

FTTH/B Market Panorama in Europe

FTTH Council EUROPE



**Fibre
to the
Home**
Council
Europe



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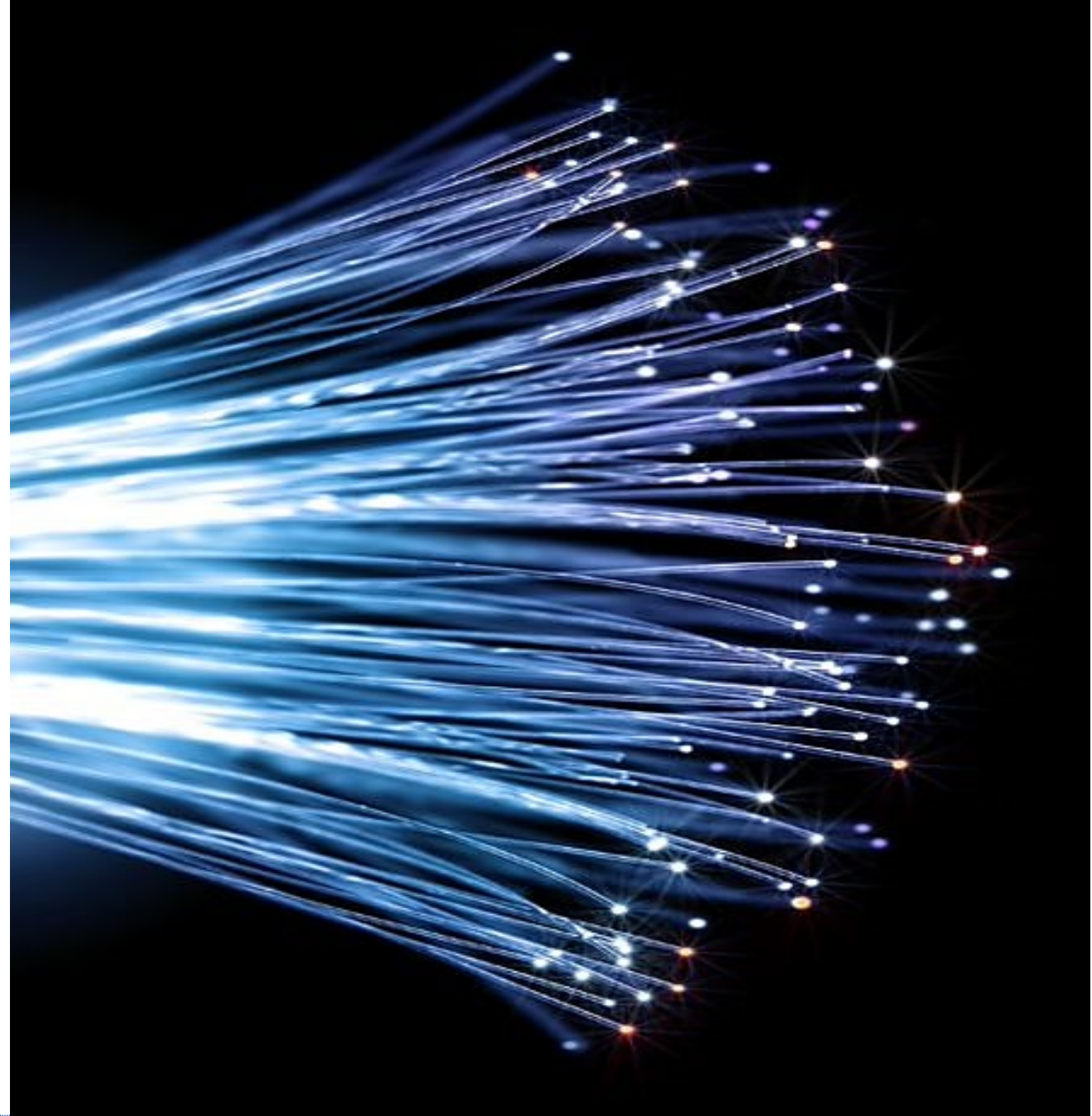
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Agenda

1. Study Background
2. General overview and main trends
3. Who is leading the race towards full-fibre ?
4. European Ranking - September 2020
5. Key conclusions
6. Appendix

| 1

Study Background



Methodology

- Mission on behalf of the **FTTH Council Europe**
- Provide a complete summary of the status of FTTH/B in Europe measured during **September 2020**



Important Definitions

Homes Passed

Potential number of Premises which a Service Provider has capability to connect to an FTTH/FTTB network in a service area. This definition excludes premises that cannot be connected without further installation of substantial fibre plant to reach the subscriber's location.

Sockets

Connection point of a single fibre service provider inside/outside a premises. Possibility to have multiple sockets if the location is serviced by multiple FTTH network operators in either coordinated or competitive overbuild situations.

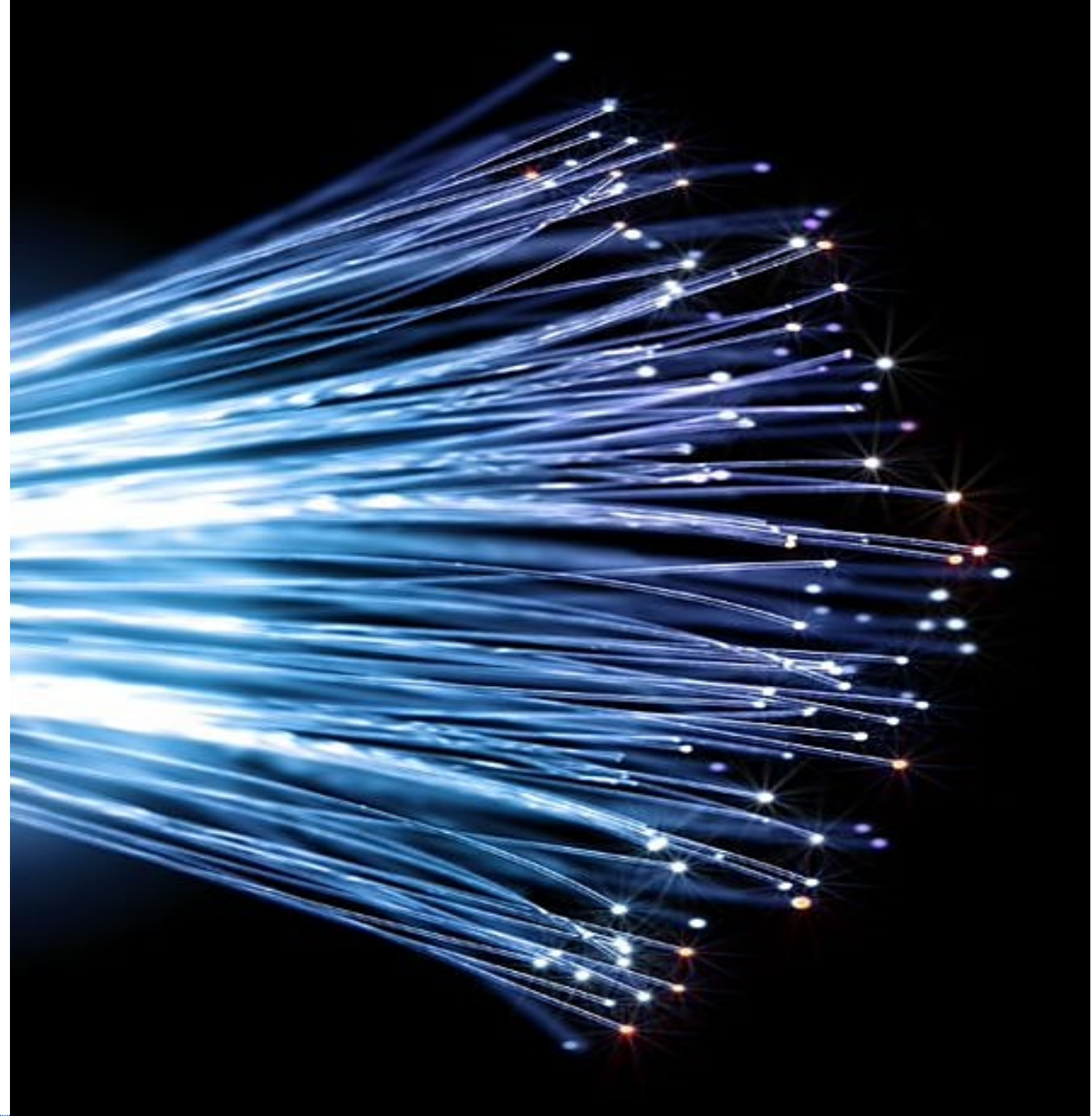
Subscribers

Premises which are connected to a network and are already subscribed

2

FTTH/B Market Panorama

General overview &
Main trends



FTTH/B Market Panorama

Key Figures

FTTH/B in EU39* countries
September 2020 Update

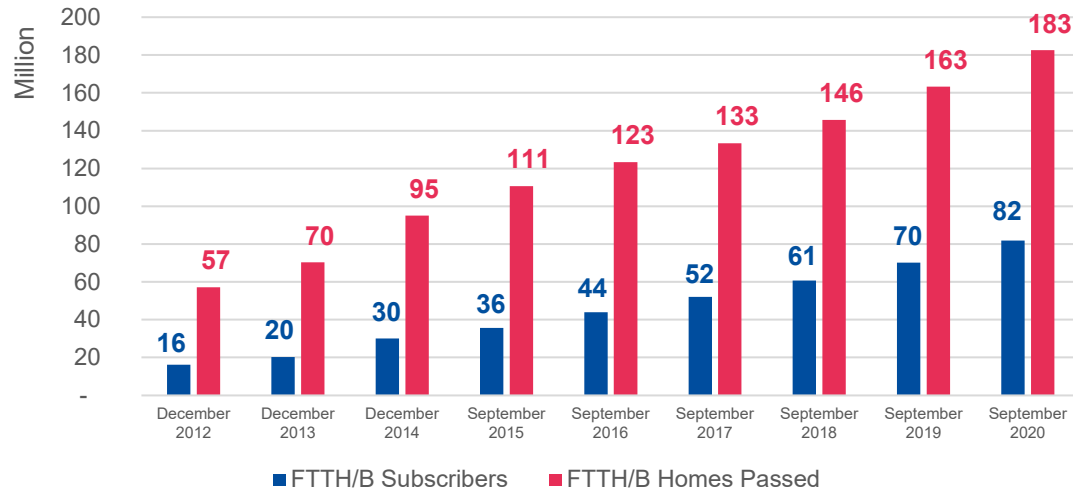
82

million FTTH/B
Subscribers

183

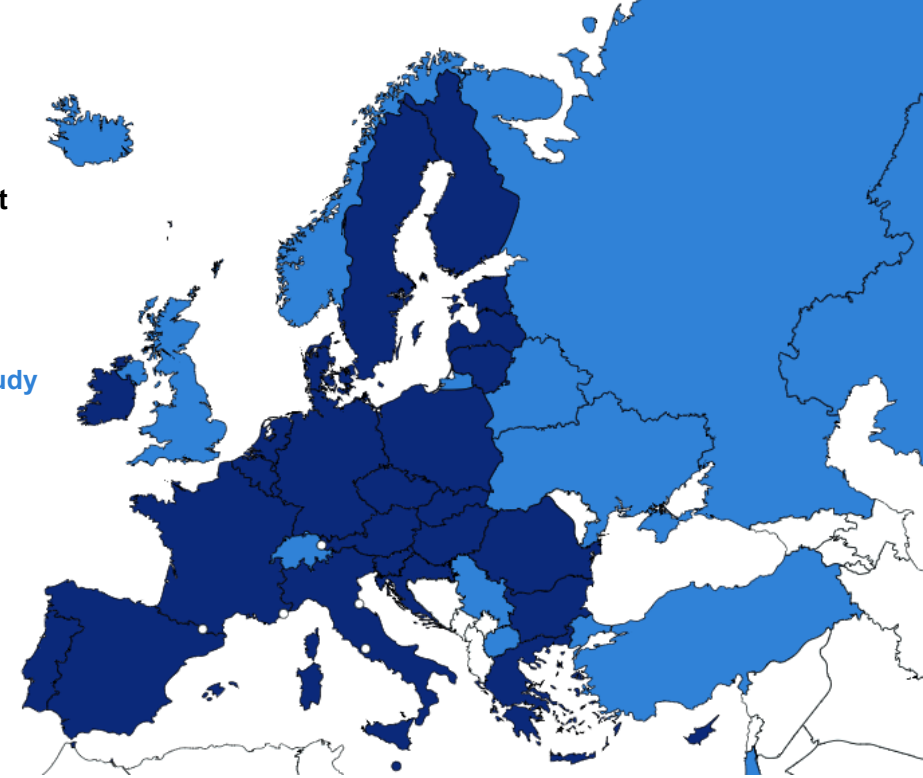
million FTTH/B
Homes Passed

FTTH/B European market evolution (EU39)
In terms of Homes Passed and Subscribers (2012-2020)



