

Broadband Availability and Framework Conditions for the Rollout of Gigabit Networks in Germany

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Danish Energy Association Conference

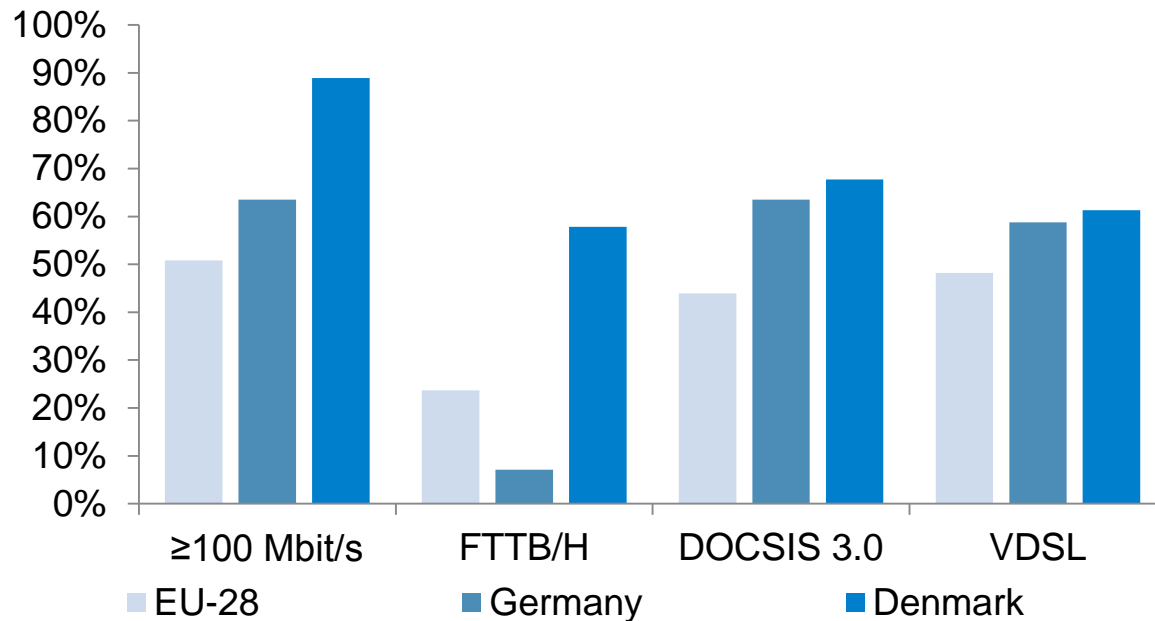
Copenhagen

7 November 2017

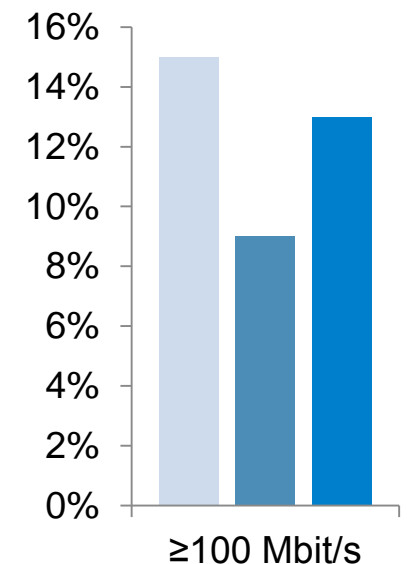
Broadband Availability and Technology Take-up

- 65% of German households are able to book broadband products with downstream speeds of at least 100 Mbit/s, which is 14% above the European average.
- The availability of high speed connections stems mainly from cable networks.
- The adoption of tariffs with ≥ 100 Mbit/s downstream speed is only at 9%.
- The corresponding figures for Denmark show higher coverage and take-up rates.

