

Special Report

Broadband in the EU Member States: despite progress, not all the Europe 2020 targets will be met

(pursuant to Article 287(4), second subparagraph, TFEU)



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GLOSSARY AND ABBREVIATIONS

Backbone	The primary high-speed hardware and transmission lines of a telecommunications network (such as the internet).
CEF	Connecting Europe Facility
DG	Directorate General
DG AGRI	DG Agriculture and Rural Development
DG CNECT	DG Communications Networks, Content and Technology
DG COMP	DG Competition
DG ECFIN	DG Economic and Financial Affairs
DG REGIO	DG Regional and Urban Policy
EFSI	European Fund for Strategic Investments
ERDF	European Regional Development Fund
ESIF	European Structural and Investment Funds
EU	European Union
Europe 2020 broadband objectives	Broadband-related objectives set out in the Digital Agenda for Europe, one of the seven flagship initiatives of the Europe 2020 strategy adopted by the Commission in 2010. These objectives are (i) by 2013, to bring basic broadband to all Europeans (from 144 Kbps up to 30 Mbps); (ii) by 2020, to ensure coverage of all Europeans with fast broadband (> 30 Mbps); and (iii) by 2020, to ensure take-up of 50 % or more of European households to ultra-fast broadband (> 100 Mbps).
Ex-ante Conditionalities	Conditions, based on pre-defined criteria regarded as necessary prerequisites for the effective and efficient use of Union support. When preparing European Regional Development Fund (ERDF), Cohesion Fund (CF) and European Social Fund (ESF) Operational Programmes (OPs) under the 2014-2020 programme period, Member States have to assess whether these conditions are fulfilled. If they have not been fulfilled, action plans need to be prepared to ensure fulfilment by 31 December 2016.
Gbps	A unit of data transfer equal to 1 000 000 000 bits per second.
Gigabit Society 2025 objectives	In September 2016, the Commission identified in a Communication commonly known as the 'Gigabit Society for 2025' three strategic objectives for 2025 that complement those set out in the Digital Agenda for 2020.
Incumbents	A company which used to function as a monopoly but which now provides services competitively. Many incumbents have inherited advantages from their former monopolistic status (e.g. networks and customers).
Kbps	A unit of data transfer equal to 1 000 bits per second.
Mbps	A unit of data transfer equal to 1 000 000 bits per second.

NBP	National Broadband Plan
OP	Operational Programme
Take-up	In the context of this report, take-up is an indicator selected by the European Commission. It is defined as the percentage of households having a broadband subscription compared to the total number of households.

EXECUTIVE SUMMARY

About broadband

- I. Broadband is the common term used to mean faster internet speeds and other technical characteristics that make it possible to access or deliver new content, applications and services. An increase in the importance of digital data now means that good internet connections are essential not only for European businesses to remain competitive in the global economy, but also more widely for promoting social inclusion.
- II. As part of its Europe 2020 strategy, in 2010 the EU set three targets for broadband: by 2013, to bring basic broadband (up to 30 Megabits per second, Mbps) to all Europeans; by 2020, to provide all Europeans with fast broadband (over 30 Mbps); and by 2020, to ensure take-up by 50 % or more of European households to ultra-fast broadband (over 100 Mbps). To support these objectives, the EU has implemented a series of policy and regulatory measures and has made some 15 billion euro available to Member States in the period 2014-2020, through a variety of funding sources and types, including 5.6 billion euro in loans from the European Investment Bank (EIB).

How we conducted our audit

- III. We addressed the effectiveness of action taken by the European Commission and the Member States to achieve the Europe 2020 broadband objectives.
- IV. The audit covered the 2007-2013 and the 2014-2020 programme periods and all the EU funding sources, including support provided by the EIB. Our audit work extended to all those parts of the Commission with significant roles to play in broadband, and the EIB. For a more detailed understanding of the national issues, we focused on five Member States: Ireland, Germany, Hungary, Poland and Italy. We also visited a range of other stakeholders (such as National Regulatory Authorities, business and telecommunications associations, consumer associations and trade unions).

What we found

- V. We found that broadband coverage has generally been improving across the EU, but that the Europe 2020 targets will not all be achieved. Rural areas, where there is less incentive for the private sector to invest in broadband provision, remain less well connected than cities, and take-up of ultra-fast broadband is significantly behind target.
- VI. In terms of the three targets, while nearly all Member States achieved the basic broadband coverage target by 2013, this will most likely not be the case for the 2020 target for fast broadband. Rural areas remain problematic in most Member States: by mid-2017 14 had coverage in rural areas of less than 50 %. For the third target, take-up of ultra fast broadband, only 15 % of households had subscribed to internet connections at this speed by mid-2017, against a target of 50 % by 2020. Despite these problems, if their plans are implemented as intended, three of the five examined Member States may be in good position to achieve the Commission's objectives for 2025, one of which is that all households should have access to ultra-fast broadband, upgradable to 1 Gbps. The Commission's support was positively assessed by the Member States but the monitoring is uncoordinated across Directorates-General.
- VII. All Member States had developed broadband strategies, but there were weaknesses in the ones we examined. Some Member States were late in finalising their strategies, and their targets were not always consistent with those in Europe 2020. Not all the Member States had addressed the challenges related to their legacy internet infrastructure (their telephone infrastructure), with potential implications for adequate speed in the medium and long term.
- VIII. Various factors limited Member States' progress towards meeting their broadband targets. Financing in rural and sub-urban areas was not properly addressed in three of the Member States we examined, and a major EIB project supported through the European Fund for Strategic Investments did not focus on those areas where public sector support is most needed. We found that the legal and competitive environments posed problems in two Member States. In addition, we found a lack of coordination across programme periods in one Member State.

What we recommend

IX. We make recommendations in three areas, on strategic planning, the regulatory environment and fostering competition through financing. These recommendations include the following:

- Member States should develop new plans for the period after 2020.
- The Commission should clarify the application of the State aid guidelines , as some Member States are interpreting them in a way which may limit their investment in broadband. It should also support Member States' efforts to foster more competition in broadband service provision by incentivising the set up of appropriate networks and aggregating smaller projects into those of a critical size where appropriate.
- The EIB should focus its support through the EFSI and the Connecting Europe Broadband Fund on small and medium size projects in areas where public sector support is most needed, in line with the aim of supporting riskier projects.

INTRODUCTION

Broadband and its importance

1. Digital data via the internet is playing an increasingly large role in the lives of citizens, government and business. For Europe to remain competitive in the global economy, good levels of internet speed and access, as provided by broadband, are essential. For example:

- an increase of 10 % in broadband connections in a country could result in 1 % increase in GDP per capita per year¹;
- a 10 % increase in broadband connections could raise labour productivity by 1.5 % over the next five years²; and
- investments in broadband will also help deliver quality education, promote social inclusion and benefit rural and remote regions.

Some stakeholders³ consider that broadband is so important that it should be seen as an essential utility, alongside other utilities such as road, water, electricity and gas.

2. The term 'broadband', in the context of internet access, does not have a specific technical meaning but is used to refer to any infrastructure for high-speed internet access that is always on and faster than traditional dial-up access. The Commission has defined three categories of download speeds:

- 'Basic broadband' for speeds between 144 Kbps and 30 Mbps;
- 'Fast broadband' for speeds between 30 and 100 Mbps; and

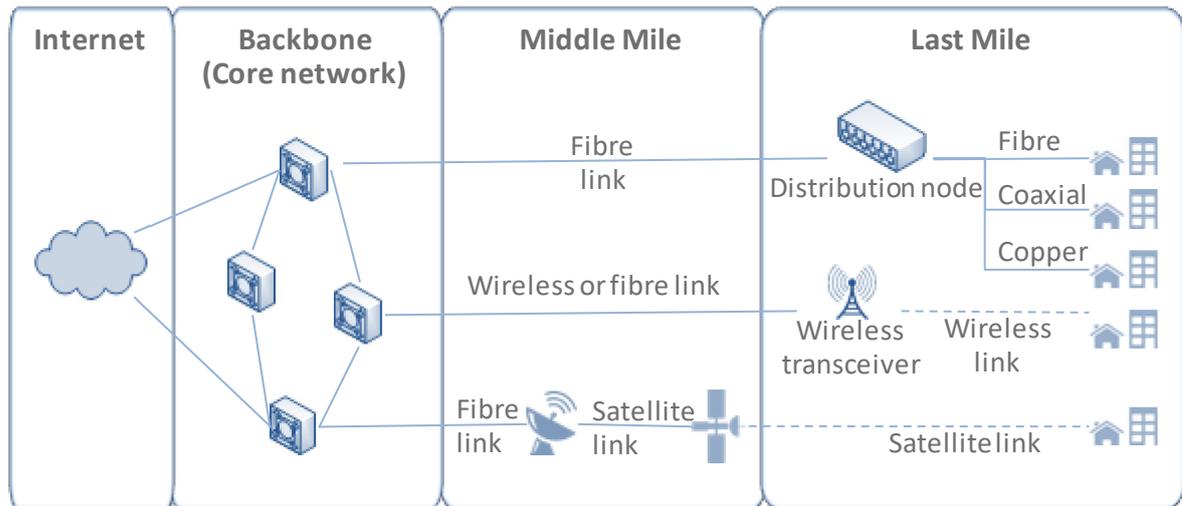
¹ L. Holt, M. Jamison, "Broadband and contributions to economic growth: lessons from the US experience", Telecommunications Policy v. 33 p. 575-581; Global Industry Leaders' Forum, Broadband enabled innovation, ITU, 2011.

² See the revised version of the Digital Agenda for Europe (2012).

³ For example, Intelligent Community Forum Canada and BDO Canada.

- ‘Ultra-fast broadband’ for speeds higher than 100 Mbps.
3. A broadband access network is generally made of three parts: the backbone network, middle mile and the last mile connections to the end users (see **Figure 1**)⁴.

Figure 1 - Segments of a broadband network



Source: ECA.

4. In assessing internet speed, there is an important distinction between download and upload speeds. Download speed refers to the rate data is received from a remote system, such as when browsing the internet or streaming videos; upload speed refers to the rate data is sent to a remote system, such as when video-conferencing. Other technical characteristics are becoming increasingly relevant for the provision of certain services (such as videoconference, cloud computing, connected driving and e-health). The type of infrastructure used defines the upper limit of the connection speed. There are five types of infrastructure that can deliver broadband services: optical fibre lines, coaxial cable, copper phone lines, terrestrial wireless (antenna sites/towers) and satellite (see **Table 1**). Due to rapid technological development, other technologies are also becoming capable of delivering fast broadband services (see **Box 1**).

⁴ European Commission, “Guide to high-speed broadband investment”, 2014.

Table 1 - Broadband infrastructure types and current commercial technology¹

Wired or wireless	Infrastructure	Indicative download speed	Indicative upload speed
Wired	Fibre	up to 2.5 Gbps	up to 1.2 Gbps
	Coaxial cable	300 Mbps up to 2 Gbps	up to 50 Mbps
	Copper phone	5 Mbps up to 100 Mbps	up to 10 Mbps
Wireless	Terrestrial wireless	60 Mbps	up to 10 Mbps
	Satellite	up to 20 Mbps	up to 8 Mbps

¹ The actual speed customers receive will depend on providers and technical upgrades.

Source: ECA analysis based on Acreo Swedish ICT.

Box 1 – Technological developments

- **Hybrid internet solutions** combine the copper phone network and the 4G mobile network to increase speed to customers, using a specific gateway (a type of modem). This solution is already in use in Belgium and the Netherlands with speeds of 30 Mbps in previously under-served areas.

- **The satellite industry** is currently delivering the next-generation satellite broadband. Two recent innovations are the high-throughput satellites and the non-geostationary orbit satellites. By using these types of satellites, connections over 30 Mbps may be offered in the future to a larger number of rural or remote customers.

- **5G**, 5th generation mobile networks are the next wireless telecommunications standards. 5G planning aims at higher capacity than current 4G, allowing a higher density of mobile broadband users, and supporting device-to-device, more reliable, and massive machine communications. 5G has three elements: (1) enhanced mobile broadband, (2) massive Internet of Things, (3) mission critical services (such as self-driving cars). 5G requires a middle mile infrastructure based on fibre making 5G a complement to, but not a replacement for, high speed broadband networks close to the end user.