Detailed FTTH/B Market Panorama scope

- EU27 countries
- Other European countries under study



Take-up rate
EU27+UK: 46.9% (Up 3.6%)
EU39 : 44.9% (Up 1.9%)

Coverage rate
EU27+UK: 43.8% (Up 4.4%)
EU39 : 52.5% (Up 2.6%)

* EU39 detailed composition:

- EU27 + United Kingdom
- 4 CIS countries: Belarus, Kazakhstan, Russia, Ukraine
- Iceland, Israel, North Macedonia, Norway, Serbia, Switzerland, Turkey

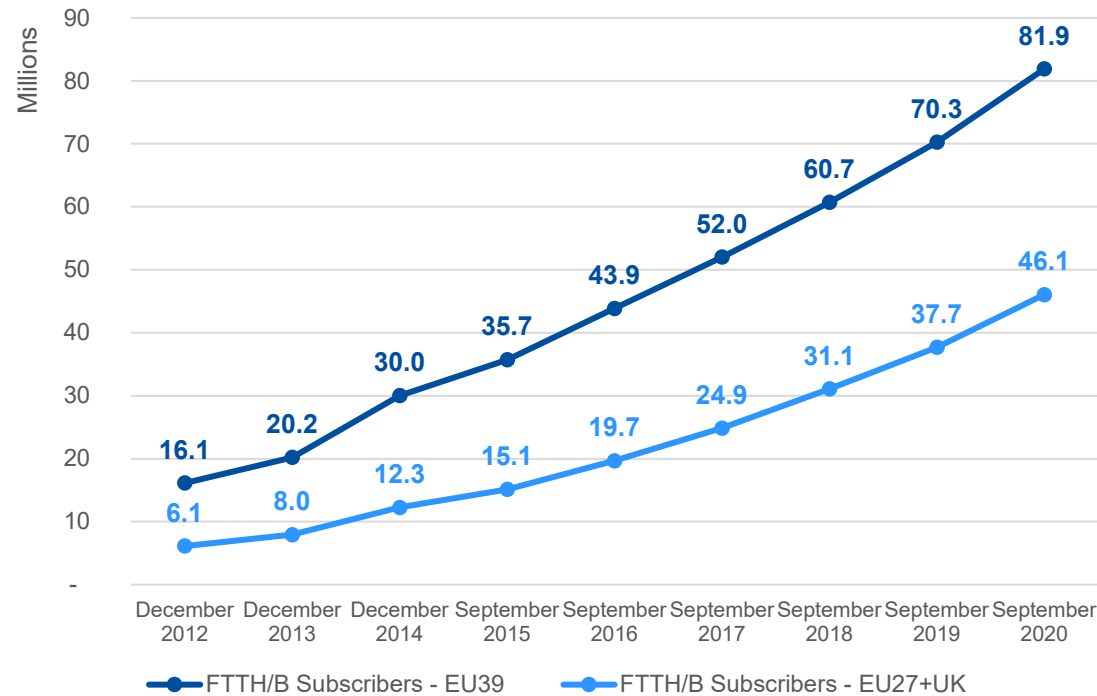
Source: IDATE for FTTH Council EUROPE

FTTH/B Market Panorama

Market trends (EU27+UK vs. EU39)

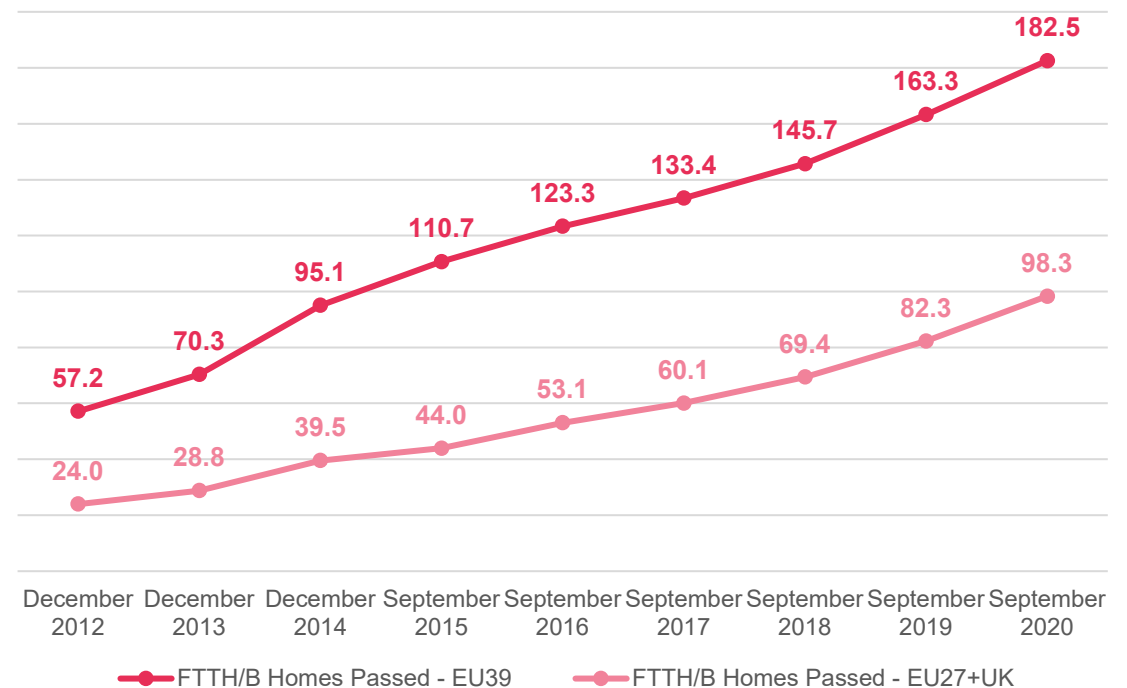
- Teleworking and need for robust connectivity during the pandemic led to increased subscription levels in the whole region (YoY)
- EU27+UK countries account for more than 56% of FTTH/B Subscriptions, an increasing trend over the years (53.7% at Sept 2019)
- With 98.3 million Homes Passed, more than half (54%) of FTTH deployments are performed inside EU27+UK countries (mainly intensified due to COVID19 pandemic)

Evolution of FTTH/B Subscribers (million)
EU27+UK vs EU39 comparison



Source: IDATE for FTTH Council EUROPE

Evolution of FTTH/B Homes Passed (million)
EU27+UK vs EU39 comparison



Source: IDATE for FTTH Council EUROPE

FTTH/B Market Panorama

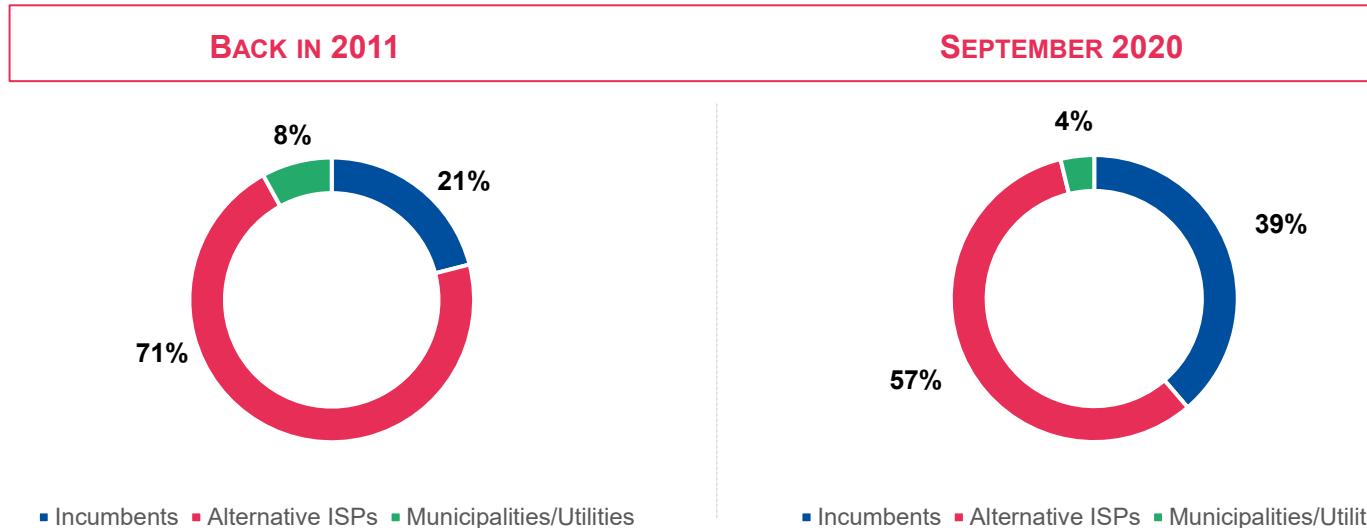
Altnets drive the FTTH race; incumbents progressively redefining their full-fibre strategies

Around 400 FTTH/B initiatives identified in EU39 by **September 2020**

- Reinforced commitment of Altnets towards FTTH expansion (e.g. in UK, Germany)
- Based on share - 39% of Connected Homes are passed by incumbents, versus 41% in 2019 – showing Altnets increasing their market share this year.
- Municipalities/utilities and alternative ISPs cover many remote and isolated areas. Further enhanced with public funds and incentives.