Coverage by Technology and Speed – EU 28, DE and DK (July 2016)



Take-up ≥ 100 Mbit/s

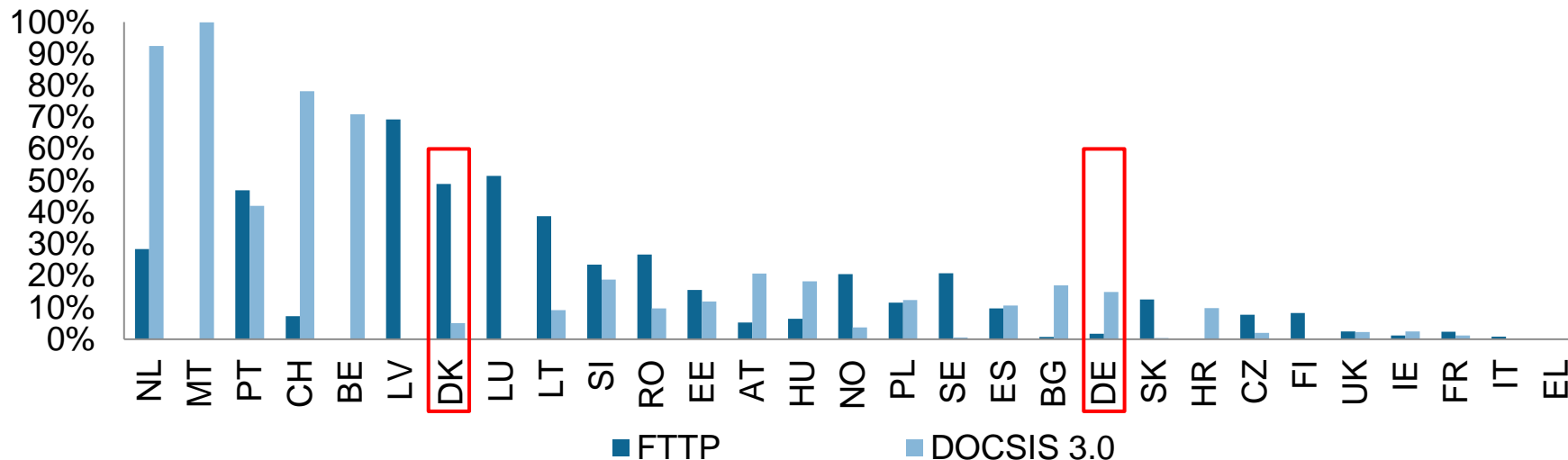


Source: WIK based on European Commission (2017): Broadband Coverage in Europe 2016; European Commission (2016): Broadband access in the EU.

Rural Coverage of Gigabit Networks

- The German broadband market is characterised by significant gaps between rural and urban areas.
- In rural areas neither upgraded cable networks nor FTTP infrastructures are available on a large scale.
- As a consequence, an increasing digital divide is threatening.

Rural¹ Coverage of Gigabit Networks (July 2016)



¹ Rural is defined as areas with less than one hundred population per square kilometre

Source: WIK based on European Commission (2017): Broadband Coverage in Europe 2016.

