millions)

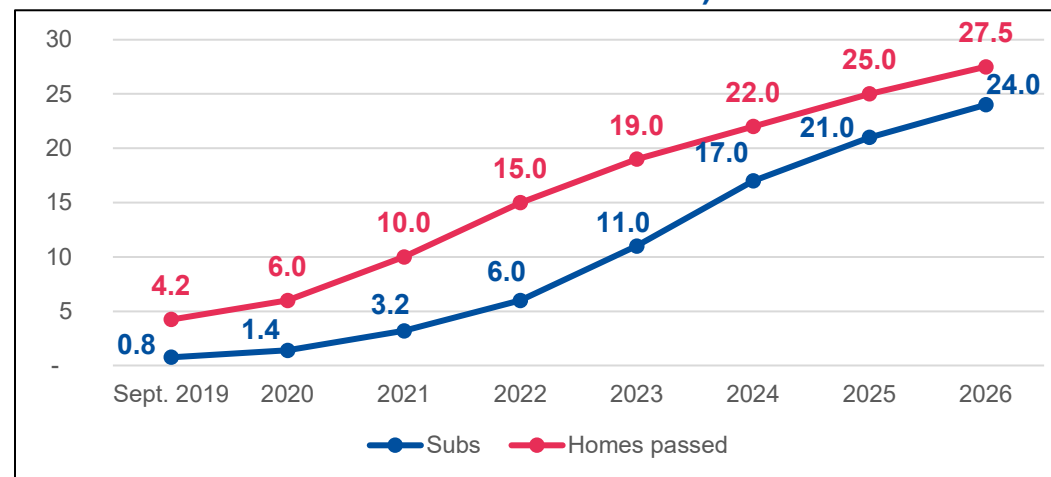
Turkey (41% Coverage / 31% Take-up / 13% Homes Connected)



Ukraine (62% Coverage / 18% Take-up / 11% Homes Connected)

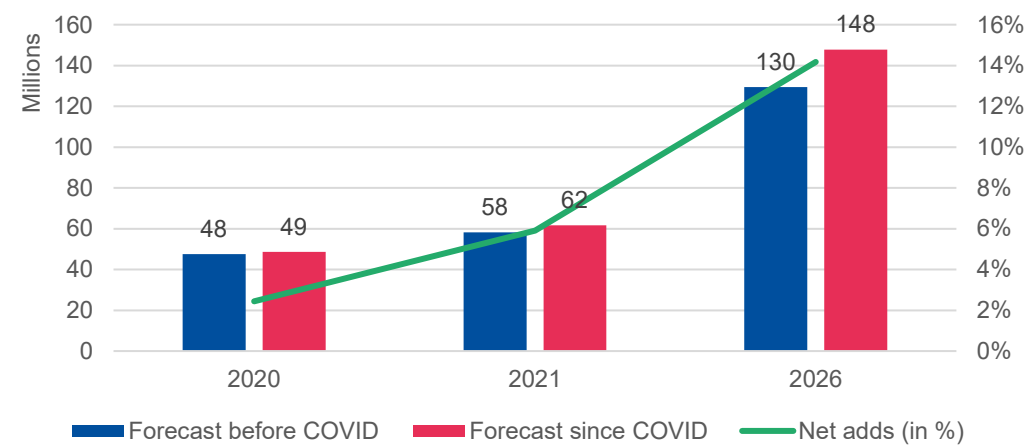


United Kingdom (15% Coverage / 18% Take-up / 2.8% Homes Connected)

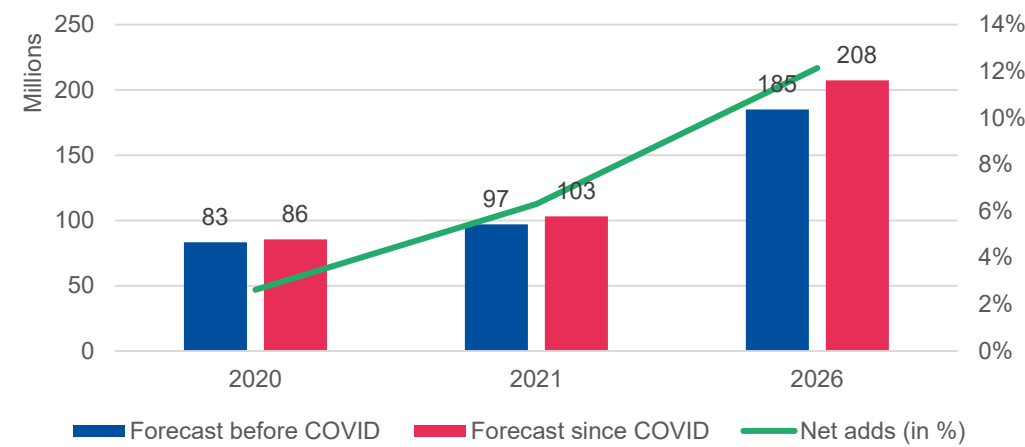


Appendix – FTTH/B Forecast 2020-2026: Comparison before/after COVID 1st Wave

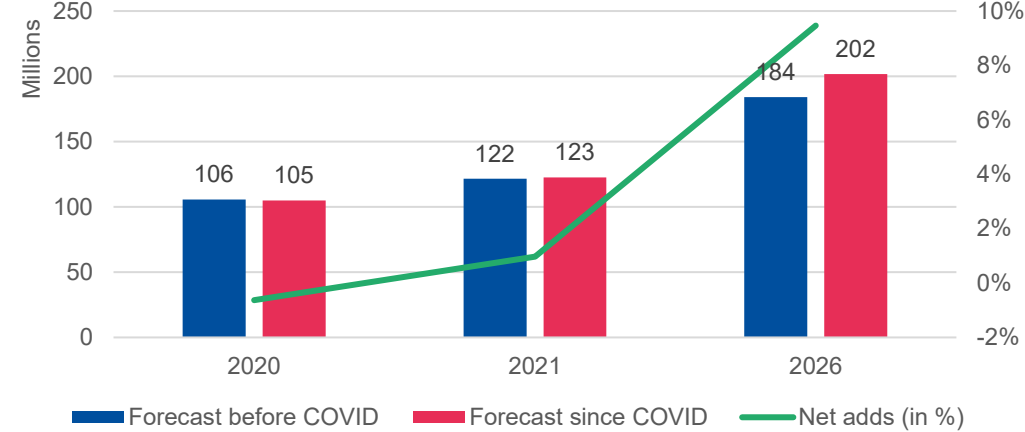
EU-27+UK FTTH/B Subscribers



EU-38+UK FTTH/B Subscribers



EU-27+UK FTTH/B Homes Passed



EU-38+UK FTTH/B Homes Passed