Breakdown of FTTH/B Homes Passed by type of player (%)

Data comparison between Dec. 2011 and Sept. 2020



Source: IDATE for FTTH Council EUROPE

Breakdown in terms of FTTH/B Homes Passed Top 5 European countries

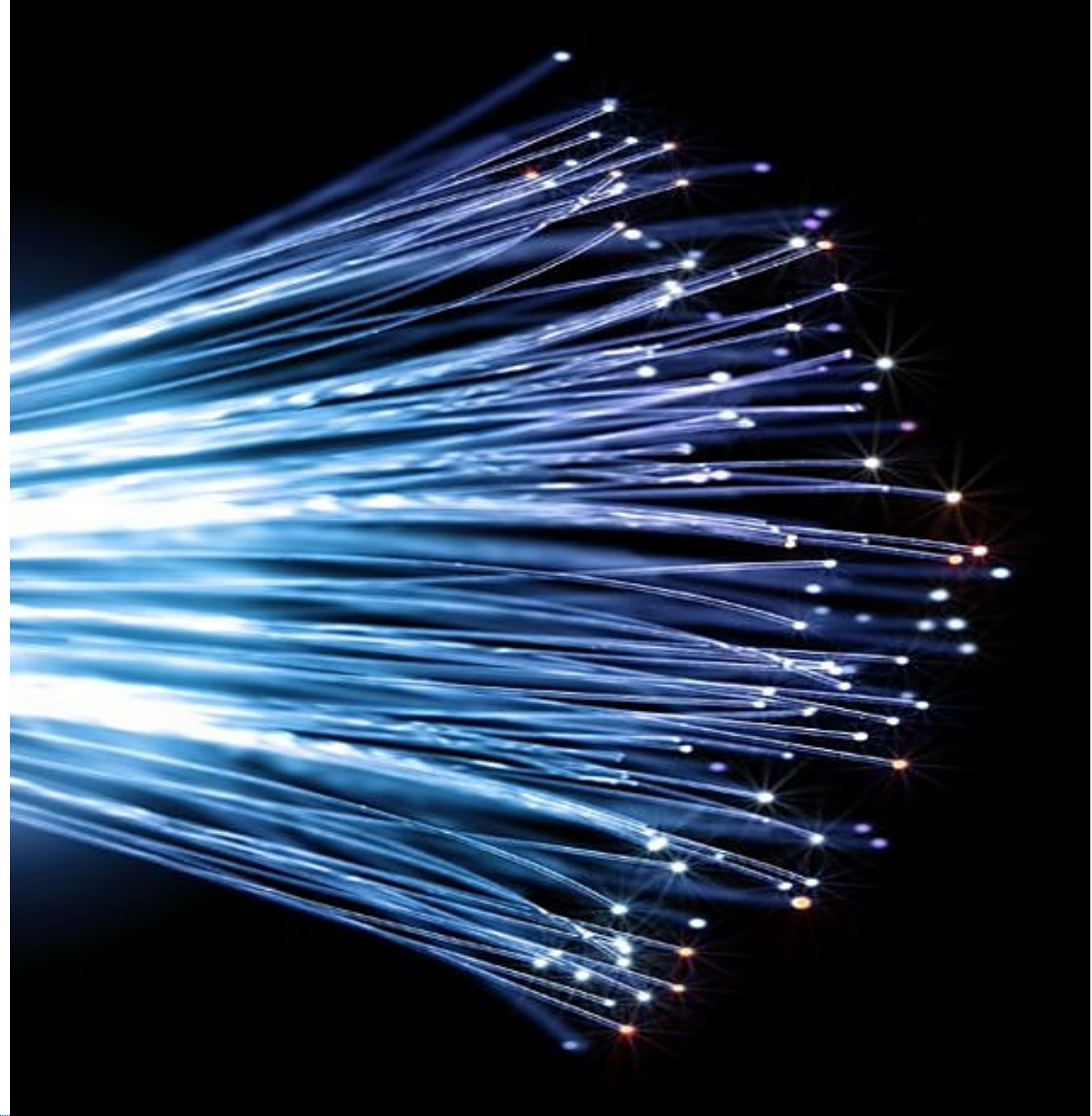


Source: IDATE for FTTH Council EUROPE

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FTTH/B Market Panorama

Who is leading the race
towards full-fibre ?

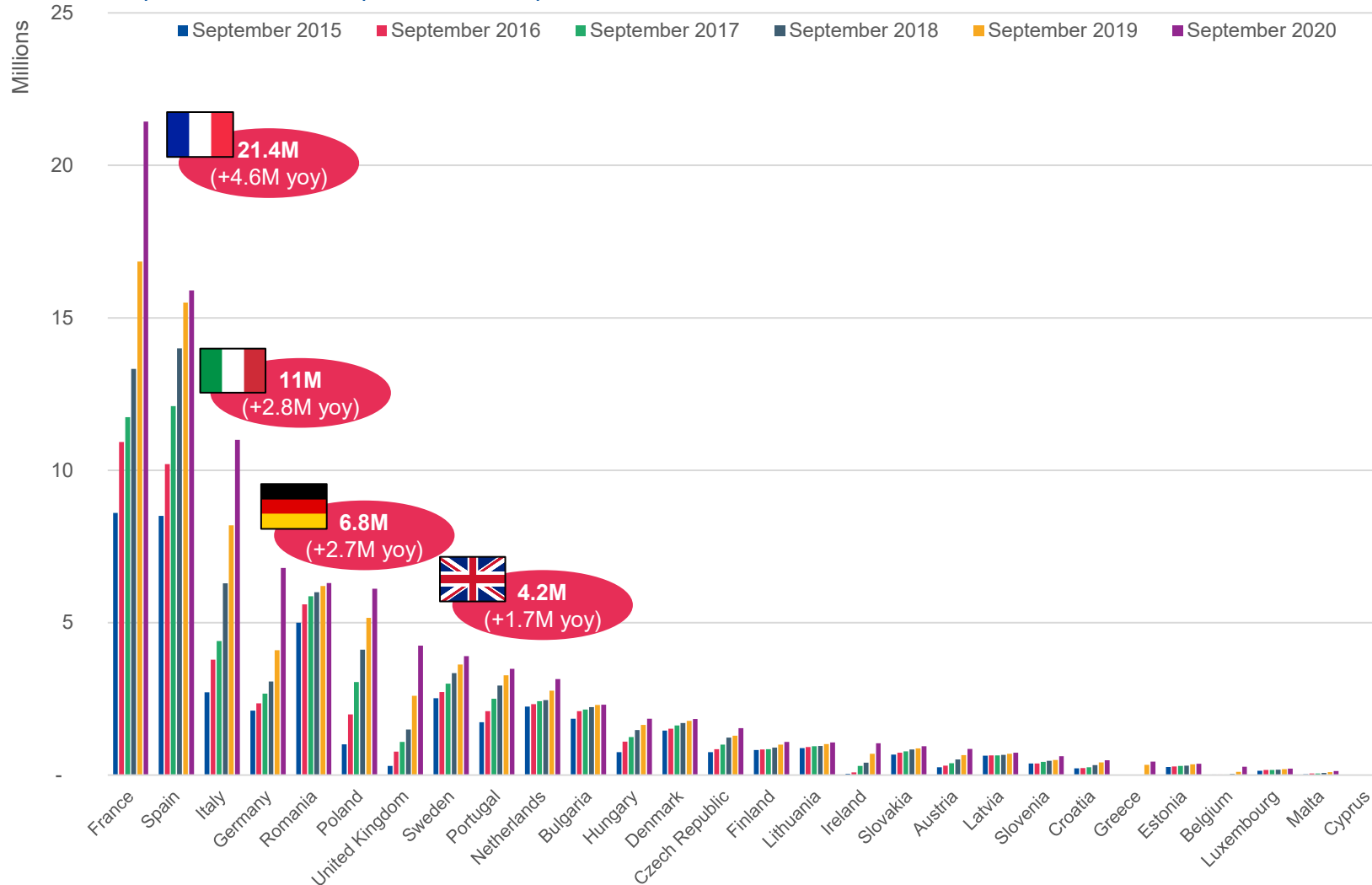


FTTH/B Homes Passed

EU27+UK Ranking

EU27+UK ranking in terms of FTTH/B Homes passed over time (in million homes)

Data comparison between Sept. 2015 and Sept. 2020



5 fastest growing markets in EU27+UK (in both volume and %)

Data from Sept. 2019 to Sept. 2020 (in terms of FTTH/B Homes Passed)

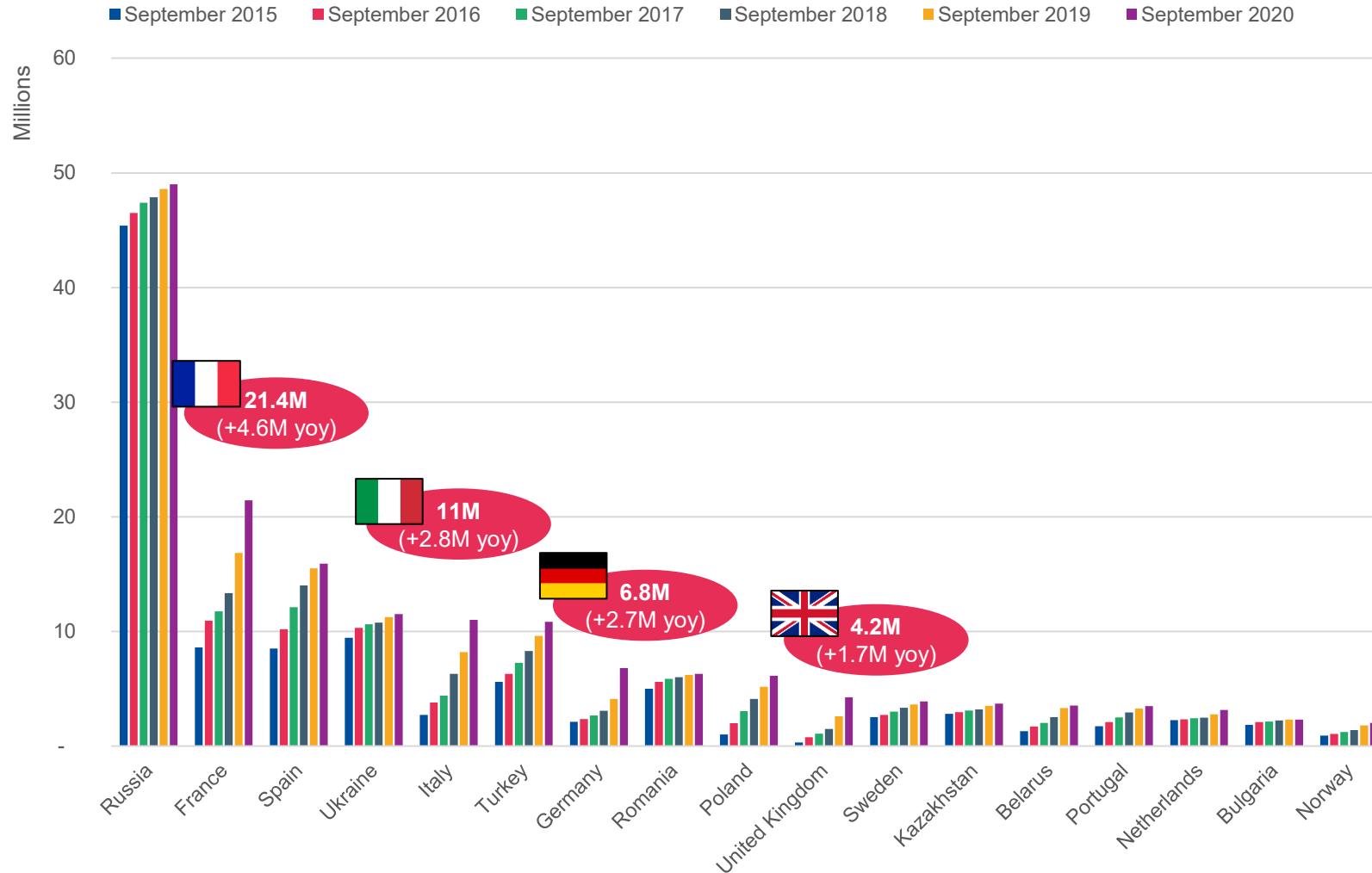


FTTH/B Homes Passed

EU39 Ranking

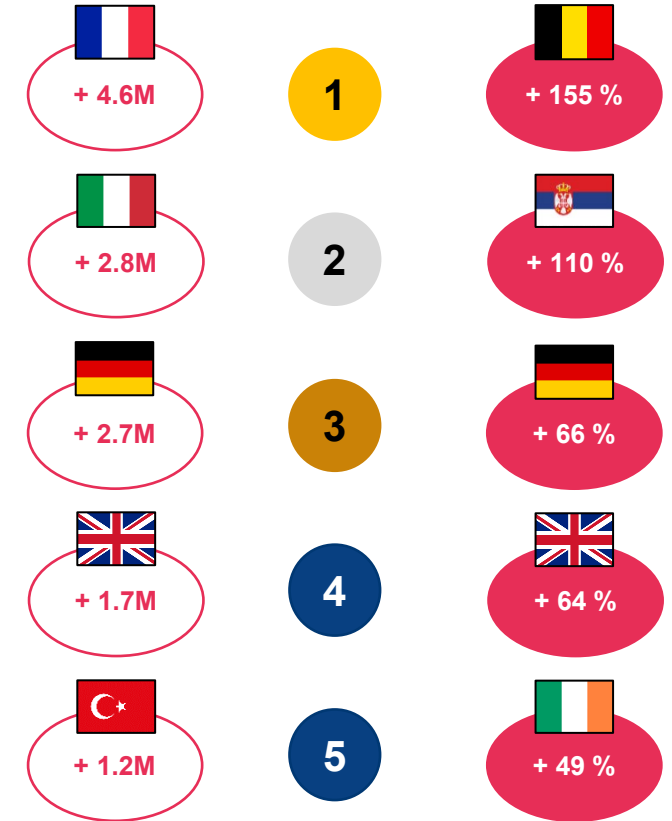
European ranking in terms of FTTH/B Homes passed, countries with > 2 million homes passed