5. Each of these technologies has its own characteristics, as well as costs and benefits, with existing copper phone being the cheapest technology for a lower speed, and fibre delivering the highest speed at a higher cost. Future applications related to the Internet of Things (see

Box 2) will require higher speeds, scale and reliability from these networks⁵. In general, the roll out of technology which provides higher speeds is more expensive than technology delivering lower speeds although maintenance costs are lower. In addition, operators' management costs are also likely to be reduced progressively as legacy networks are decommissioned.

Box 2 – The Internet of Things

The Internet of Things is a network of physical devices with the ability to transfer data without the need for human-to-human or human-to-computer interaction. Examples are: Smart homes (e.g. controlling thermostat, lights, music), Smart cities (e.g. controlling street lights, traffic lights, parking), self-driving cars, Smart farming (combining data on soil moisture or pesticide usage with advanced imaging).

EU policies for broadband

6. Launched in 2010, Europe 2020 is the EU's long-term strategy for smart, sustainable and inclusive growth⁶. It contains seven flagship initiatives. One of these, "A Digital Agenda for Europe"⁷, sets out targets for fast and ultra-fast internet to maximise the social and economic potential of Information and Communication Technologies (ICT), most notably the internet, for EU citizens and businesses. The Digital Agenda, updated in 2012⁸, sets out three objectives for broadband:

- by 2013, to bring basic broadband to all Europeans;
- by 2020, to ensure coverage of all Europeans with fast broadband (> 30 Mbps); and

⁵ 'The State of Broadband', Broadband Commission for Sustainable Development, ITU & Unesco, September 2017.

⁶ COM(2010) 2020 "EU 2020, A strategy for smart, sustainable and inclusive growth".

⁷ COM(2010) 245.

⁸ COM(2012) 784. As a Commission communication, this represents soft EU law, with no mandatory authority.

- by 2020, to ensure take-up of 50 % or more of European households to ultra-fast broadband (> 100 Mbps).

The first two targets focus on supplying certain speeds, while the third relates to the demand by users. These targets have become a reference for public policy throughout the EU, and have given direction to public and private investment. The comparable target for the USA is in **Box 3**.

Box 3 – Broadband targets in the USA

In the USA, the National Broadband Plan "Connecting America" was adopted in March 2010 and recommended that the country adopt and track six goals for 2020, the first of which was "At least 100 million U.S. homes should have affordable access to actual download speeds of at least 100 megabits per second and actual upload speeds of at least 50 megabits per second". Thus the objectives did not include 100 % of the population and the targets specified actual upload and download speeds.

7. In 2010, the Commission also set out a common framework for action at EU and Member State levels to meet these targets. Requirements for Member States included the need to: (i) develop and make operational national broadband plans by 2012; (ii) take measures, including legal provisions, to facilitate broadband investment; and (iii) use fully the Structural and Rural Development Funds.

8. In September 2016, the Commission identified in a Communication commonly known as the 'Gigabit Society for 2025'⁹ three strategic objectives for 2025 that complement those set out in the Digital Agenda for 2020:

- Connectivity of at least 1 gigabit¹⁰ for all main socio-economic drivers (such as schools, transport hubs and the main providers of public services);

⁹ COM(2016) 587.

¹⁰ A gigabit per second is 1000 Mbps, significantly faster than the Europe 2020 targets.

- all urban areas and all major terrestrial transport paths to have uninterrupted 5G coverage; and
- all European households, rural or urban, to have access to internet connectivity offering a download speed of at least 100 Mbps, upgradable to Gigabit speed.

EU financial support to broadband infrastructures

9. The European Commission estimated in 2013 that up to 250 billion euro will be required to achieve the 2020 broadband targets¹¹. However, the re-use of existing infrastructure and effective implementation of the Cost Reduction Directive¹² could bring down these costs¹³.

10. The telecommunication sector is the major private investor in broadband infrastructures. Some segments of the market, such as rural areas, are not attractive to private investors. Financing from the public sector, whether national, regional or municipal, is required to provide acceptable broadband connectivity in these areas. The EU is an additional source of financing complementing other sources of public funding (national regional or local) in areas subject to market failure. In some Member States it can constitute the main source of public funding.

11. For the 2014-2020 programme period, almost 15 billion euro, including 5.6 billion in EIB loans, is available to Member States from the EU for supporting broadband, a significant increase over the 3 billion euro for the 2007-2013 period. This represents around 6 % of the total investment needed. There are five main sources of funding (see ***Table 2***).

¹¹ European Commission, "The socio-economic impact of bandwidth", 2013, p. 207.

¹² Directive 2014/61/EU of the European Parliament and the Council of 15 May 2014 on measures to reduce the cost of deploying high-speed electronic communications networks (OJ L 155, 23.5.2014, p. 1).

¹³ Fibre to the Home Council Europe, News Flash, "Costs for fibre based Gigabit Society significant but achievable", FTTH Conference, Marseille, 16.2.2017.

Table 2 - Summary of funding sources for the programme periods 2007-2013 and 2014-2020

Source of funding	Type of support	Amount in programme period (million euro)	
		2014-2020	2007-2013
European Structural and Investment Funds (ESIF):			
European Regional Development Fund (ERDF),	Grants	6 019	2 456
European Agricultural Fund for Rural Development (EAFRD)	Grants	921	282
European Fund for Strategic Investments (EFSI) ¹	Loans	2 032	-
Connecting Europe Facility (CEF)			
CEF Debt instrument	Loans	16	
WIFI4EU Initiative	Grants	120	
Connecting Europe Broadband Fund (CEBF), of which	Equity	240	-
from the Commission		100	
from the EIB and EFSI		140	
European Investment Bank (EIB)	Loans	5 600	
Total available		14 948	2 738

¹ EFSI amounts are as of end of June 2017.

Source: ECA analysis based on Commission and EIB data.

12. The Commission, together with the Member States, manages the Structural Funds (ERDF, EAFRD). The Commission also provides a guarantee in support of projects financed by the EIB. The EIB is responsible for the management of its own loans and, the European Fund for Strategic Investments (EFSI). The Commission manages the Connecting Europe Facility (CEF) and part of the available funding for broadband under CEF is envisaged to be invested in the Connecting Europe Broadband Fund (CEBF). The CEBF will be managed by an independent Fund Manager and mandated to act according to the terms of reference agreed by the EIB, the Commission and the other funding partners.

AUDIT SCOPE AND APPROACH

13. The audit addressed the effectiveness of the action taken by the Commission, the Member States and the EIB to achieve the Europe 2020 broadband objectives. This is

particularly relevant as the 2020 deadline is approaching and as the Commission has communicated new objectives for 2025. To do this, we examined:

- whether the Member States are likely to achieve the Europe 2020 broadband objectives and whether the Commission monitored these achievements;
- whether the Member States had developed appropriate strategies to achieve these objectives; and
- whether the Member States had effectively implemented their strategies – including the measures and financing sources chosen (including the EIB) and the regulatory, competitive and technological environments established.

We also examined the Commission's support in relation to these three topics.

14. This audit covered all the funding sources listed in Table 2: ERDF, EAFRD, CEF, EFSI, EIB loans and CEBF. It focused on five Member States: Ireland, Germany, Hungary, Poland and Italy. These Member States represent around 40 % of the EU population, and were selected to provide reasonable balance in terms of geographical spread and aspects of broadband coverage, such as rurality and subscription cost. The audit covered the 2007-2013 and the 2014-2020 programme periods.

15. At EU level, the audit covered all the Commission Directorates-General with significant roles in broadband¹⁴, as well as the EIB with regard to the EFSI and the CEBF. The audit team visited various relevant stakeholders and NGOs in Brussels and the Member States: telecommunication associations, consumer associations and enterprise associations. Visits in the Member States examined included ministries responsible for setting up and implementing the broadband strategy, bodies responsible for managing the programmes funded through the ESI funds, Broadband Competence Offices, and National Regulatory Authorities. We also benefited from the input of telecommunication experts on the observations, conclusions and recommendations of this report.

¹⁴ DG CNECT, DG REGIO, DG AGRI, DG ECFIN and DG COMP.

OBSERVATIONS

Although broadband coverage is improving across the EU, some Europe 2020 targets are unlikely to be achieved

16. We reviewed the progress achieved by the Member States since 2010 against the three Digital Agenda targets (see **paragraphs 6 and 7**). We also took account of whether Member States were likely to achieve the 2025 targets, and assessed the Commission's monitoring and its support to the Member States.

All Member States achieved the basic broadband coverage target by 2016

Target 1: by 2013, to bring basic broadband to all Europeans

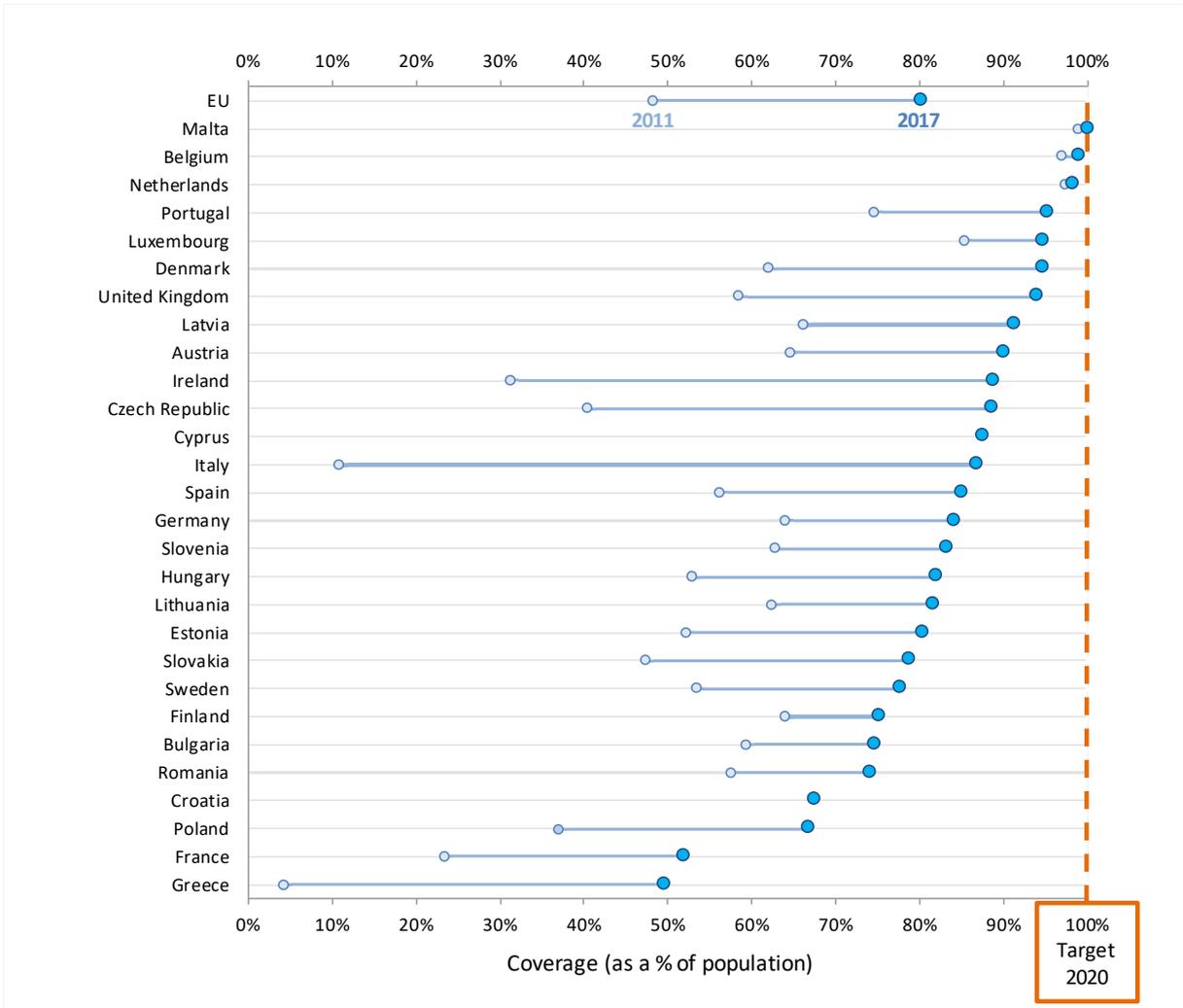
17. At the end of 2013, all Member States except the three Baltic States (Estonia, Latvia and Lithuania) had achieved the target for basic broadband coverage. By the end of June 2016, virtually all citizens in the EU had access to basic broadband networks and 98 % of the households had access to fixed broadband connections.