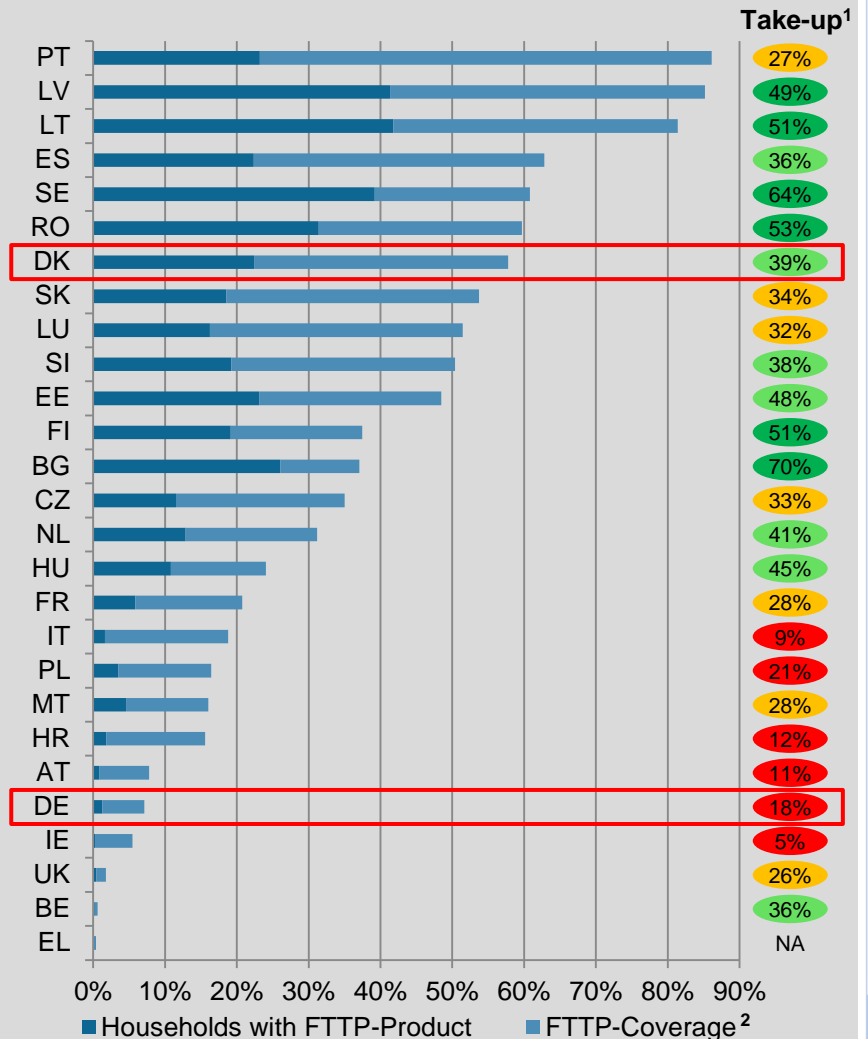
Why is Germany lagging behind with Fibre?

Political and Business Environment for Fibre Networks

- Germany has a strong economy and benefits from high consumer buying power.
- But:
 - Rollout costs are comparably high.
 - Willingness to pay for gigabit connectivity is comparably low.
 - Incumbent Telekom Deutschland follows a VDSL strategy.
 - The competitive landscape is very fractioned, there are no alternative operators rolling out own fibre infrastructure on a large scale.
 - German policy follows a 50 Mbit/s goal, which has impact on state-aid and regulation.
 - Strategic overbuilding of state aid projects disattracts alternative investments.



European FTTB/H-Coverage and Take-Up [July 2016]