Data comparison between Sept. 2015 and Sept. 2020 (in million homes)



5 fastest growing markets (in both volume and %)

Data from Sept. 2019 to Sept. 2020 (in terms of FTTH/B Homes Passed)

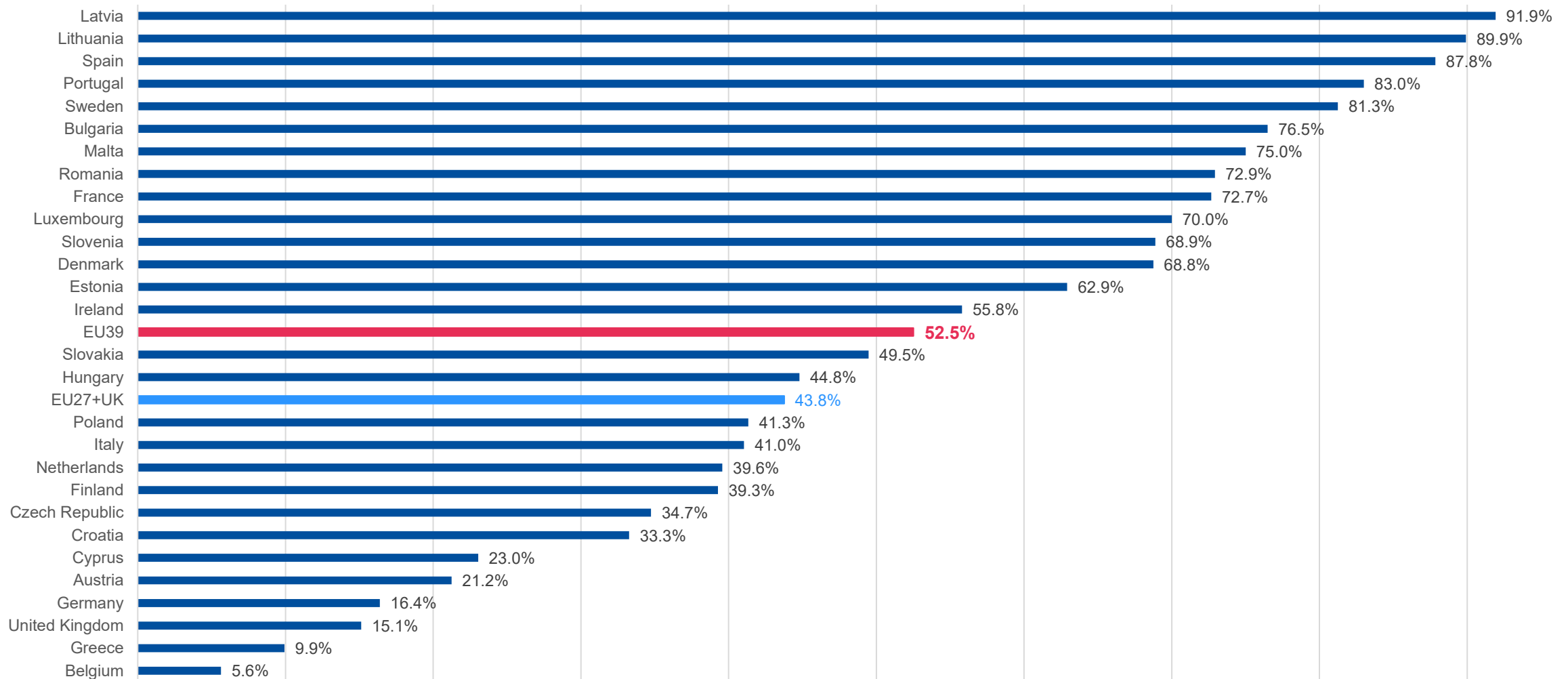


European leaderboards – EU27+UK

Halfway there: EU27+UK – 14/28 Countries now exceeding 50% of total homes passed with Full-fibre!

FTTH/B coverage* in EU27+UK as of September 2020

(* Homes passed / Households)



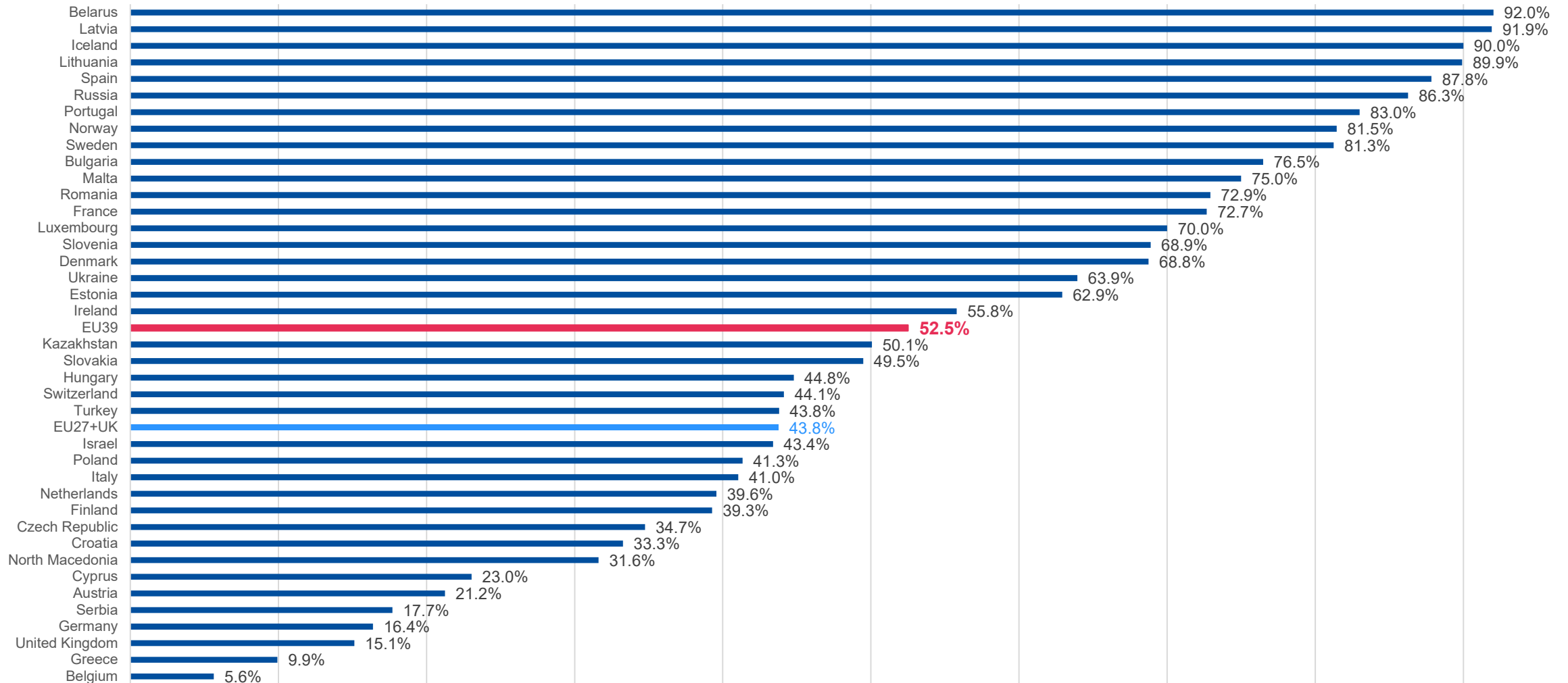
Source: IDATE for FTTH Council EUROPE

European leaderboards – EU39

Halfway there: EU39 – 20 countries now have more than 50% of total homes with Full-fibre!

FTTH/B coverage* as of September 2020

(* Homes passed / Households)



Source: IDATE for FTTH Council EUROPE

FTTH/B Coverage

Summary map

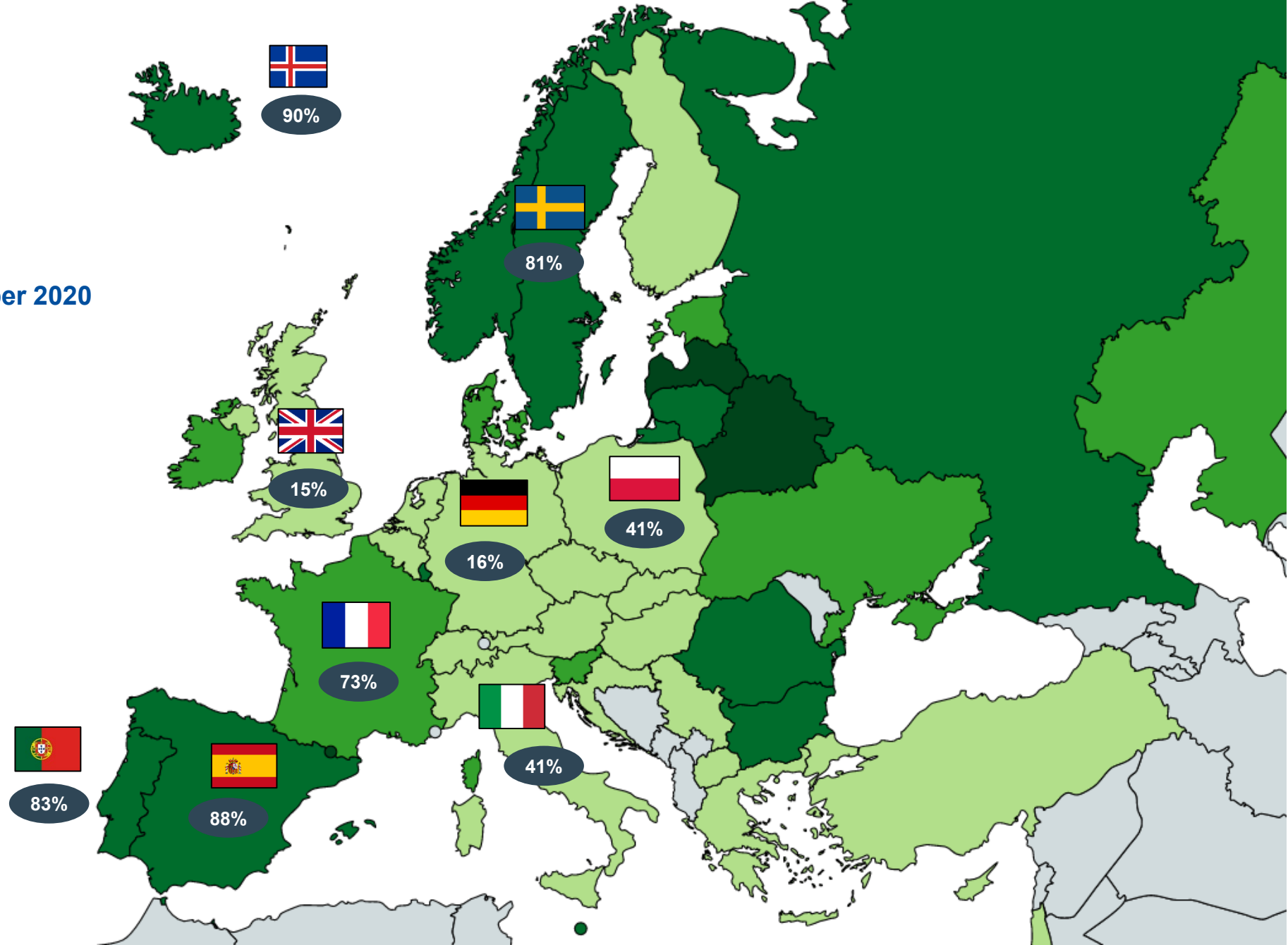
FTTH/B coverage* map - September 2020

(* Homes passed / Households)