Two of the five examined Member States may achieve the 30 Mbps coverage target by 2020 but rural areas remain problematic in most Member States

Target 2: by 2020, to ensure coverage of all Europeans with fast broadband (> 30 Mbps)

18. For this target, we found significant improvement in most Member States. Across the EU, the proportion of households with access to fast broadband increased from 48 % in 2011 to 80 % in June 2017. At that date, Malta had already achieved the target. However, there remain important differences between Member States: Greece and France had achieved about 50 % coverage, and a further seven Member States remained below 80 % (see **Figure 2**).

Figure 2 - 30 Mbps coverage in all Member States in 2011 and in 2017



Note: no data was available for Cyprus and Croatia in 2011.

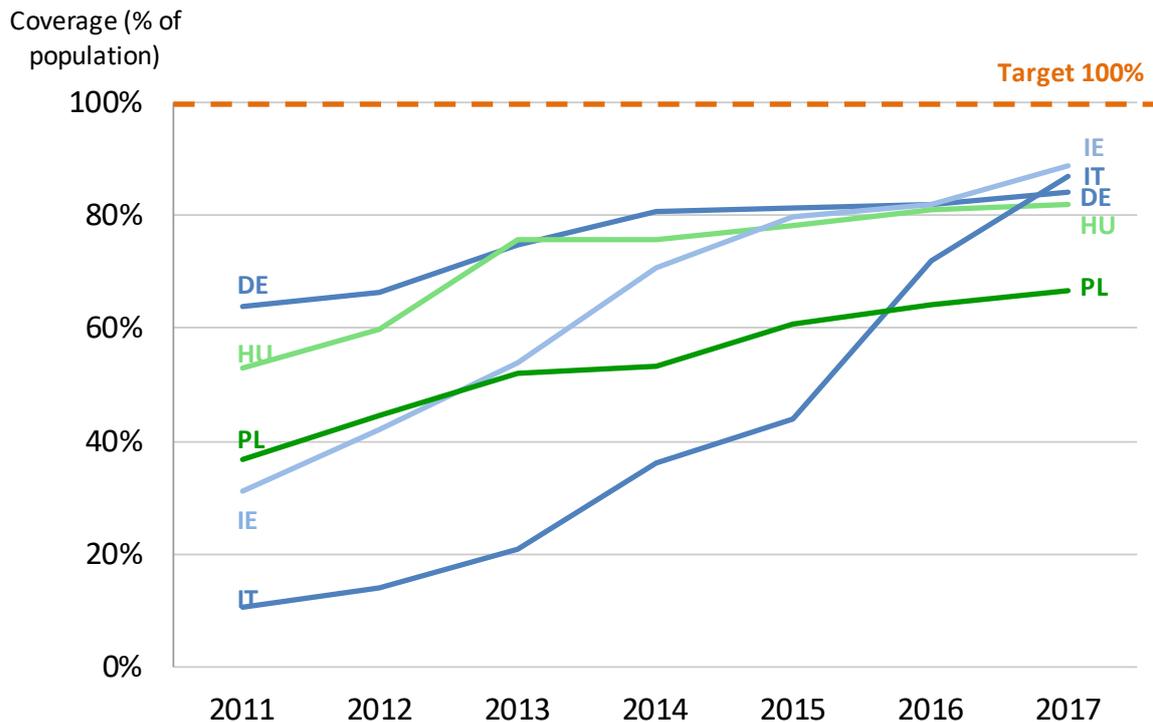
Source: ECA analysis based on Commission data.

19. In the five audited Member States, the trend was also for increased coverage between 2011 and 2017 (see **Figure 3**). Through a combination of private and public investments, Hungary, Ireland and Italy have significantly increased their fast broadband coverage since 2011. In addition, these three Member States have plans to increase further this coverage in rural and sub-urban areas.

20. However, in the cases of Ireland and Italy, based on past progress and current plans, it is unlikely that the 30 Mbps will be available to all citizens by 2020. Two Member States, Hungary and Germany, could still achieve 100 % coverage of the population at 30 Mbps by 2020, based on their deployment plans. In Poland, at the end of 2017, the deployment plans

did not include the coverage of 13 % of the households by 2020, primarily in sub-urban and rural areas (see [paragraph 57](#)).

Figure 3 - Evolution of 30 Mbps coverage in the five examined Member States from 2011 to 2017



Source: ECA analysis based on Commission data.

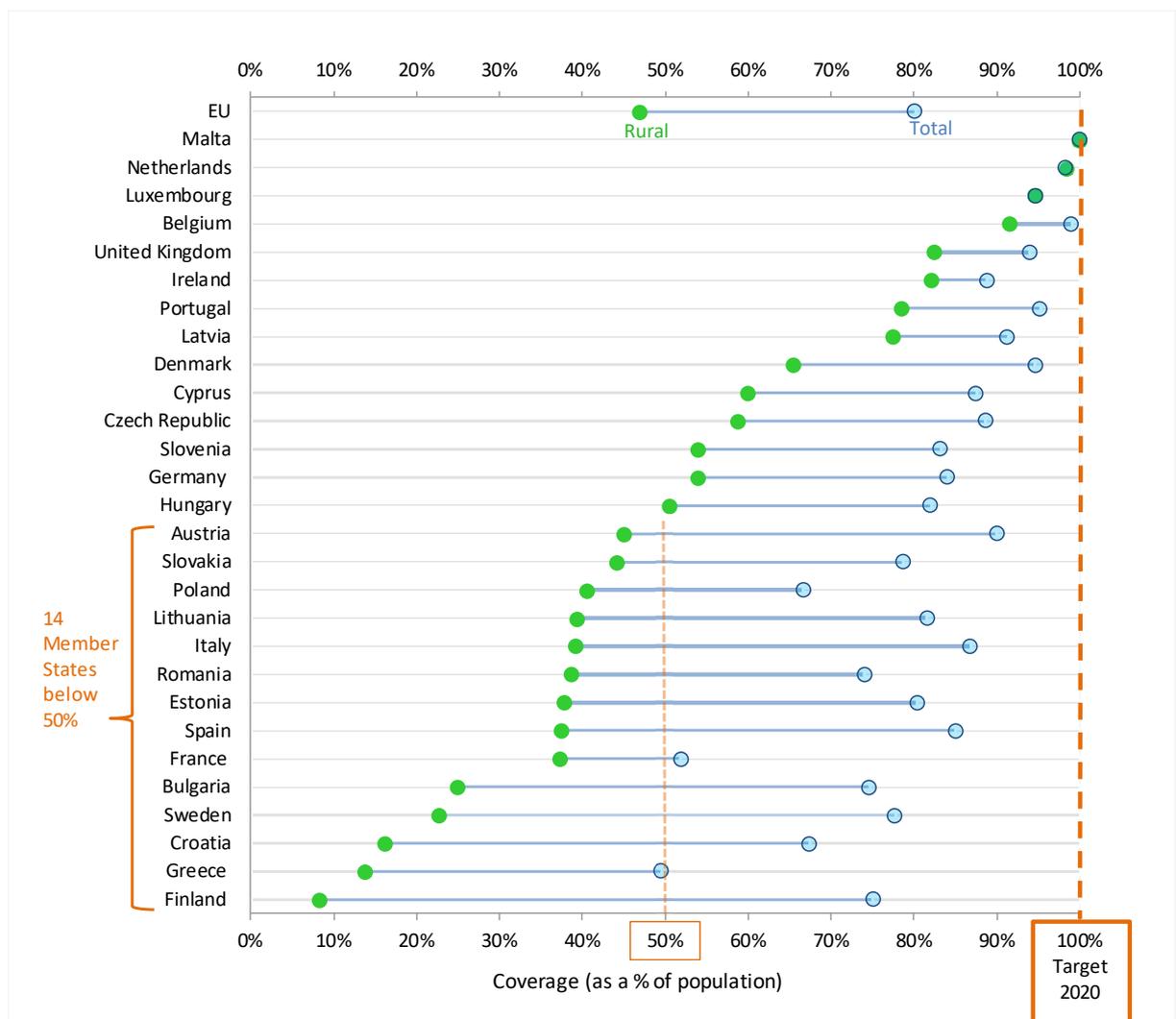
21. This general increase in fast broadband coverage hides a significant discrepancy between coverage in urban and rural areas. Across the EU, coverage in rural areas was 47 % of the households in 2016, against the overall average of 80 %¹⁵. Only three, relatively small or urbanised Member States, Malta, Luxembourg and the Netherlands had coverage in their rural areas equivalent to the urban areas (see [Figure 4](#)). In many Member States, rural coverage is far below the total coverage and for 14 Member States the high speed

¹⁵ The urban/rural discrepancy was highlighted in a November 2017 speech by Commissioner Hogan: https://ec.europa.eu/commission/commissioners/2014-2019/hogan/announcements/speech-broadband-competence-office-launch-event-20th-november-2017-brussels_en.

broadband coverage in rural areas is less than 50 %. Without good broadband coverage, the risk is that rural areas miss out on the economic and social benefits that can flow (see paragraph 1).

22. In France, the updated national broadband plan of 2013 aimed at a coverage of the whole population at speeds of 30 Mbps by 2022, with a coverage of 80 % of the population through fibre. However, in a report of January 2017, the French Court of Auditors questioned the relevance of the use of fibre in certain areas, since the costs of fibre are high and the implementation timing too long. France is now considering the use of other technologies such as 4G fixed wireless connections in certain areas.

Figure 4 - 30 Mbps coverage in rural areas compared to total coverage in 2017



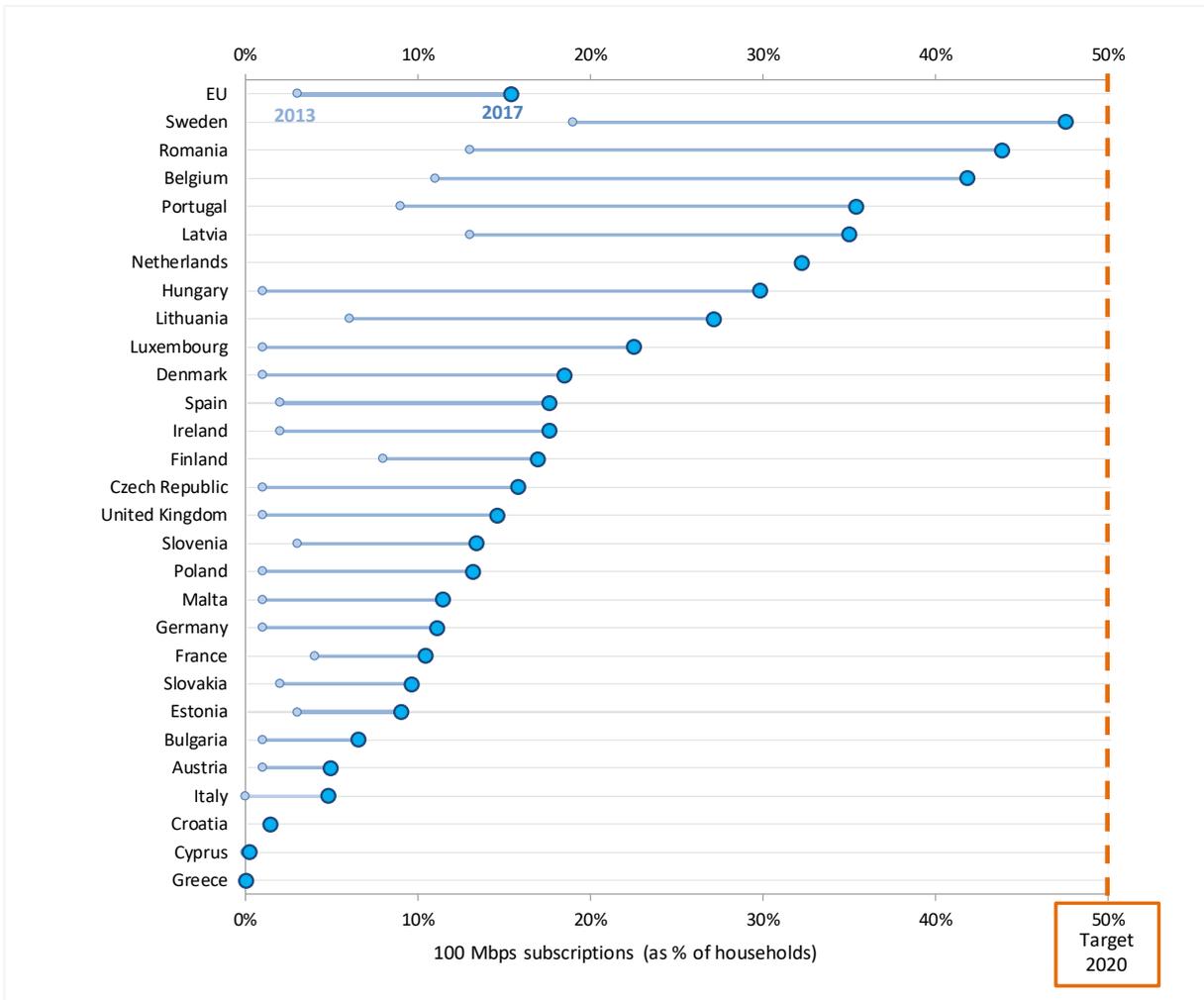
Source: ECA analysis based on Commission data.