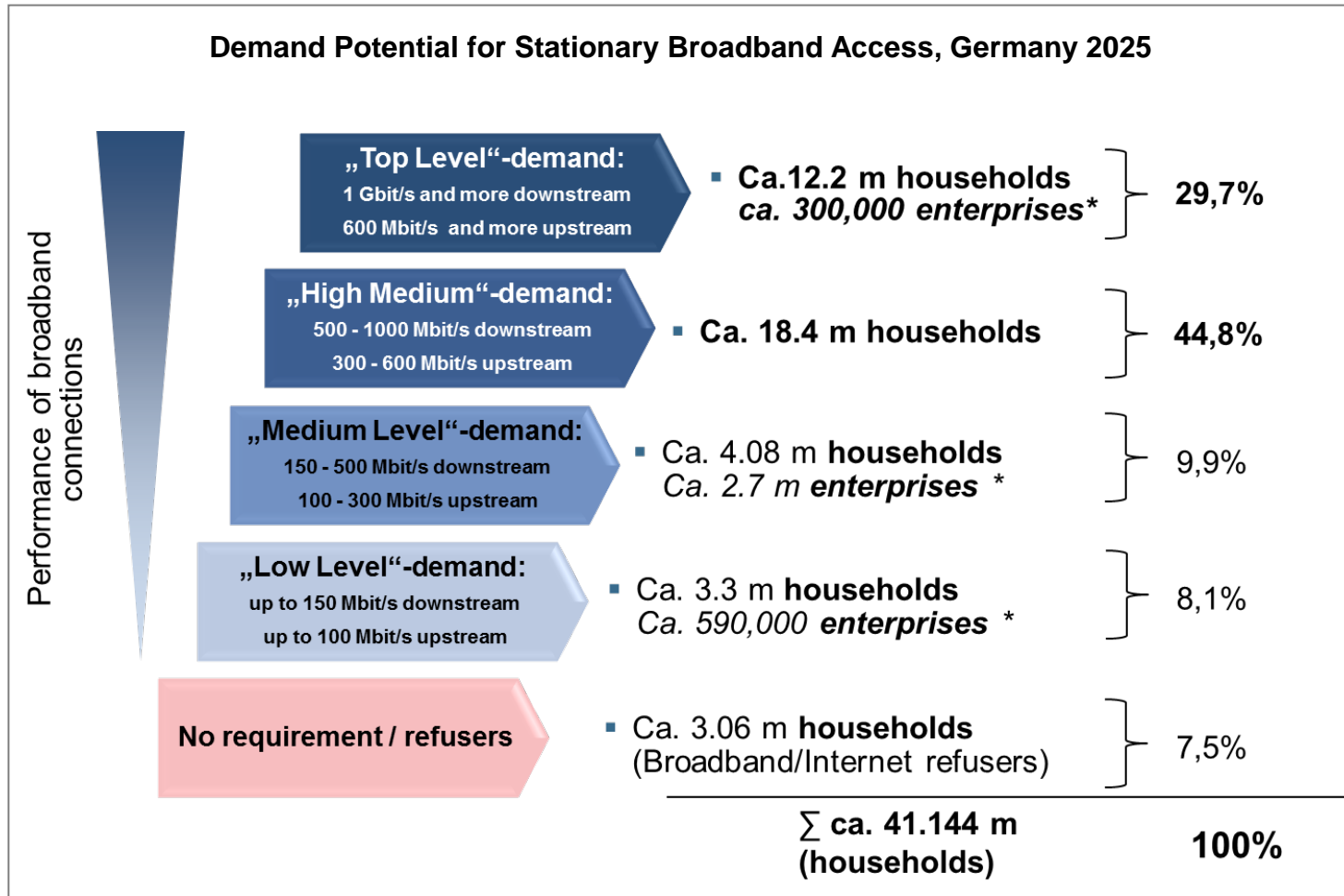


Source: WIK based on European Commission (2017): Broadband Coverage in Europe 2016; European Commission (2016): Broadband access in the EU.

¹ Reflects ratio homes passed to homes connected

² Households passed by FTTP, but not connected; the full bar shows the total coverage

Private Users will show an increasing Demand for Gigabit Networks over the next Years