- FTTH/B coverage > 90%
- FTTH/B coverage 75 – 90 %
- FTTH/B coverage 50 – 75 %
- FTTH/B coverage < 50 %

Coverage rate

EU27+UK: 43.8% (Up 4.4%)
EU39 : 52.5% (Up 2.6%)

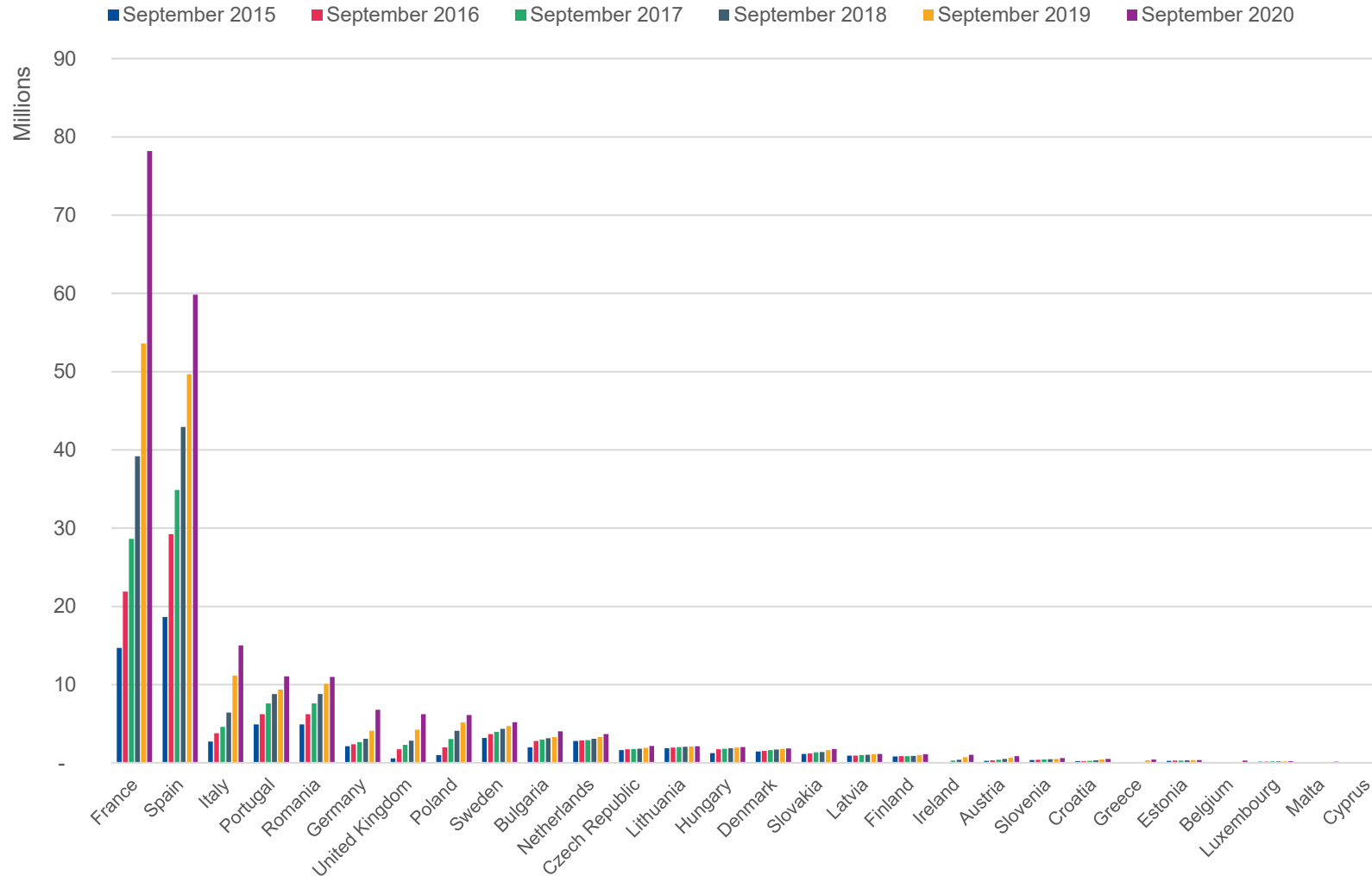


FTTH/B Sockets Deployed*

EU27+UK Ranking

EU27+UK ranking in terms of FTTH/B Sockets deployed over time (in million homes)

Data comparison between Sept. 2015 and Sept. 2020



5 fastest growing markets (in volume and in %)

Data from Sept. 2019 to Sept. 2020 (in terms of FTTH/B Sockets Deployed)



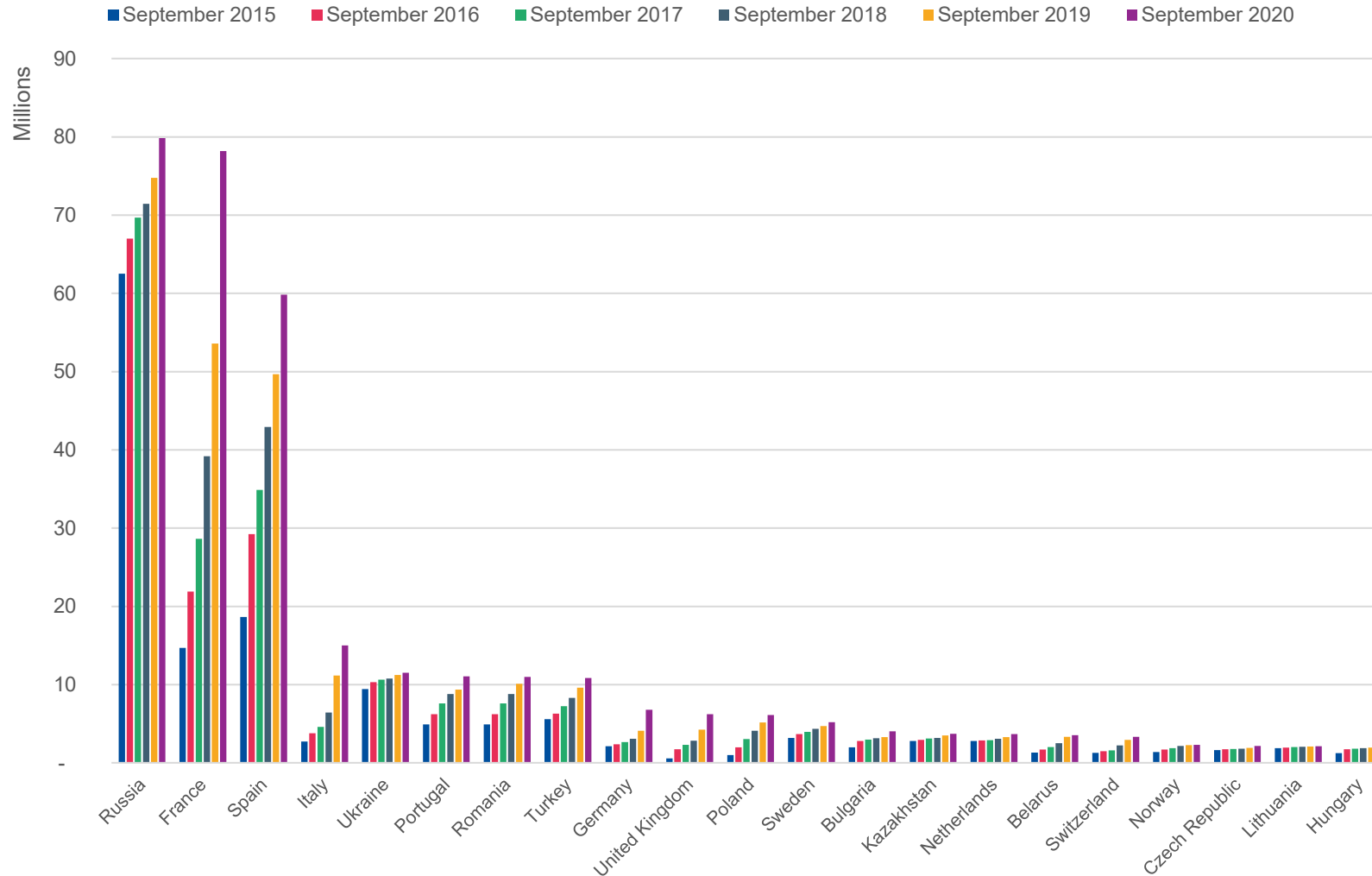
***FTTH/B Sockets Deployed:** The connection point of a single fibre service provider inside/outside a premises. Multiple sockets are counted if the location is serviced by multiple FTTH network operators.

FTTH/B Sockets Deployed*

EU39 Ranking

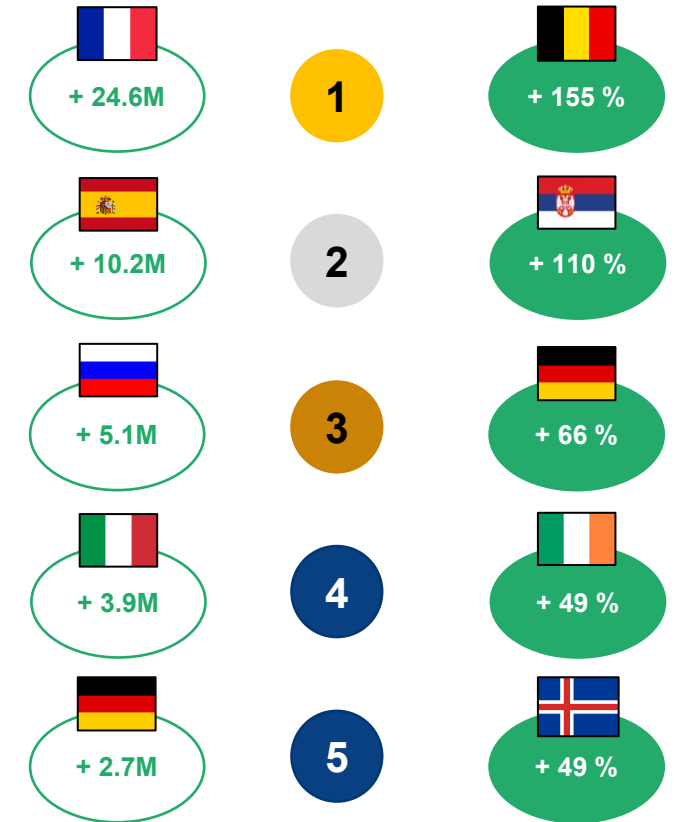
European ranking in terms of FTTH/B Sockets deployed, countries with > 2 million sockets deployed