While most of the examined Member States are not likely to achieve the take-up target by 2020 ...

Target 3: by 2020, to ensure take-up of 50 % or more of European households to ultra-fast broadband (> 100 Mbps)

23. The availability of ultra-fast broadband is a pre-requisite for households subscribing to 100 Mbps services. However, take-up is also driven by demand and depends on multiple variables such as population age and education, subscription price, and purchasing power. Target 3 remains very challenging for all Member States. Although take-up has increased since 2013, in 2017 it remained under 20 % in 19 Member States, a long way short of the 50 % target. Across the EU, only 15 % of European households had subscribed to connections of at least 100 Mbps mid 2017 (see [Figure 5](#)). We note that Gigabit Society targets for 2025 ([paragraph 8](#)) do not include a target for take-up.

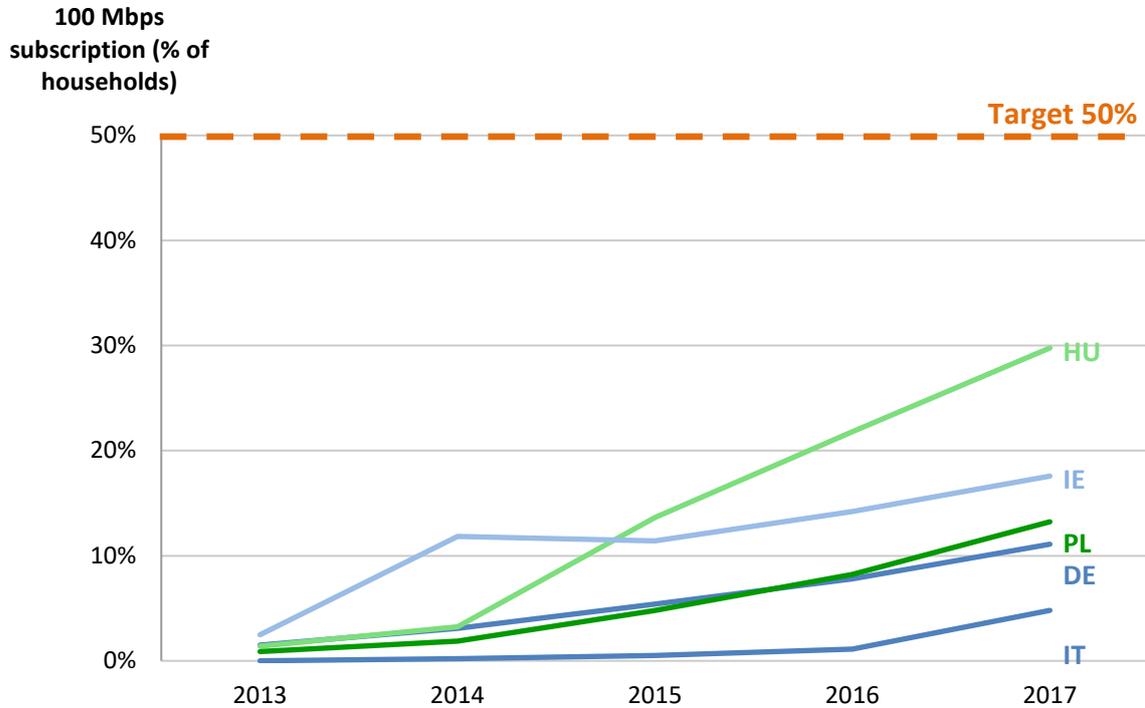
Figure 5 - 100 Mbps subscriptions in 2013 and 2017



Source: ECA analysis based on Commission data.

24. In the five Member States examined, take-up ranged from under 5 % to nearly 30 % in 2017. For these five Member States, with the exception of Hungary, the rate of increase in take-up exhibited since 2013 would not be sufficient to achieve the 50 % take-up target by 2020 (see **Figure 6**).

Figure 6 - 100 Mbps subscription evolution in the five examined Member States from 2013 to 2017



Source: ECA analysis based on Commission data.

... three of the examined Member States may, based on their current plans, be in good position to achieve the 2025 targets

25. The Commission's communication of 2016 on the Gigabit Society set three strategic objectives to achieve for 2025. These objectives complement those laid down in the Digital Agenda for 2020 and require speeds of 100 Mbps up to 1 Gbps.

26. As explained above (see [paragraph 20](#)), Ireland and Italy are unlikely to achieve the 100 % coverage at 30 Mbps by 2020. However, if their current plans are implemented as intended, together with Hungary, Ireland and Italy will be better placed to achieve the 2025 targets. In these Member States, the technologies used to increase the coverage, mainly coaxial cable and fibre, enable speeds of over 100 Mbps, in some cases upgradable to 1 Gbps. The other two Member States will have to adapt their plans to reflect the 2025 targets.

The Commission’s support was positively assessed by the Member States but its monitoring is uncoordinated across Directorates-General

27. We examined whether the Commission provided the Member States with guidance on broadband and supported the Member States in the practical implementation of their plans. We assessed whether the Commission supported the Member States in monitoring their achievements, including whether the Commission encouraged the Member States to address shortcomings in relation to their achievement of broadband objectives.

The Commission’s guidance and support covered multiple issues and was continuously rolled out to improve implementation

28. The Commission provided a wide range of guidance, covering a number of different topics. This included Communications (such as the EU Guidelines for the application of State aid rules in relation to the rapid deployment of broadband networks¹⁶), explanatory guides in different fields, prepared by third parties for the Commission (such as the “Guide to High-Speed Broadband Investment”¹⁷ and “The broadband State aid rules explained, An eGuide for Decision Makers”¹⁸), as well as the dissemination of good practice. An example of helpful guidance provided by the Commission is in **Box 4**.

Box 4 - Broadband Mapping

Mapping is a key element of planning broadband networks and provides the basis for EU State aid assessment of these projects. The mapping of broadband networks helps to target funding more effectively and facilitates planning. Poor mapping on the other hand can result in poor financial viability of both public and private investment.

Broadband mapping is the gathering and presentation of data related to the deployment of broadband. This mapping is not only linked to geo-referential visualisation; it comprises the entire

¹⁶ EU Guidelines for the application of State aid rules in relation to the rapid deployment of broadband networks, Commission Communication 2013/C 25/01.

¹⁷ Release 1.1, 22.10.2014, which replaced the previously published Guide to Broadband Investment, 2011.

¹⁸ Final report, 2013, WIK-Consult GmbH (SMART 2013/0064).

process of data collection. This can be data on the deployment of broadband infrastructure itself, i.e. copper or fibre cable, and it can also be related to infrastructure, such as ducts and pipes.

Additionally, broadband mapping needs to consider the actual supply of and demand for broadband services as well as existing and planned investments in broadband infrastructure.

A study for the Commission¹⁹ reviewed broadband and infrastructures mapping initiatives in Europe and around the world and developed four types of broadband mapping: infrastructure mapping; investment mapping; service mapping and demand mapping. Publicly available maps and statistics are the most visible outcomes of broadband mapping in EU Member States and are in most cases a combination of the four types of broadband mapping.

29. In addition to written guidance, the Commission provided practical technical support (e.g. JASPERS²⁰), expertise and guidance to the Member States in different contexts (e.g. fulfilment of the ex-ante conditionalities, including mapping, as above²¹, and the implementation of the Operational Programmes). The Commission has also set up the European network of Broadband Competence Offices (see **Box 5**).

30. The five examined Member States reported to us that they assessed the formal and informal support provided by the Commission as positive.

Box 5 - The European network of Broadband Competence Offices (BCO)

In November 2015, the Commissioners of DG CNECT, DG AGRI and DG REGIO invited the Member States to take part, on a voluntary basis, in the setup of a network of BCOs. The intention was for each BCO to give advice to citizens and businesses and provide technical support to representatives

¹⁹ “Broadband and infrastructure mapping study SMART 2012/0022”, TÜV Rheinland and WIK Consult for the European Commission, 2014.

²⁰ Joint Assistance to Support Projects in European Regions. JASPERS support for broadband consisted mainly in supporting the Member States in their Cost-Benefit analysis and major projects application for funding under ERDF. For more information on JASPERS, see ECA Special Report 1/2018 “Joint Assistance to Support Projects in European Regions (JASPERS) –time for better targeting”.

²¹ In 2017, the Commission decided to implement a common methodology for mapping by 2018.

of local and regional authorities on ways to invest effectively in broadband, including the use of EU funds.

The BCOs were set up by the end of 2016. In January 2017, the Commission set up a Support Facility which helps the BCOs in running events, workshops and training seminars, as well as managing and moderating web-based forums about relevant topics to the BCOs. The potential advantage of the BCO network is that BCOs are able to deal with a wider range of issues and tasks, including policy matters, than a technical specialist would be able to.

The Commission monitored regularly, but in an insufficiently coordinated manner

31. The Commission carries out regular monitoring on the state of play of broadband in the Member States and aggregates the information at EU level. However, there is no common monitoring across the Commission's Directorates-General to support the achievements of the Europe 2020 broadband targets.

32. DG CNECT staff visits the Member States annually and produces market and regulatory reports such as the Digital Economy and Society Index (DESI) and the European Digital Progress Report (EDPR). These documents allow the Member States to compare their achievements over time and with other Member States. Although the Commission collects the relevant data and has been reporting it in the EDPR and its predecessors, the connectivity indicators reported in DESI do not include target 3 (50 % of households with subscriptions of over 100 Mbps).

33. DG REGIO's monitoring is based on the indicators defined for each Operational Programme and takes place through the Monitoring Committees in which the Commission has an advisory role and the Annual Implementation Reports. The common output indicator defined by the Commission for ERDF spending does not allow progress against the achievement of all three Digital Agenda 2020 targets to be monitored, as it is defined as "Additional households with broadband access of at least 30 Mbps" and is not broken down between fast broadband (above 30 Mbps) and ultra-fast broadband (above 100 Mbps). This is also the case for the EAFRD, for which DG AGRI defined the output indicator as "Population benefiting from improved services/infrastructures (IT or others)". Both for the

ERDF and EAFRD, the common indicators do not distinguish between fast broadband and ultra-fast broadband.

34. Our examination of the selected Member States demonstrated a number of delays which affect the achievement of the EU 2020 targets. In the case of Ireland, since 2015 the National Broadband Plan implementation has encountered delays. In Germany, the negotiations on the virtual unbundled local access product (VULA) (**paragraph 48**) have been time consuming with potentially detrimental competitive effects. Finally, in the case of Poland, the Operational Programmes' monitoring did not highlight the issue of under-use of the backbone infrastructure (**paragraphs 76 to 78**). At the time of the audit, none of these three shortcomings had been explicitly identified by the Commission's monitoring, and no remedial action had been taken by the Member State authorities concerned.