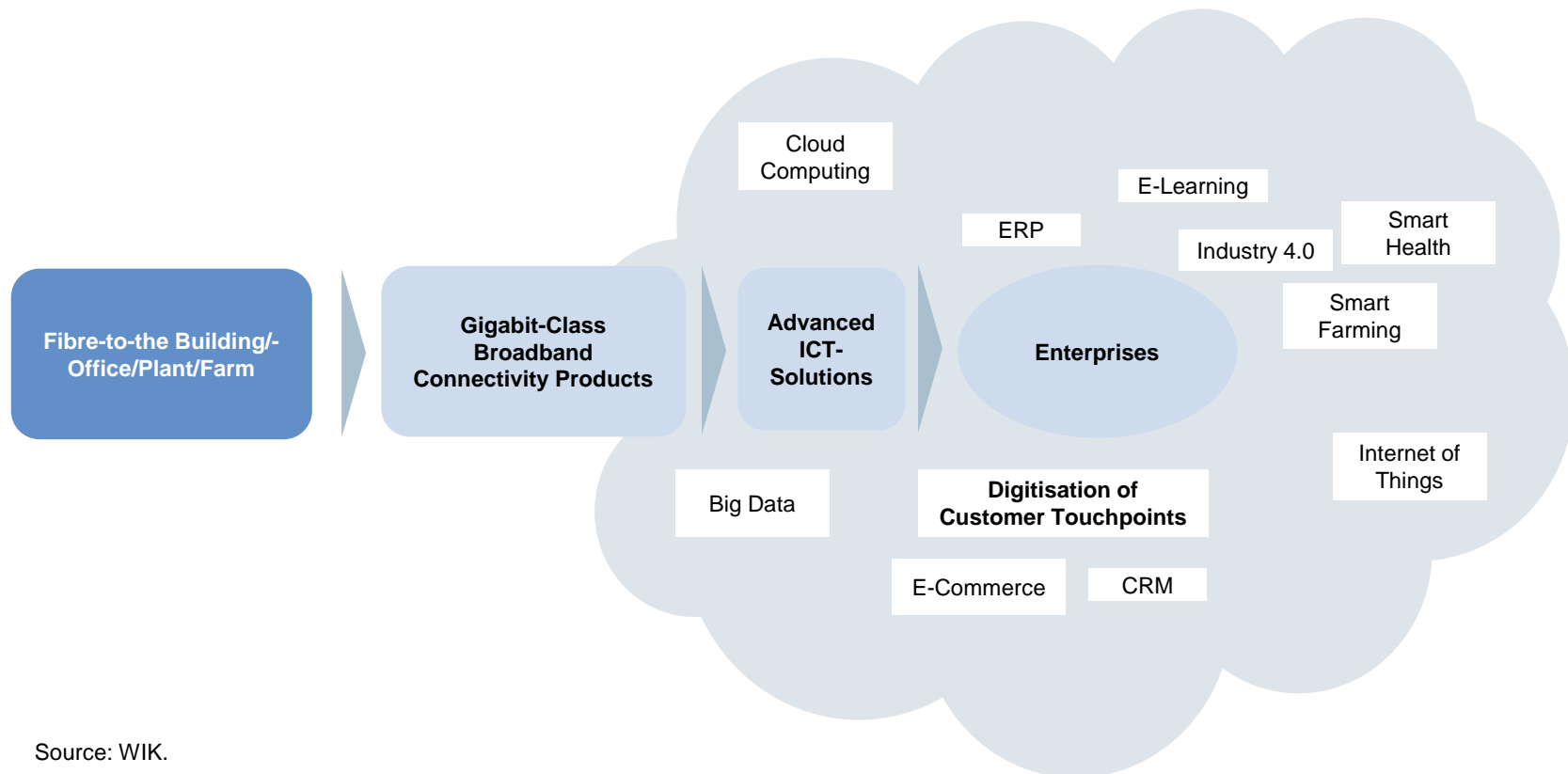


Source: WIK-Market Potential Model.

* Demand estimates for business have not been updated, but have been integrated into the results of household updates without new calculations.

Numerous ICT-Solutions drive industrial Demand for fibre-based Connectivity Products

- Fibre networks enable enterprises across all industries to take advantage of advanced ICT-solutions and technologies and thus to benefit from following increases in efficiency.
- Therefore, high symmetrical bandwidth as well as quality parameters like low latency and high reliability are required.



Source: WIK.

The current regulatory Debate on Gigabit Networks in Germany

- The European Commission suggests to maintain the existing SMP concept in principle, but to make some changes in order to incentivise investments in gigabit networks:
 - Symmetric access to in-house infrastructure in order to limit rollout costs
 - Exemptions from access regulation for VHC-networks realised as co-invest or wholesale-only networks under certain circumstances
- In Germany, incentives for operators investing in gigabit infrastructure take centre stage as well, but with a different angle:
 - Recently, Deutsche Telekom and the main local FTTH-access provider have called for a complete regulatory exemption of gigabit networks in return for further investments in fibre rollout

The current political Debate on Gigabit Networks in Germany

- There is some uncertainty regarding the future telecommunications policy in Germany after the last federal election in September 2017. However, the following issues could become part of the political agenda:
 - Revision of the existing broadband objective towards a gigabit or fibre objective
 - Respective adjustment of the national broadband state-aid scheme
 - Stronger consideration of the topic of digitisation in German politics through organisational means
 - The sale of Telekom shares held by the German government is stipulated by the FDP, the Green Party, and by parts of the CDU

Recommendations

- The political broadband objective should be replaced by a fibre or gigabit objective.
- Regulation should be reduced wherever possible. However, unconditional regulatory holidays seem problematic as competition remains a main driver for consumer welfare and innovation.
- New business models could speed up commercial FTTB/H rollout (e.g. wholesale-only, co-operations and co-invest) and therefore reduce the need for public subsidies.
- The efficiency of broadband state-aid schemes needs to be improved and a concentration of subsidies in future-proofed FTTB/H infrastructures has to be assured to prevent a threatening digital divide between rural and urban areas.
- Demand-sides measures should be considered to a larger extent as well.



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