Data comparison between Sept. 2015 and Sept. 2020 (in million)



5 fastest growing markets (in volume and in %)

Data from Sept. 2019 to Sept. 2020 (in terms of FTTH/B Sockets Deployed)

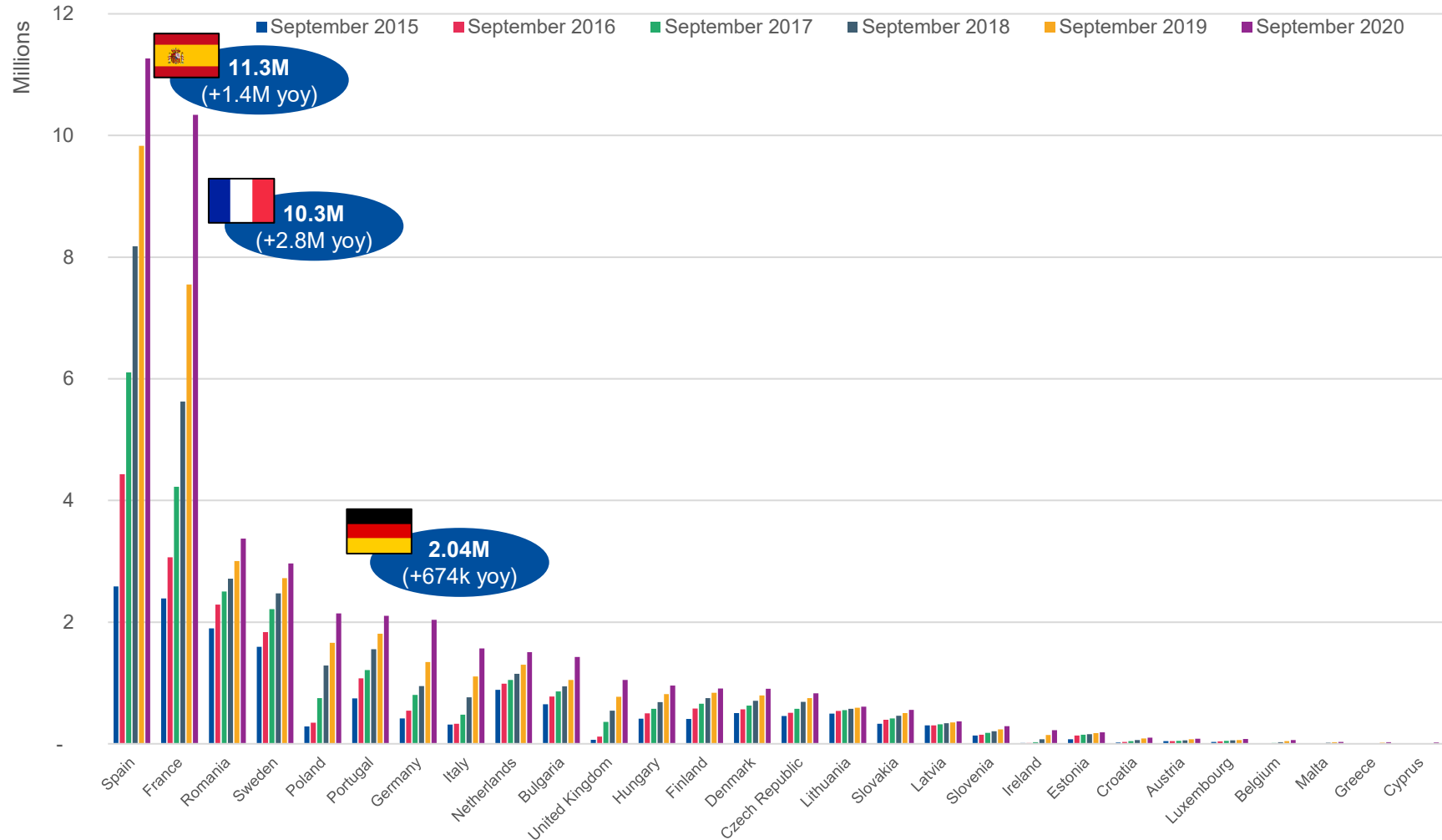


***FTTH/B Sockets Deployed:** The connection point of a single fibre service provider inside/outside a premises. Multiple sockets are counted if the location is serviced by multiple FTTH network operators.

FTTH/B Subscribers

EU27+UK Ranking

EU27+UK ranking in terms of FTTH/B Subscriptions over time (in million homes)
Data comparison between Sept. 2015 and Sept. 2020



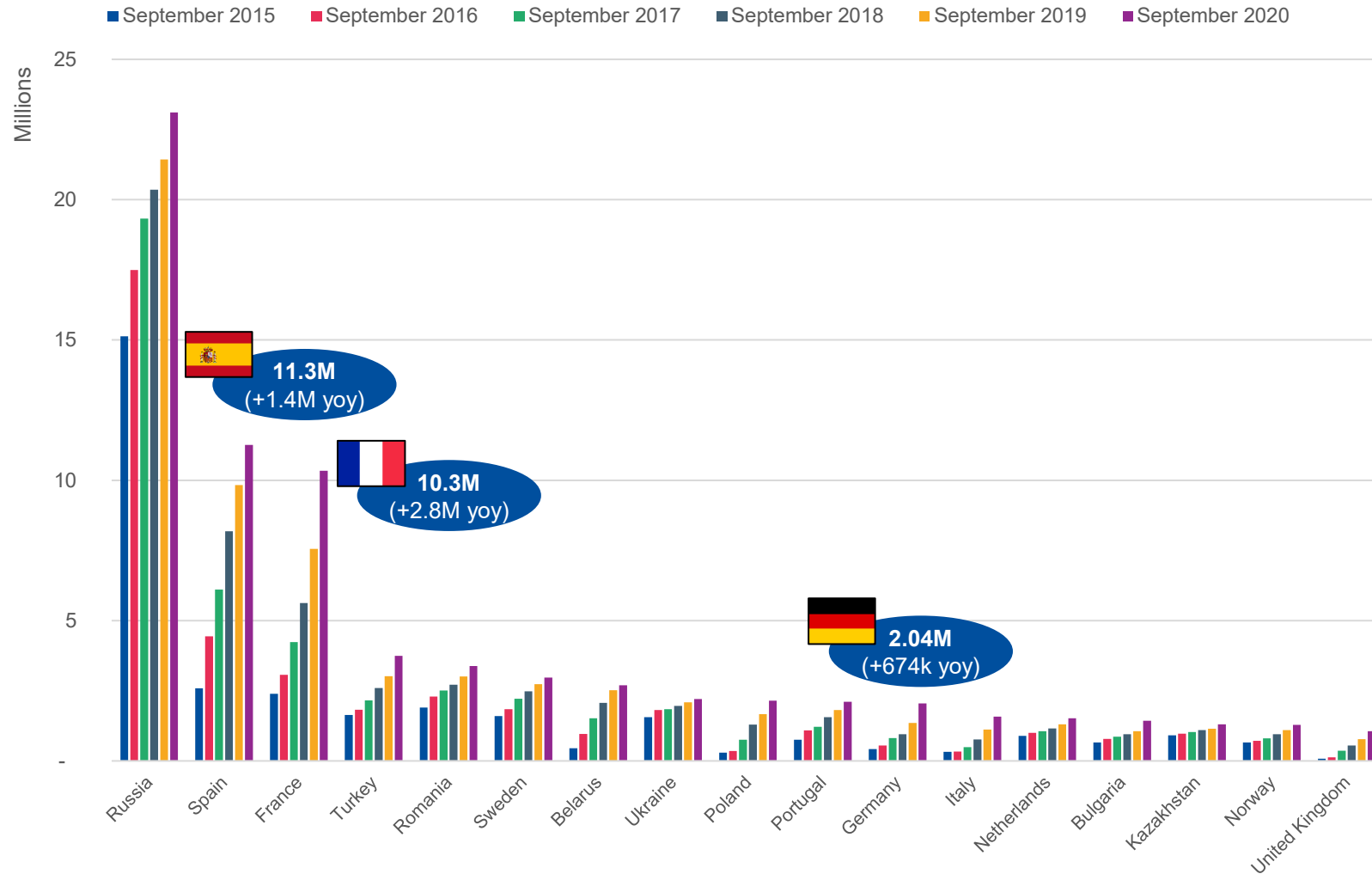
5 fastest growing markets (in volume and in %)
Data from Sept. 2019 to Sept. 2020 (in terms of FTTH/B Subscribers)



FTTH/B Subscribers

EU39 Ranking

European ranking in terms of FTTH/B Subscriptions over time, countries with > 1 million subscriptions
Data comparison between Sept. 2015 and Sept. 2020 (in million)



5 fastest growing markets (in volume and in %)
Data from Sept. 2019 to Sept. 2020 (in terms of FTTH/B Subscribers)



FTTH/B Take-up

Summary map

FTTH/B take-up* map - September 2020

(* Subscribers / Homes Passed)

- FTTH/B take-up > 50%
- FTTH/B take-up 40 – 50 %
- FTTH/B take-up 30 – 40 %
- FTTH/B take-up < 30 %

Take-up rate

EU27+UK: 46.9% (Up 3.6%)
EU39 : 44.9% (Up 1.9%)



Focus on microstates progress

Summary



Andorra - 45,000 Households (2019)



45,000 Homes Passed by Fibre



100%*

37,165 Fibre Subscribers



83%*

* of total homes

Liechtenstein - 17,300 Households (2019)



12,000 Homes Passed by Fibre



69%*

7,600 Fibre Subscribers



44%*

* of total homes

San Marino - 11,500 Households (2019)



6,500 Homes Passed by Fibre



56%*

5,500 Fibre Subscribers



48%*

* of total homes

Monaco - 16,200 Households (2019)