All Member States developed broadband strategies, but there were weaknesses in those we examined

35. We examined whether the Member States designed strategies and set objectives based on the Europe 2020 broadband objectives and whether they were complete in terms of identifying the resources available, the funding sources and responsibilities for its implementation. We also examined whether the Member States provided an analysis justifying the choice of technology (optical fibre, copper phone, coaxial cable, antenna, satellite) for the different parts of the broadband access network (see **paragraph 3**).

All Member States developed strategies, but they were late and their targets were not always consistent with those in Europe 2020

Timing of strategies

36. Under the EU's 'Digital Agenda for Europe' flagship initiative (**paragraph 6**), Member States were required to "develop and make operational national broadband plans by 2012 that meet the coverage and speed and take-up targets defined in Europe 2020".

37. We found that all the examined Member States developed broadband strategies but only Ireland issued its strategy by the 2012 deadline (see **Table 3**). The other four Member States published their strategies in 2014 and 2015. Ireland revised its strategy in late 2015

due to the identified market failures. These late adoptions of the Member States' strategies reduced the time available for implementation from eight years to five or six years, potentially making the targets of increasing broadband coverage by 2020 more challenging for these Member States.

Table 3 - Publication dates of strategies

Member State	Date of publication of the strategy
Ireland	August 2012: National Broadband Plan. Subsequently revised in December 2015
Poland	January 2014: National Broadband Plan
Germany	August 2014: the Digital Agenda 2014-2017
Hungary	December 2014: the National Infocommunication Strategy
Italy	March 2015: National strategy for ultra-fast broadband

Consistency with the Europe 2020 objectives

38. We examined whether the Member States set objectives based on the Europe 2020 broadband objectives. We found, as highlighted in **Table 4**, that all the examined Member States included both targets 1 and 2, for basic and fast broadband coverage respectively, in their strategies. For four of the five Member States examined, target 1 had already been achieved when the strategies were published. In some cases, the targets set were more ambitious than the Europe 2020 targets:

- In Germany, for target 2, rather than coverage of 30 Mbps by 2020, the target is to cover 100 % of the population with speeds of 50 Mbps by 2018; and
- In Hungary, for target 2, the objective is a minimum of 30 Mbps internet service accessible for each household by 2018, rather than 2020.

Table 4 – The examined Member States’ broadband targets in relation to the Europe 2020 targets

Targets	Germany	Hungary	Ireland	Italy	Poland
Target 1: Basic broadband for all population by 2013	✓✓	✓	✓	✓	✓
Target 2: 30 Mbps coverage for all population by 2020	✓✓	✓✓	✓	✓	✓
Target 3: Above 50 % of households subscribe to 100 Mbps by 2020	✗	~	✗	~	~

Legend: ✓ : same target; ✓✓ : more challenging target; ~ coverage target but no take-up target; ✗ no target.

39. Some Member States’ strategies provided more detail on their targets than the high level Europe 2020 targets. In Hungary the strategy set additional targets for minimum download and upload speeds of 7.5 and 1.7 Mbps respectively. In Ireland, the strategy document set the minimum download speed at 30 Mbps and included additional targets relating to, for example, the minimum upload speed and the service availability.

40. None of the examined Member States included in their strategies a national target relating to Target 3, take-up by 50 % of households to ultra-fast broadband of at least 100 Mbps. Hungary, Poland and Italy included targets for the coverage of households at 100 Mbps. (Coverage is a necessary condition for achieving the take-up target, but not sufficient.) In Italy, the target is to provide at least 100 Mbps to 85 % of the population and to all public buildings as well as industrial areas, logistics hubs, and areas of major economic interest. Although the Italian strategy does not include a target for take-up, its investment plan, which sets out how it intends to implement its strategy, did include a take-up target. In Hungary and Poland, the targets are for 50 % of households to have access to services at speeds of at least 100 Mbps by 2020.

The examined Member States’ strategies submitted to the Commission were not always complete

41. Designed to ensure that the necessary conditions for the effective and efficient use of the European Structural and Investment funds are in place, the Commission developed Ex

ante conditionalities (EAC) for the 2014-2020 programme period. Member States were required, as a condition of funding, to determine whether the relevant EACs were fulfilled and document it in their Partnership Agreements²² or Operational Programmes (OP) (or to have plans to do so by the end of 2016).²³

42. The EAC related to broadband infrastructure applied to Member States seeking ERDF co-financing and required them to have in place a national or regional broadband plan containing:

- a plan of infrastructure investments based on an economic analysis taking account of existing private and public infrastructures and planned investments;
- sustainable investment models that enhance competition and provide access to open, affordable, quality and future proof infrastructure and services in line with competition and State aid rules; and
- measures to stimulate private investments.²⁴

43. The five examined Member States all determined the EAC on broadband as fulfilled. As part of its examination of the Partnership Agreements and OPs, the Commission also assessed the condition as fulfilled for these Member States. However, we found weaknesses in the Member States' plans for infrastructure investments. Firstly, as set out in paragraph 40 above, none of the examined Member States had targets in their strategies for take-up at

²² Partnership Agreements set out the national authorities' plans on how to use funding from the European Structural and Investment Funds and outline each country's strategic goals and investment priorities, linking them to the overall aims of the Europe 2020 strategy.

²³ For more details on EACs, see SR 15/2017 "Ex ante conditionalities and performance reserve in Cohesion: innovative but not yet effective instruments".

²⁴ Article 19 and Annex XI of Regulation (EU) No 1303/2013 of the European Parliament and of the Council of 17 December 2013 laying down common provisions on the European Regional Development Fund, the European Social Fund, the Cohesion Fund, the European Agricultural Fund for Rural Development and the European Maritime and Fisheries Fund and laying down general provisions on the European Regional Development Fund, the European Social Fund, the Cohesion Fund and the European Maritime and Fisheries Fund and repealing Council Regulation (EC) No 1083/2006 (OJ L 347, 20.12.2013, p. 320).

100 Mbps, the third target on broadband in the Europe 2020 strategy. Secondly, the broadband plans of Germany was incomplete.

44. In Germany, an important element of the broadband strategy was the broadband mapping process that started in 2010. Without good quality data from this process, and the consequent identification of where the private sector is likely to invest and where more public intervention is needed, the authorities are not in a position to develop the comprehensive ‘plan of infrastructure investments’ required by the EAC. The quality of the data of the broadband mapping has significantly improved since its launch in 2010 but is not always satisfactory, as larger broadband operators do not update the map as fast as they deploy the network.

Not all the examined Member States have addressed the challenges related to their legacy infrastructure

45. Each of the examined Member States operates within its own technological, competitive and legal environment; this influences the way that each is seeking to meet the Europe 2020 targets. Poland and Hungary have relatively less developed legacy copper infrastructure for telephone systems. When the public authorities used the gap funding model for public tenders for broadband infrastructure (see **Box 6**), the result was usually the use of cable and fibre solutions.

Box 6 - Public sector support for broadband

According to the Commission²⁵ there are four models for public sector support for broadband:

- Direct investment (publicly run municipal investment model) – where the deployment and operation of the network is controlled by a public authority and the network is available to all operators (known as a wholesale open access network);

²⁵ <https://ec.europa.eu/digital-single-market/en/main-financing-tools>.

- Indirect investment (privately run municipal investment model) – where a publicly contracted private company builds an open network over which operators can provide its services to individual customers;
- Support to community-led initiatives (the community broadband model) – a bottom-up approach with broadband deployment done by private initiative involving local citizens; and
- Operator subsidy (gap funding model) – a public authority provides the funding needed to bridge the gap in investment between what is commercially viable for the private sector and what is needed to provide adequate infrastructure.

46. Germany, Italy and Ireland have a well-developed copper legacy infrastructure. In Germany and Italy, when the gap funding model was used in public tenders for broadband infrastructure, the tendency was to use the copper infrastructure owned by the incumbent (the national historic telecommunications operator). In Ireland, the gap funding model is used for the public tender related to the National Broadband Plan but the tendering process is designed in such a way that the use of copper is not incentivized because of the requirements in speeds. In Italy, in 2016 the authorities decided to use the direct investment model for public tenders to deploy broadband over a wholesale open access network. The result has been an increase in the use of fibre solutions and access to infrastructure and services at affordable prices.

47. In Germany, the incumbent is making extensive use of vectoring technology to improve its broadband coverage. This is a technology that allows increased speed over copper lines. With vectoring, speeds of between 60 and 100 Mbps are currently achievable. In the future, speeds exceeding 100 Mbps for downloads may be possible.

48. Vectoring has the advantage that it is cheaper than laying new infrastructure. However, vectoring also has its limitations. First, the advertised speeds are for a limited number of users; the more users are connected, the lower the speed. Secondly, vectoring is a short-term solution: it is not future-proof in the way that fibre and coaxial cable are. While it may be good enough to meet the Europe 2020 targets, vectoring is unlikely to be sufficient for the Gigabit Society ambitions for 2025, when speeds of 1 Gbps will be required (**paragraph 8**). Thirdly, the prerequisite for vectoring is that only one provider has sole

physical access to the last mile (**Figure 1**), potentially restricting competition. To address this issue, following extensive discussions with the Commission, in September 2016 Germany notified its intention to use a virtual unbundled local access product (VULA) in relation to the roll-out of publicly funded broadband infrastructure (see **Box 7**).

Box 7: Regulating Vectoring through VULA in Germany

A VULA product requires the network operator to transport competitors' data traffic at conditions similar to those the competitors would have had with physical access to the copper lines. This preserves the possibility for competitors to make their own diversified high speed internet offers to their customers even when vectoring is used by the network operator.

In September 2016, Germany notified to the Commission three VULA products proposed by telecommunications companies for their respective broadband roll-out projects under the national broadband scheme. The Commission published a decision in August 2017 in which it took the view that the introduction of VULA products can compensate the negative effects of vectoring for publicly funded broadband infrastructure.

However, the VULA solution is complex and some experts consider that VULA is a step back. Alternative operators can only use the services offered by the incumbent as their new products are not supported at service level. As a result, alternative operators often decide to deploy fibre networks after realizing that building their own infrastructure is more commercially viable (see also **paragraph 66**).

Various factors limited Member States' progress towards meeting broadband targets

49. We examined the implementation of the broadband plans in the Member States to identify factors limiting the Member States' progress towards achieving broadband targets. We focused on financing in rural areas, the regulatory and competitive environments put in place, and coordination across different programme periods and sources of funding.

Financing in rural and sub-urban areas is not properly addressed in some Member States

50. We assessed whether the Member States and the EIB analysed the needs for broadband in different areas (urban, sub-urban and rural areas²⁶). We also checked whether they identified and allocated relevant funding sources to address each area depending on its characteristics, ensuring complementarity and avoiding overlaps.

51. As explained in paragraph 9, the amount required to achieve the 2020 broadband targets was estimated at up to 250 billion euro in 2013. The EIB also estimated that half of the costs are in rural areas, where 20 % of the population lives.

Examined Member States

52. Private operators provide most of the investments for broadband. The rest of the funding – the “financing gap” – is decided at the national level. Four of the examined Member States (Hungary, Ireland, Italy and Poland) identified the financing gap. Although all examined Member States used EU funds, with the exception of Poland and Hungary most of the public support for broadband comes from the national budget.²⁷ Three of five examined Member States identified areas with insufficient broadband speed and set aside ESIF and public financing.

53. We found that, of the Member States which had identified the financing gap, only Hungary and Italy had allocated sufficient resources to achieve fast broadband coverage for all households. The Hungarian authorities performed a broadband mapping exercise in 2014-2015 and established that 883 000 premises needed to be covered. Private operators committed to cover 384 000 premises, leaving just under 500 000 premises for public intervention. The authorities designed several calls for proposal and allocated 164 million euro from the ERDF and 29 million euro from the national budget to subsidise the operators

²⁶ Urban areas are areas with more than 500 inhabitants/km²; sub-urban areas have 100-500 inhabitants/km²; rural areas are areas with less than 100 inhabitants/km².

²⁷ 53 % in Italy, 73 % in Ireland and over 90 % in Germany.

through the gap funding model for a total subsidy of 193 million euro for a total investment, including private financing of 240 million euro.

54. The Italian authorities performed a mapping exercise in 2016 and 2017 and committed 3 billion euro to finance broadband in all the areas not commercially viable. The authorities decided to use the direct investment model (**Box 6**) to set up a wholesale open access network. At the time of the audit, the allocation of public sources was not yet finalized but was estimated at 1.4 billion euro from the ERDF and EAFRD (including the national co-financing) and 1.6 billion euro from other national sources.

55. In Ireland, the mapping process that started in 2013 defined the intervention area to be covered by the National Broadband Plan, originally 757 000 premises. The mapping was finalised in April 2017 with 540 000 premises in the public intervention area, since the incumbent had decided to cover 300 000 premises and since additional premises were added. The amount allocated by the Irish Government for the roll-out of broadband was 275 million euro for 2016 to 2021, including 75 million euro from the ERDF. Although the tendering process had not been completed at the time of the audit, this sum is highly unlikely to be sufficient to bridge the financing gap. In addition, between September 2017 and January 2018, two of the three remaining bidders decided to pull out of the process. With only one bidder left in the tendering process, the impact on the cost and timing of the broadband deployment remains unclear as of March 2018.

56. In Germany, the authorities did not identify the total cost of covering all households with speeds of 30 Mbps and they therefore did not centrally address the investment gap.²⁸ The German government set aside more than 4 billion euro through the federal broadband programme for the 2014 to 2017 period to finance municipalities' broadband projects. The 16 "Länder" (regional states) and the federal investment bank²⁹ have their own funding

²⁸ A consulting firm estimated the cost of fibre deployment at 45 billion euros, if synergies with already existing infrastructure are re-used. WIK- Studie Treiber für den Ausbau hochbitratiger Infrastrukturen, p. 8.

²⁹ Kreditanstalt für Wiederaufbau (KfW).

programmes.³⁰ In addition, the EU funds for broadband amount to 362 million euro: 225 million euro from the EAFRD and 137 million euro from the ERDF. Finally, the EIB has granted 2.2 billion euro through six loans since 2014. However, in the absence of any analysis of the financing gap by the German authorities, it is not clear if this level of public support will be sufficient to achieve 100 % coverage at 30 Mbps.

57. In Poland, the National Broadband Plan published in January 2014 estimated that 5.7 million households were still to be covered with fast broadband at a total cost of 4.3 billion euro. Private operators would cover 3.1 million households in commercially viable areas at a cost of 2 to 3 billion euro. The ERDF funds made available for the Digital Poland OP are estimated in the national broadband plan at between 1.3 and 2.2 billion euro. However, at the time of the audit, two of the national financing tools specified in the National Broadband Plan³¹ were not in place and potential new sources of funding for broadband development had not been identified. As at January 2018, three calls for proposals for the Digital Poland OP had been organized and a financial instrument implemented. We found that, with the majority of ERDF funds already committed, an estimated 1.3 million households – among those most difficult to connect – may remain unconnected if additional funding sources are not found.

EIB financing

58. The EIB strategy takes into account the three broadband targets of the Digital Agenda for Europe in its Operational Plans for 2014-2016 and for 2017-2019. For financing broadband infrastructure, the EIB can use a range of loans and financial instruments, depending on the project sizes and risk levels. The European Fund for Strategic Investment (EFSI) aims to finance more risky projects of medium to large size (15-50 million euro and above 50 million euro respectively). The Connecting Europe Broadband Fund (CEBF), not operational at the

³⁰ For example, Bavaria has allocated 1.5 billion euro for broadband.

³¹ funds from “Polish Investments” and open pension funds amounting to 1.75 to 2.5 billion euro (7-10 billion PLN).

end of December 2017, is primarily designed to provide financing up to 30 million euro for smaller projects.

59. From 2015 to 2017, the EIB has provided 2.0 billion euro of EFSI to finance projects related to broadband. We examined a project financed through the EFSI representing around a quarter of this sum –the EFSI loan was 500 million euro, for a total project cost of 1.8 billion euro. The project aimed at increasing broadband coverage through the use of fibre.

60. We found three major weaknesses in relation to this project. First, the project did not focus on under-served areas, but increased high-speed broadband coverage mainly in areas that are already commercially viable, such as cities. Secondly, we did not find evidence that the EFSI was the best financing tool. Indeed, this project could have been financed with an EIB loan because of its size and because of the areas where it deployed broadband. Thirdly, for certain areas, the project had already received close to 400 million euro of grants from the ERDF, reducing the risk for the EIB.

61. The planned size of the CEBF is around 500 million euro: 100 million euro provided by the Commission via the CEF³², 140 million euro from the EIB (own funds and EFSI), 150 million euro from other international financial institutions and national promotional banks³³, and a target of at least 100 million euro from private investors. At the time of the audit, the CEBF was planned to be operational in early 2018. The CEBF is designed to finance smaller-scale, higher-risk broadband projects in under-served areas, through equity and quasi equity. Smaller projects could be aggregated in order to reach a critical size and qualify for CEBF support.

62. The CEBF aims to invest in some 7 to 12 broadband projects each year from 2017 to 2021, across 20 countries. It should support deployment of broadband to an additional 3 to 6 million households. The CEBF is designed to complement the other funding tools available

³² These 100 million euro are allocated from the 156 million euro for the financial instrument of the CEF.

³³ Such as KfW Bankengruppe, Cassa Depositi e Prestiti and Caisse des dépôts et consignations.

from the EIB in focusing on smaller projects. However, the targeted size of the CEBF, around 500 million euro, means that it can make only a limited contribution to the investment needed in areas with low broadband coverage.

The legal and competitive environment poses problem in some Member States

63. We examined whether the Member States had put in place an appropriate legal and regulatory environment, designed to incentivise competition for broadband services, in line with relevant EU legislation. We thus analysed each examined Member State against:

- the Commission recommendation on regulated access to ‘next generation access’ networks³⁴,
- the directive on universal service and users’ rights relating to electronic communications networks and services³⁵, and
- the Commission recommendation on consistent non-discrimination obligations and costing methodologies to promote competition and enhance the broadband investment environment³⁶.

64. We found that Hungary, Italy and Poland had adequate regulatory and competitive environments for broadband. In the case of Ireland and Germany, we found weaknesses that result in competitive issues.

65. In Ireland, ComReg, the National Regulatory Authority (NRA), documented in 2015 and 2016 multiple complaints from operators which related to network access and to its pricing, for instances from 2010 onwards. The process of analysing the complaints was lengthy and in some cases resulted in legal action (the outcomes of which were unknown at the time of the audit), since the incumbent did not comply with the decision or remedy. Ireland’s ability

³⁴ Commission recommendation 2010/572/EU.

³⁵ Directive 2002/22/EC of the European Parliament and of the Council of 7 March 2002 on universal service and users' rights relating to electronic communications networks and services (Universal Service Directive) (OJ L 108, 24.4.2002, p. 51).

³⁶ Commission recommendation 2013/466/EU.

to enforce its regulatory decisions and remedies was therefore limited. We note that ComReg is seeking to increase its powers.

66. In Germany, we found three weaknesses affecting the competitive environment:

- Despite a legal obligation that existed for more than four years to make changing operator easy, as indicated by the number of complaints received by the NRA, changing broadband supplier remains problematic for customers, as it is lengthy and often disruptive.
- An independent test, performed in 2015 and 2016, highlighted that only 12 % of users were receiving the maximum data transfer rate as stated in their contract.³⁷
- Alternative operators have complained about the type of services they can offer using VULA and, the method of regulating the vectoring technology (paragraphs 47 to 48). As a result some operators have decided to build their own fibre network.

State aid for broadband investments

67. Public investment in broadband by Member States, like other forms of investment, is subject to State aid rules, designed to limit any distortion of competition from public sector support³⁸. The broadband State aid guidelines were adopted in 2009 and revised in January 2013. They set out the scope of possible State intervention for broadband in relation to speeds of 30 Mbps, by defining different areas as black, grey or white, depending on the extent of competition to provide coverage³⁹. The white areas are in principle eligible for State aid. In grey areas the Commission must carry out a more detailed analysis in order to

³⁷ The Transparency Regulation of June 2017 aims to address this issue as it will require fixed and mobile providers to provide more information about, among other things, the actual data transfer rate.

³⁸ Articles 26 and 107 of the Treaty on the Functioning of the European Union (TFEU).

³⁹ In *white* areas no provider of broadband access services currently is operating and there is no such provider to be expected in the coming three years either. In *grey* areas there is one (infrastructure-based) provider already active, however, another network is unlikely to be developed in the next three years. In *black* areas there are or there will be in the next three years at least two basic broadband networks of different operators.

verify whether State intervention is needed. In black areas broadband services are provided under competitive conditions and State aid is permitted only under certain conditions, including whether or not a ‘step change’ in service provision is delivered.

68. The Commission’s position is that, while these guidelines refer to the Digital Agenda which mentions specifically to 30 Mbps, they are also relevant for the 100 Mbps and the Gigabit Society targets. However, some Member States interpret the State aid guidelines differently: they take the view that public funding is prohibited when the intervention increases the speed beyond 30 Mbps in black and grey areas. This difference of interpretation has led to Member States choosing not to use public investment to support operators in black and grey areas.

Crowding out of public investment

69. There is currently no legal obligation for the operators to implement their deployment plans made during the mapping process. An operator can decide not to deploy broadband in an area it had previously planned to invest in. Conversely, an operator can also decide to deploy broadband in an area where it previously planned not to invest, potentially crowding out public investments (see **Box 8**). Both cases lead to a delay in broadband coverage in market failure areas.

Box 8 - Crowding out of public infrastructure by private investments in under-served areas

After the identification of the market failure areas was completed, some Member States tried to ensure private financing in commercially viable areas through agreements with the operators. However the mapping results are not binding in all Member States and the public consultation on the white and grey areas is very time-consuming. In a case in Germany, the incumbent operator decided to invest in areas previously categorized as “market failure areas” once public investment was planned or had started. The incumbent chose to connect the most profitable premises – an example of ‘cherry-picking’. As a result, the public funded project was left with the most difficult and most costly premises to connect, increasing the cost of the public support.

Some Member States improved the process of coordinating broadband investments but we found a lack of coordination across programme periods in one examined Member State

70. We checked whether the Member States managed and coordinated the broadband projects at the right level and ensured economies of scale, together with appropriate technical and administrative capacity. We also verified whether the Member States coordinated their measures across programme periods in order to contribute best to the Member States' strategy.

Broadband investment process coordination

71. In three of the examined Member States, Ireland, Italy and Hungary, we found that the appropriate level of coordination supported broadband deployment and ensured economies of scales. For example, in Ireland, the implementation of the National Broadband Plan is supervised by the Department of Communications, Climate Action and Environment (DCCAIE). The DCCAIE ensures that the broadband strategy is implemented with public subsidies (ERDF and national budget), and it manages the related tendering process at national level.

72. In Italy, in the 2007-2013 programme period, the funding sources for broadband were not coordinated across the ERDF, EAFRD and national funds in the early years. In the 2014-2020 programme period, the implementation of the national broadband plan is under the responsibility of a single entity, Infratel, a company wholly-owned by the Economic Development Ministry. Infratel is in charge of implementing and monitoring the national broadband plan and this includes managing the tendering process. Infratel is also coordinating the funding from the national and, regional sources, and from ERDF and EAFRD. The different sources of financial support are thus contributing in a coordinated manner to achieving the broadband targets.

73. In Hungary, the government issued its national broadband plan in 2014 (National Infocommunication Strategy) and the Superfast Internet Programme (SZIP) was launched in 2015 to ensure fast broadband deployment. For the broadband infrastructure deployment, the ERDF and national funding are centrally managed for the 2014-2020 programme period.