9,500 Homes Passed by Fibre



60%*

500 Fibre Subscribers



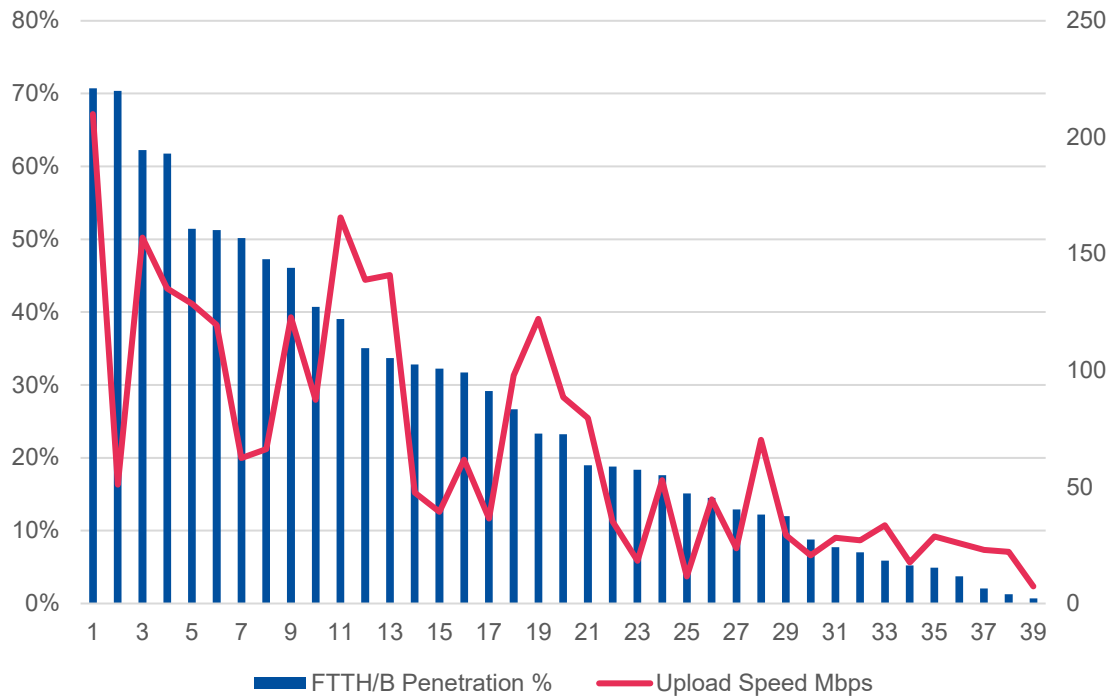
3%*

* of total homes

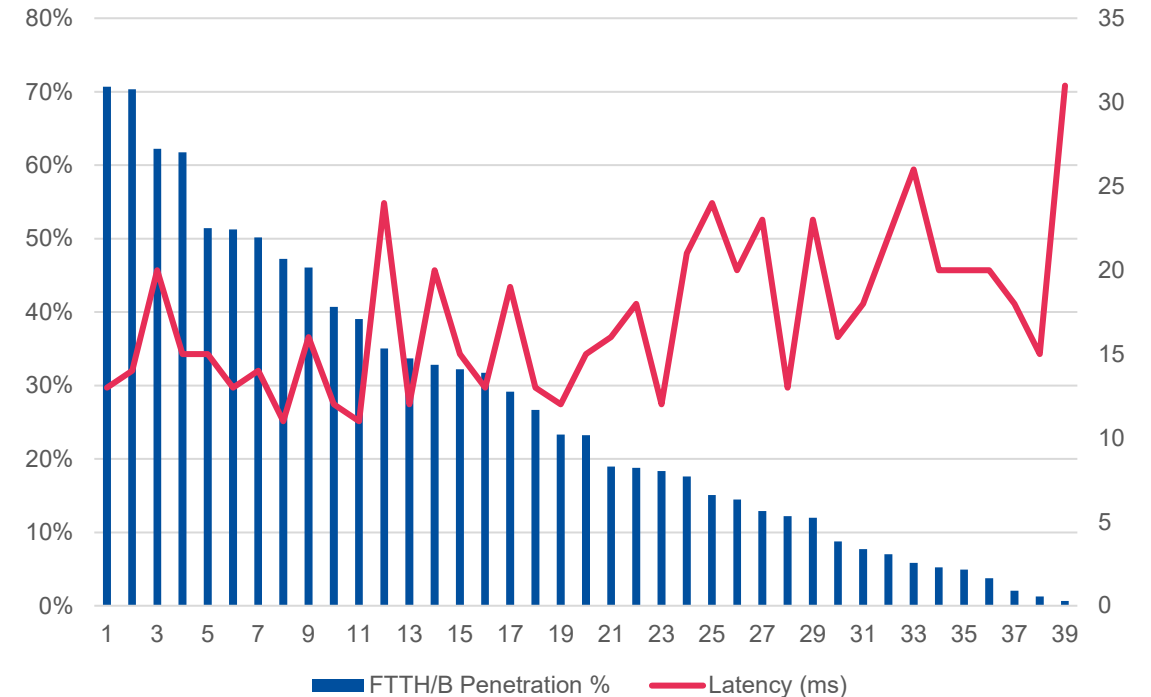
Fibre improves customer experience

- Full-fibre connectivity is designed for residential usage to support an increasing demand for bandwidth-intensive services (such as TV and video)
- Fibre is also a key enabler for businesses, facilitating Working From Home (WFH) situations, joining reliable connectivity with higher upload bandwidth and reduced latency.
- This supports video-conferencing, cloud-based services and other real-time or bandwidth hungry applications now in demand.

FTTH/B Penetration alongside Ookla Global Index - Fixed Upload Bandwidth



FTTH/B Penetration alongside Ookla Global Index - Latency

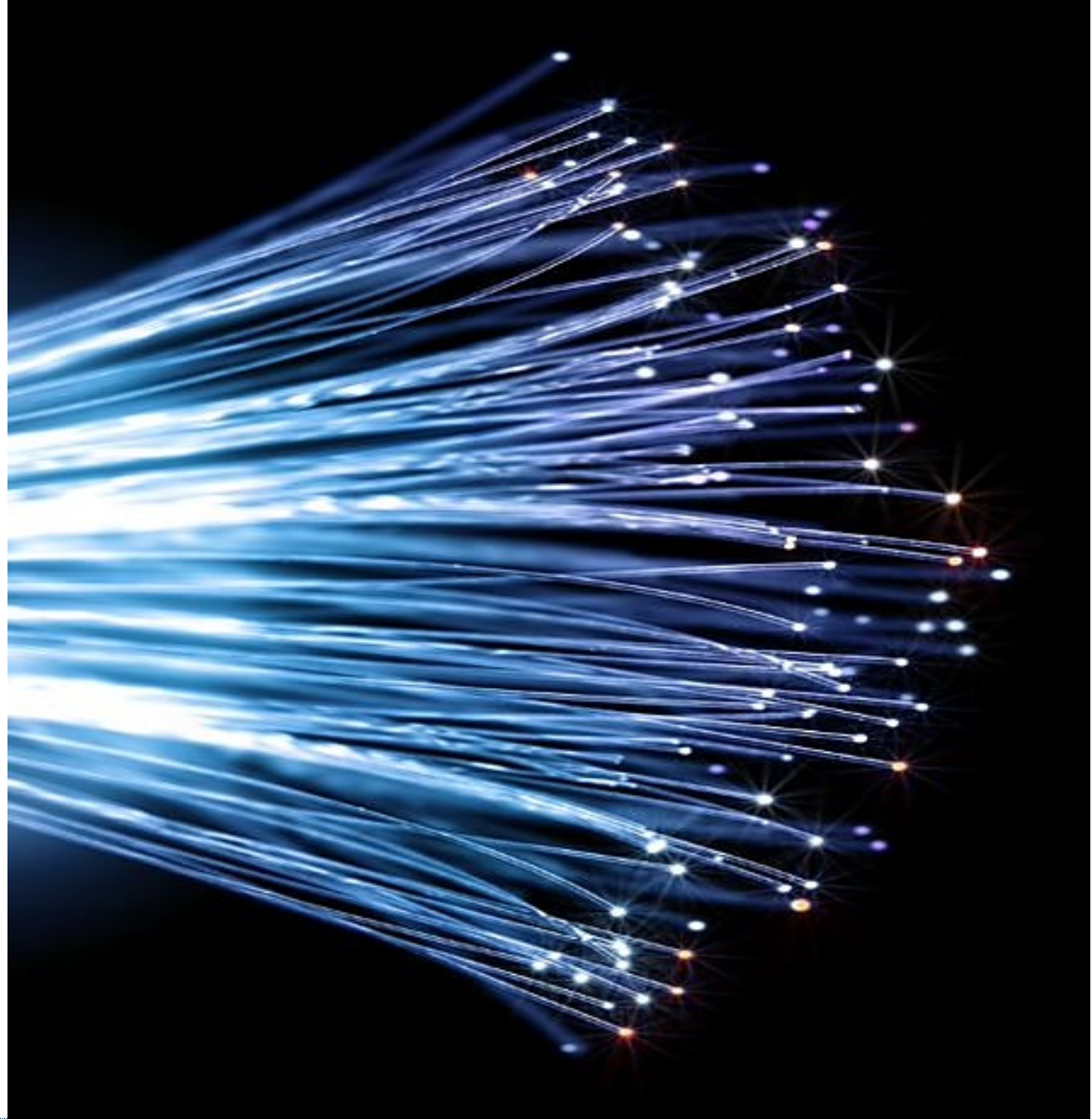


Sources: IDATE for FTTH Council EUROPE
Ookla Speedtest Global Index March 2021

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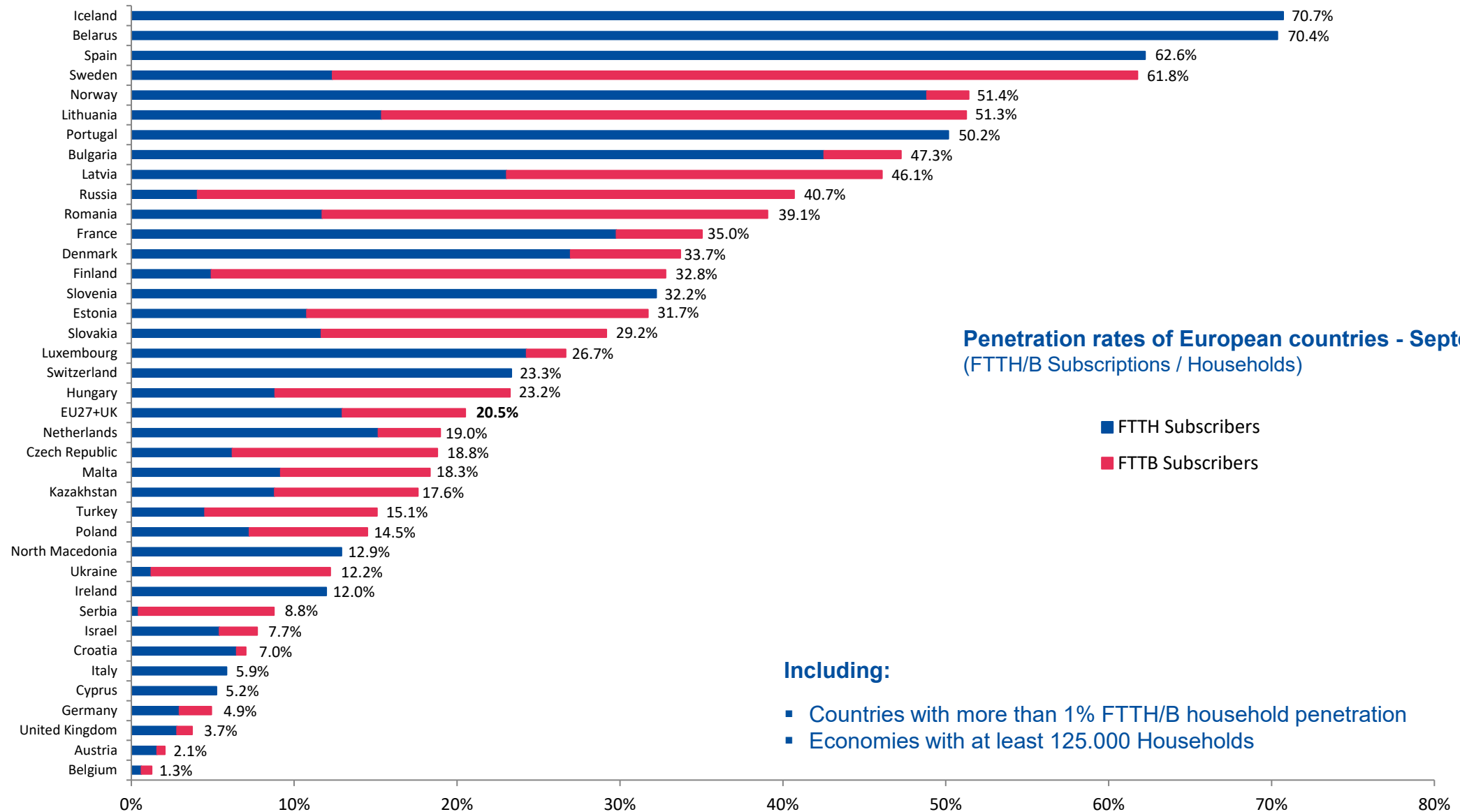
FTTH/B Market Panorama

European Ranking
September 2020



European Ranking

FTTH/B Markets - September 2020



Penetration rates of European countries - September 2020
(FTTH/B Subscriptions / Households)