74. In Poland, we found that the coordination of funding sources improved. The ERDF was used together with national funding in the 2007-2013 programme period. While demarcation lines were clearly set-up between national and regional OPs, there were delays in notifying the aid scheme for backbone infrastructure in each regional OP, delaying in turn the implementation of the 'last mile'. In 2014-2020, since the support is channelled under single ERDF OP, we did not find overlapping problems.

75. In Germany, we found a lack of coordination in the use of the various funding sources. Responsibility for implementation of broadband deployment is at regional (Länder) and municipal level, while the financing support is at national and regional level, resulting in a fragmented broadband infrastructure. In addition to the EU funds made available through two EAFRD programmes and eight ERDF programmes, and federal funding from the Digital Agenda 2014-2017 national plan, 16 Länder and the federal investment bank⁴⁰ have their own funding programmes (paragraph 56). At the end of December 2017, although more than 3 billion euro had been allocated to regional governments, no projects had been finalized.

Coordination across programme periods in Poland

76. In Poland, we found that the authorities failed to ensure a coordinated use of funds in the previous and current programme period.

77. In the 2007-2013 programme period, 240 million euro of EU funding was used to build broadband infrastructure in under-served areas in five different regions in eastern Poland, with a total project cost of 347 million euro. The projects were treated as major projects and approved directly by the Commission. They were also subject to a State aid decision by the Commission. The national and regional authorities expected that the last mile connections would be carried out by private operators directly, or that private operators would be supported by funding from the Digital Poland OP in the 2014-2020 programme period.

⁴⁰ Kreditanstalt für Wiederaufbau (KfW).

78. However, the calls for proposals of the Digital Poland OP did not incentivize bidders to connect to the backbone infrastructure financed in the 2007-2013 period. At the time of the audit in June 2017, less than 1 % of backbone capacity was being used. We were not provided with evidence of effective action taken by Poland to address this under-use.

CONCLUSION AND RECOMMENDATIONS

79. We conclude that, despite progress, not all broadband targets will be achieved by 2020. All Member States achieved the basic broadband coverage target by 2016. Two of the five examined Member States may achieve the 30 Mbps coverage target by 2020 but rural areas remain problematic in most Member States. Finally, while none of the examined Member States is likely to achieve the take-up target by 2020, three of the examined Member States may, based on their current plans, be in a good position to achieve the 2025 targets. The support provided by the Commission was assessed as positive by Member States, but its monitoring is uncoordinated across Directorates-General (**paragraphs 16 to 34**).

80. Although all Member States developed broadband strategies, some were published later than the 2012 deadline and there were weaknesses in the Member State strategies we examined. Strategies were not always consistent with the EU 2020 targets: while some set targets that were more demanding than those in the EU 2020 strategy, none of the Member States we examined included in their strategy a national target relating to Target 3, take-up by 50 % of households to ultra-fast broadband (**paragraphs 36 to 40**). Under the ex ante conditionality arrangements governing the ESI Funds for 2014-2020, Member States are required to have national or regional plans in place with details on planned investments. The Commission assessed that these conditions had been fulfilled for all of the Member States examined, but we found an example where a key element was missing: Germany had not developed data of sufficient quality to form the basis of a comprehensive investment plan, although the quality of mapping data has improved in recent years (**paragraph 41**).

81. Member States' decisions on broadband investments are affected by their existing legacy infrastructure. Unlike Poland and Hungary, the legacy of the telephone systems means that Italy, Ireland and Germany had well-developed copper infrastructure. Italy and Ireland designed their investments to incentivise bidders to move away from copper to fibre, capable of much faster speeds. Germany, in contrast, is making extensive use of 'vectoring'

technology. This has the advantage of increasing speed over copper, but it does not offer the future proof speed of fibre and also potentially limits the scope for competition (**paragraphs 45 to 48**).

82. Various environmental factors limited Member States' progress towards meeting broadband targets. These related to the financing, competitive and legal environments.

83. In terms of financing, of the Member States examined, only Germany did not identify the financial support needed from the public sector, the 'financing gap'. While Germany has made over 8 billion euro available, from a mix of sources, it is not clear whether this will be sufficient. Of the other four Member States, only Hungary and Italy allocated sufficient public resources to achieve Target 2, fast broadband for all households. In Poland, for example, two of the financial tools specified in its national plan were not in place, and potential new sources of funding had not been identified (**paragraphs 52 to 57**).

84. The EIB has a range of loans and financial instruments, depending on project size and level of risk. The European Fund for Strategic Investment (EFSI) is designed to finance more risky, larger projects. We examined a 500 million euro loan made by the EIB from this fund for a broadband project. This project did not focus on broadband deployment in white and grey areas and had already benefited from ERDF support of nearly 400 million euro. The loan was therefore not in line with the objective of financing more risky broadband projects (**paragraphs 58 to 60**).

85. The legal and competitive environment put in place by Hungary, Italy and Poland was adequate. In Ireland, limitations on the power of the national regulatory authority to enforce its decisions might reduce the scope for effective competition, while the competitive environment in Germany was affected by a range of issues. Germany was also affected by the fact that operators were not legally bound by commitments they had previously given regarding their investment plans, potentially leading to further delays in broadband provision in areas where competition was limited. In 2013 the Commission updated its State aid guidelines on broadband. However, we found that some Member States are interpreting the guidelines in a way which may limit the public funding they make available for broadband in areas where the coverage is already at 30 Mbps (**paragraphs 63 to 69**).

86. Given the range of different funding sources available to Member States, and the long time periods involved, effective coordination is key to successful investment in broadband. In Ireland, Italy and Hungary we found that appropriate levels of coordination supported broadband provision and ensured economies of scale. This was not the case in Germany. Finally, Poland spent some 240 million euro in the 2007-2013 programme period on broadband infrastructure in the east of the country. However, there was no incentive for operators subsequently to use this infrastructure, less than 1 % of which was being used at the time of our audit in June 2017, with no evidence of action taken by the Polish authorities to address this issue (***paragraphs 76 to 78***).

87. Our recommendations are grouped in three areas: strategic planning, the regulatory environment, and fostering competition.

Strategic planning

(1) The Commission should request all Member States, based on current progress against the three EU 2020 targets, to highlight those areas where these targets may not be achieved by 2020 and to include, where possible, remedial action.

Target implementation date: September 2018.

(2) All Member States should, as part of preparations for the post 2020 programme period, develop revised plans to show how they intend to meet those relevant high level targets for broadband after 2020 whether the Gigabit Society targets for 2025 or others.

Target implementation date: December 2019.

(3) The Commission should, for the post 2020 programme period, develop common, consistent output and result indicators for use in Member States' operational programmes enabling progress against relevant high level objectives to be tracked while taking account of the need to limit the number of indicators.

Target implementation date: December 2019.

Regulatory environment

(4) All Member States should review the mandate of their National Regulatory Authorities in accordance with the revised EU regulatory framework for telecoms, with a view to ensuring that they are able to impose their recommendations and remedies (including penalties for non-compliance) on operators.

Target implementation date: December 2019.

(5) The Commission should clarify for Member States the application of the State aid guidelines with regard to the 100 Mbps and the Gigabit society targets.

Target implementation date: December 2018.

Fostering competition through financing

(6) The Commission should support the Member States in incentivizing the set-up of wholesale open access networks in white and grey areas through developing an adequate legal framework, guidance and guidelines. This type of network should facilitate an adequate competitive environment, leading to better service provision for users.

Target implementation date: by June 2020.

(7) The Commission should disseminate best practices, issue guidance and guidelines to incentivize the aggregation of smaller projects, where appropriate, by authorities in Member States, with a view to achieving economies of scale. This should make such projects commercially more viable and thus ease access to financing.

Target implementation date: December 2018.

(8) The EIB should focus its support through the EFSI and CEBF on small and medium size projects in white and grey areas in line with the aim of supporting riskier projects. In addition, the output and result indicators at project completion should include, when

relevant, the number of premises covered and connected in white and grey areas, and an indication of the broadband speeds achievable.

Target implementation date: December 2018.

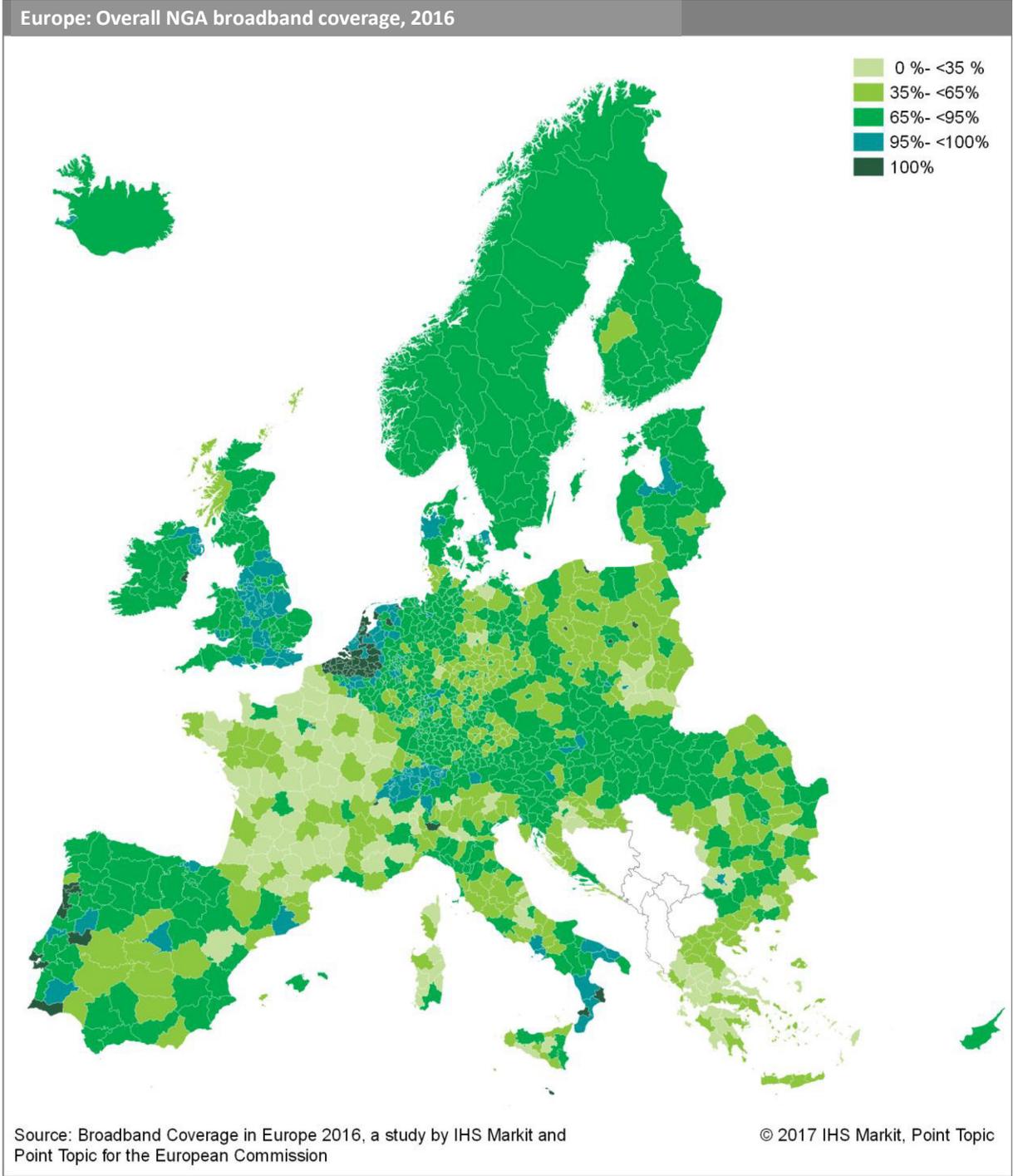
This Report was adopted by Chamber II, headed by Mrs Iliana IVANOVA, Member of the Court of Auditors, in Luxembourg at its meeting of 21 March 2018.