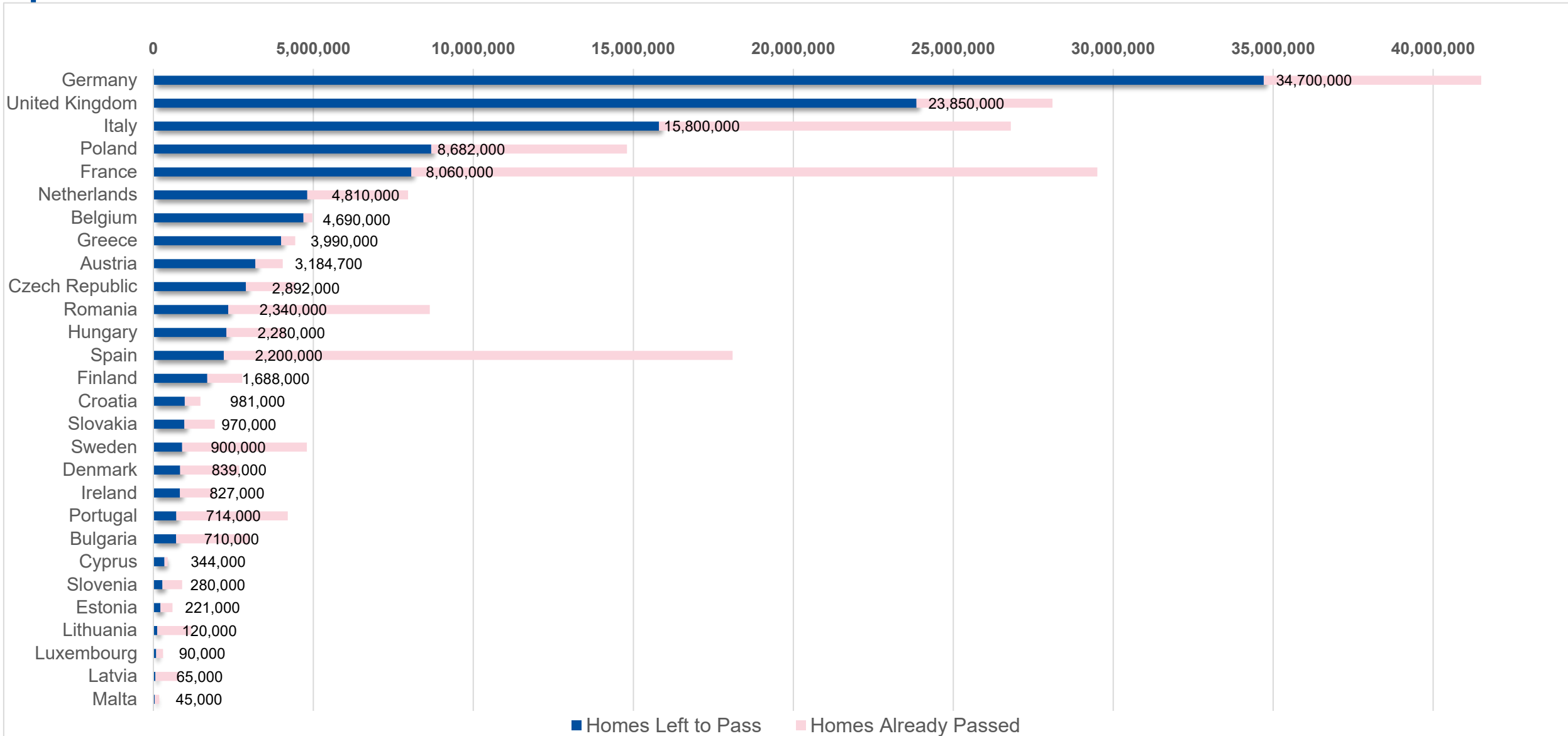
■ FTTH Subscribers
■ FTTB Subscribers

Including:

- Countries with more than 1% FTTH/B household penetration
- Economies with at least 125.000 Households

European Ranking – EU27+UK

The Road to Full Fibre – Who has the most work left to do?

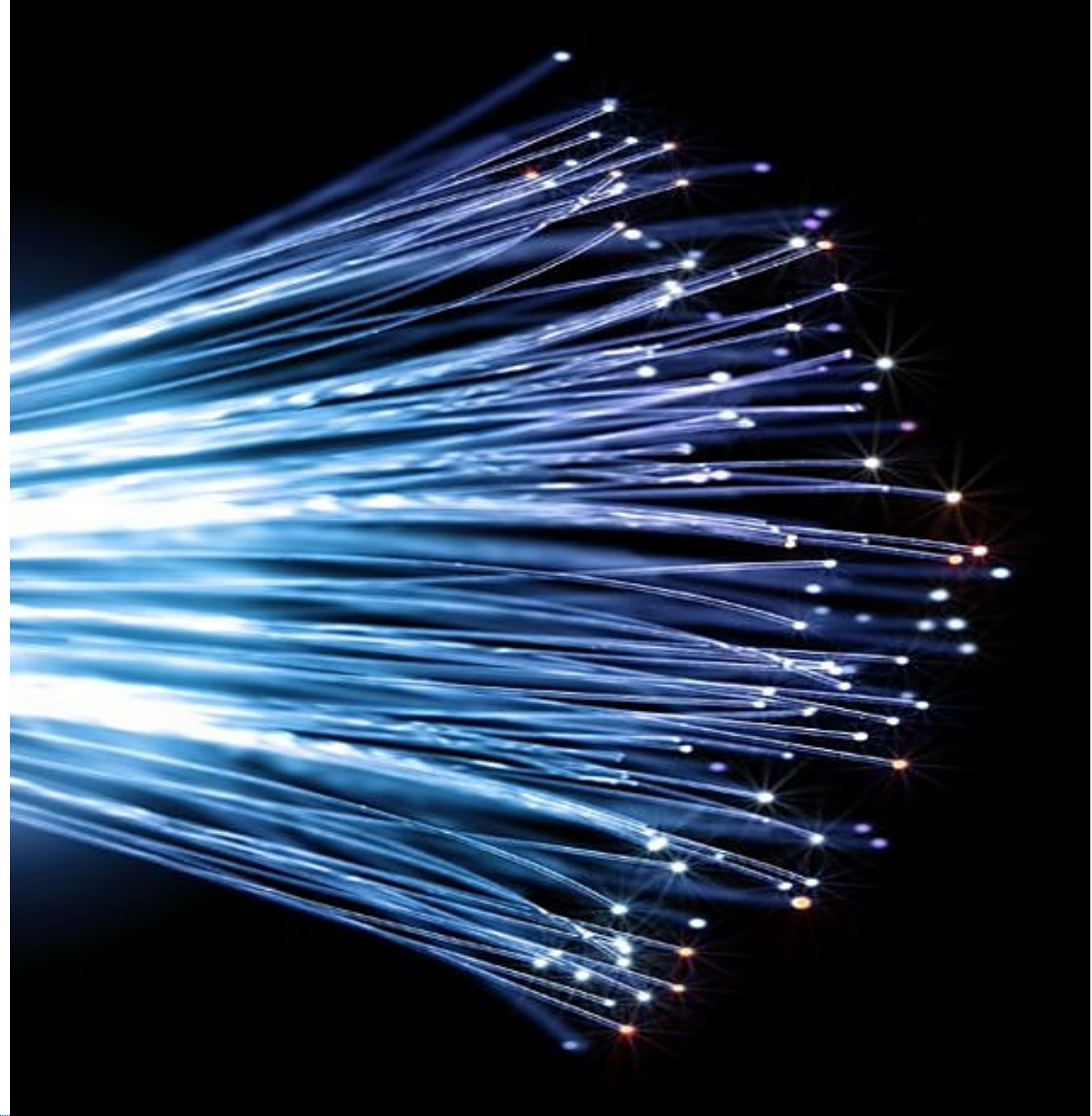


Source: IDATE for FTTH Council EUROPE

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FTTH/B Market Panorama

Key conclusions



Variables affecting FTTH adoption

Both positive and negative criteria should be considered

POSITIVE IMPACTS

1

Data demand and bandwidth **has intensified** (due to COVID19 and WFH situations), more operators focused on full-fibre networks to sustain ongoing traffic increase

2

National authorities are fully **involved in broadband acceleration via FTTH**, with new national programmes being defined to reach Digital Agenda goals for 2025/2030.

3

Progress in micro-trenching and cable design is less intrusive/disruptive in cities and neighborhoods while **new low profile cable designs offer better aesthetics** (indoors and outdoors)

4

Ongoing trend towards **mutualized networks and network sharing agreements** in Europe will accelerate FTTH deployments

5

Continued investment from private financing groups for new and existing network operators.

NEGATIVE IMPACTS

1

Gigabit Capable FWA (60Ghz) is becoming more common in isolated areas, thus will delay FTTH deployments in some regions. **5G technology** used in high spectrum bands (26 GHz) can directly challenge FTTH in the fixed residential market

2

FTTH investments delayed in several areas due to **direct alternative technologies** such as Cable (Docsis 3.1/4.0) and G.Fast

3

Misleading fibre advertising is still impacting FTTH subscriber adoption. New demand for WFH applications in the home will help differentiate FTTH further from FTTC as 2021 progresses.

4

Fibre Rollout Plans being delayed across Europe – some by up to 2 years. Removal of red tape and better central coordination can tackle these delays.

5

Availability of skilled labor to build out new fibre networks is beginning to be felt in late 2020. The growth expected in 2021 and 2022 will make this more pronounced.

Key conclusions

Regional recap

FTTH/B reaching a new level

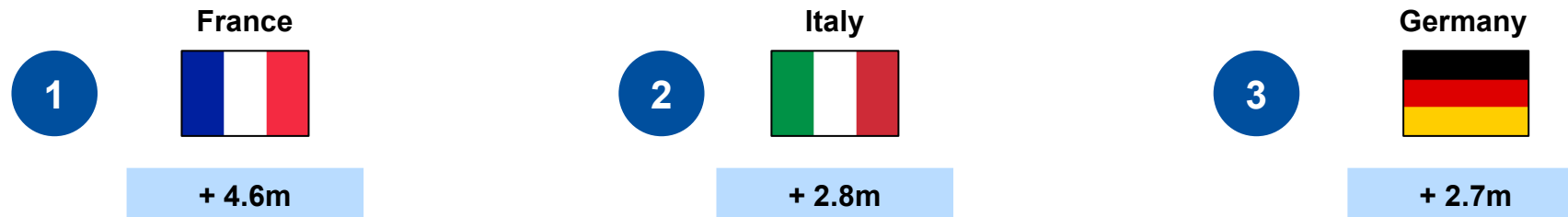
- FTTH/B networks are now **covering more than half of total households in the EU39 region (53%)**: a key milestone on the path towards full fibre connectivity across all of Europe.
- EU39 reaching **82 million FTTH subscriptions**, with **EU27+UK accounting for 56%**.
- **183 million homes passed** by full-fibre infrastructure in the total region, **98 million** in EU27+UK.

Key lessons to be learned

- In many historical copper-based countries (UK, Germany, Italy), the **whole telecom ecosystem has intensified its efforts** towards full-fibre connectivity, and **the pandemic tends to accelerate** both deployments and adoption. There is still some distance to go with these 3 countries have ~60% of the remaining Homes to be passed in the EU27+UK!
- **National authorities** are even more involved in the digital transformation, in the wake of COVID-19 crisis, implying revised **national programmes**, subsidies and a relevant **policy framework** to promote **fibre expansion**
- **Underserved regions** are also affected by the COVID pandemic and **their need for reliable networks** is now a clear target for the ecosystem

Top 3 - Main movers in terms of Homes Passed in absolute numbers

Data comparison between Sept. 2019 and Sept. 2020



**Fibre
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Thank you for your Participation!

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