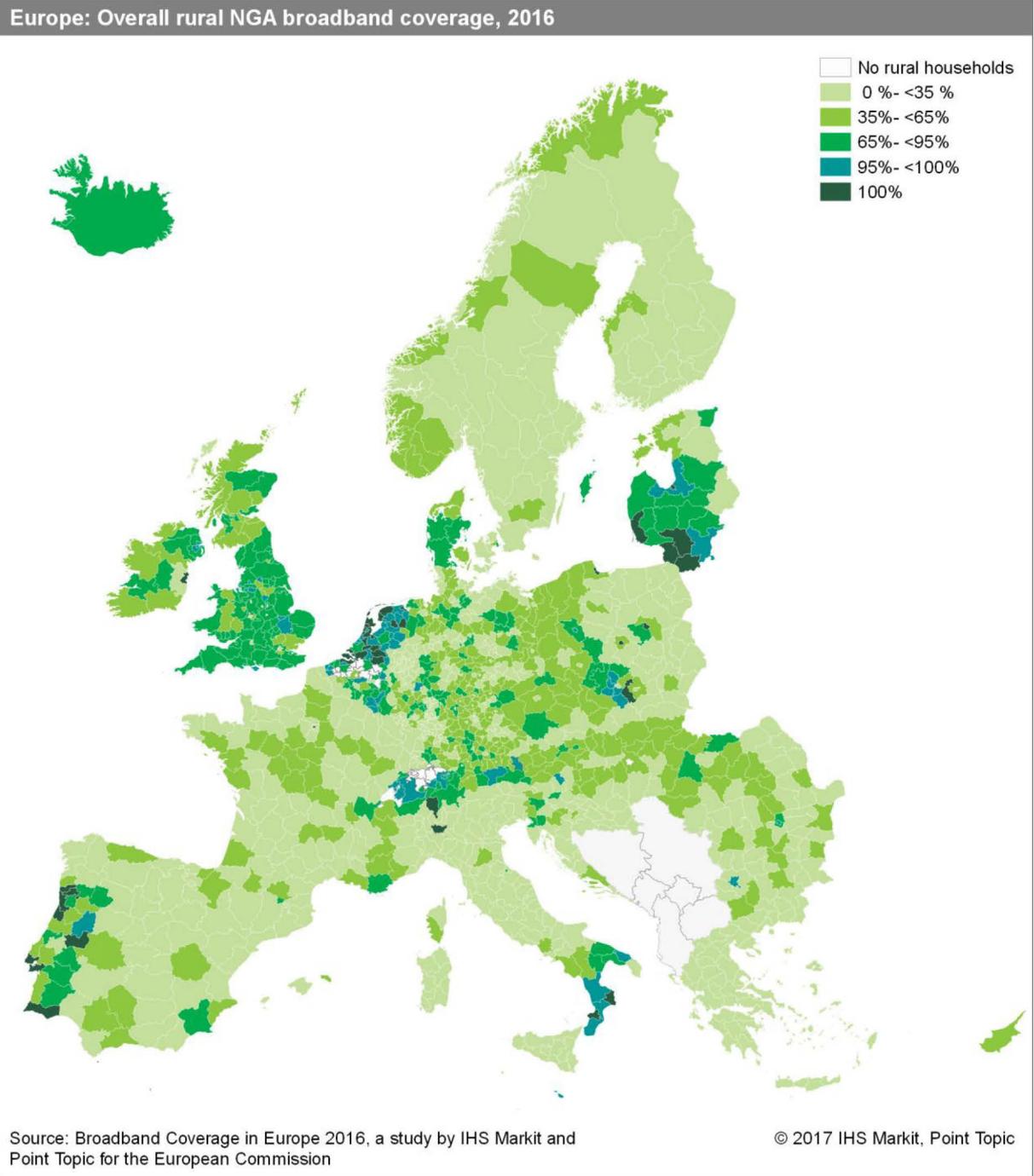
For the Court of Auditors

Klaus-Heiner LEHNE

President

30 MBPS COVERAGE MAPS OF EUROPE





REPLIES OF THE COMMISSION TO THE SPECIAL REPORT OF THE EUROPEAN COURT OF AUDITORS

"BROADBAND IN THE EU MEMBER STATES: DESPITE PROGRESS, NOT ALL THE EUROPE 2020 TARGETS WILL BE MET"

EXECUTIVE SUMMARY

VI. The monitoring of the European Structural and Investment Funds takes to a large extent into account the 2020 connectivity objectives of the Digital Agenda for Europe but, as described in paragraph 33, it did not allow to quantify separately its impact on the roll out of fast and ultrafast networks.

VIII. The Commission notes that the EIB's support is not meant to focus on areas where grant-type public sector intervention is most needed.

The EIB notes that the EFSI Regulation requires EFSI projects to be economically viable and therefore is not designed to address exclusively those areas where market failure is significant.

IX.

First bullet: See Commission reply to recommendation (2).

Second bullet: See Commission replies to recommendations (5), (6) and (7).

Third bullet: See EIB and Commission replies to recommendation (8).

INTRODUCTION

2. In the meantime, more ambitious targets for 2025 were introduced in the Commission Communication "Towards a Gigabit Society" and the concept of very high capacity network was included in the Commission's legislative proposal for a European Electronic Communications Code.

4. The five types of infrastructure mentioned by the ECA deliver different levels of broadband connectivity. At the current stage of market and technological developments, only the following technologies mentioned in Table 1 are considered to be able to deliver fast broadband connectivity above 30 Mbps: (i) fibre-based access networks (FTTx); (ii) advanced upgraded cable networks; and (iii) certain advanced wireless access networks capable of delivering reliable high speeds per subscriber.

7. The Commission recalls that the targets identified in the Digital Agenda for Europe Communication are not legally binding for the Member States. The Commission has encouraged Member States to adopt these ambitious goals when developing their national or regional broadband plans.

OBSERVATIONS

28. The Commission launched a three years project aimed at the development of a platform gathering existing data on mapping broadband coverage, and quality of service and experience from NRAs, Ministries and relevant international platforms (<https://www.broadbandmapping.eu/>).

The platform aims to go live in 2018 when data will be shown under different layers due to the lack of common methodologies across Europe. In parallel, the BEREC Net Neutrality working group has developed a methodology for assessing Net Neutrality enabling the measuring of the quality of service and experience and is currently in course of developing a tool to test the methodology (2018-2019) and propose the tool to NRAs at a later stage.

The Commission has also initiated work to develop a common methodology on mapping coverage of broadband services taking into account the 2025 gigabit ambition targets and the concept of Very

High Capacity Networks (VHCN) where additional attributes other than download speed will be included.

This work aims to support action 3 of the Rural Broadband Action Plan¹ (earlier referred to as Rural toolkit) on the design a "common methodology" for planning, reporting, monitoring of broadband investments (see also Commission reply to paragraph 31).

31. The monitoring of the European Structural and Investment Funds (ESI Funds) takes to a large extent into account the 2020 connectivity objectives of the Digital Agenda for Europe but, as described in paragraph 33, does not allow to quantify separately its impact on the roll out of fast and ultrafast networks.

The Commission acknowledges that monitoring of expenditure and result in ESIF could be improved to better reflect EU broadband targets.

In this respect, the Commission Rural Broadband action plan launched in November 2017, under the coordinated initiative of DGs CNECT, AGRI, REGIO and COMP, includes the development of a common methodology to help plan, report and monitor broadband investments and EU support in addition to measures to help bringing enhanced broadband in rural areas of the EU, including missions to Member States and regions with low level of rural broadband coverage.

32. The Commission closely monitors developments in the broadband market and publishes a number of indicators that have evolved over time and currently look at different aspects.

While 100 Mbps coverage and take-up data were already available, they were not included in the Digital Economy and Society Index (DESI). DESI country profiles for 2018 will include ultrafast broadband (of at least 100 Mbps) coverage and take-up.

33. For the sake of simplification a limited number of common output indicators were used in the 2014-20 Programming period. Annex I of Regulation (EU) No 1301/2013 on the European Regional Development Fund (ERDF) foresees the use as common output indicator for ICT Infrastructure of "Additional households with broadband access of at least 30 Mbps" in line with the first of the two 2020 targets set out in the Digital Agenda for Europe (DAE). This indicator was considered the most comprehensive to capture the result of all projects supporting the roll out of fast and ultrafast broadband.

As indicated above, the Commission acknowledges that monitoring of results in ESIF could be improved to better reflect EU broadband targets.

34. As reported in the 2016 European Digital Progress Report, the procurement process launched by the Irish government in December 2015 in the context of the implementation of the Plan referred to by the ECA has faced many challenges, inter alia, with regards to the mapping of the intervention area. The Commission (DG COMP) provided all the necessary guidance to the Irish Authorities to ensure that the identification of the intervention zone was carried out in accordance with State Aid rules. The Commission continues to follow closely the Irish Plan and provide guidance to the Irish Authorities when requested. As is the rule in the case of such contacts, all discussions remain confidential.

The Commission worked closely with the German authorities to deliver the required State Aid clearance. The length of these procedures results from the insufficient information provided by the German authorities and is not attributable to the Commission.

¹ <https://ec.europa.eu/digital-single-market/en/news/european-commission-joins-forces-help-bringing-more-broadband-rural-areas>

In case of Poland, the Commission recognises the problem of the under-use of the regional backbone broadband networks built in the 2007-2013 programming period. In order to address this problem, a series of meetings and workshops were organised by the Polish Authorities to promote the better use of the network. Although this cooperation was initiated in the context of the implementation of the Operational Programme Digital Poland, the Commission would like to highlight that it is for the national regulator to provide the investment areas under the OP in order to assure best usage of the EU funds.

44. The Commission commissioned a Study report ("Public Investment for High Speed Internet in Germany. Study Report on Broadband in Germany") about German studies from 2011-13, which assesses in detail national financing needs for broadband rollout and support by German authorities in the development of their broadband strategy, including the size of necessary broadband funds.

52. See Commission reply to paragraph 44.

56. See Commission reply to paragraph 44.

58. The CEBF is expected to mostly provide equity type financing. The Fund will focus on making investments averaging around EUR 15 million, but effectively the underlying projects will be larger given the fund's focus on minority shares in the projects it will invest in.

60. The Commission notes that the focus of EFSI support is on projects demonstrating additionality which is reflected, inter alia, in the classification of the project as being 'Special Activity' (i.e. higher risk). Moreover, the EIB indicates that if this operation had been done under EIB Special Activity, it would have meant that other projects could not have been supported under Special Activity, due to the limited size of EIB Special Activities absent of EFSI (EUR 4bn/year versus EUR20bn/year). The EIB notes that as far as the EFSI eligible project costs are concerned, the non-subsidised areas included were insufficiently served with NGA, (either NGA white or NGA grey). The promoter had to make a significant investment to deploy FTTH/C and a novel technology on a large scale. EFSI caters for technology-induced risk, as usual with innovation projects. Moreover, without EFSI the Bank could not have supported a project of this size with such a tenor that was necessary to ensure an acceleration of national rollout of NGA broadband technology.

61. The Commission notes that the CEBF is expected to be launched in the first half of 2018. The fund manager is currently in progress of raising the private sector investments.

62. The Commission notes that the investment period of the CEBF is still under discussion between the anchor investors and the Fund Manager. Furthermore, the draft investment guidelines of the CEBF state that the Fund shall seek to provide financing complementary to existing EU financial instruments and other financings currently available in the market through public or private financial institutions (not only EIB) to the reasonable knowledge of the Manager. The CEBF is expected to provide equity-type financing whereas the EIB direct intervention is usually in the form of debt. Equity-type financing represents typically a smaller – high-risk - fraction of total project costs compared to debt financing. Moreover, the CEBF is expected to support projects with more difficult access to finance. Therefore, the Commission considers that the contribution expected from the CEBF has important precedent value for financing in the sector including by private sector investors.

65. In its proposal for revised EU telecom rules the Commission has proposed enhanced provisions on the independence and regulatory capacity of National Regulatory Authorities (NRAs) responsible for ex ante market regulation, including available resources. The obligation for Member States to ensure that NRAs have adequate financial and human resources to fulfil their tasks that is already part of the current Regulatory Framework is foreseen again in Article 6(2) of the proposed European Code for Electronic Communications. Moreover, to ensure that NRAs have the necessary powers to enforce their decisions, the Commission proposed that, within the limits of national

constitutional law, NRAs have the power to directly impose penalties. Not all NRAs have direct enforcement powers currently.

66.

First bullet: The Federal Network Agency in charge of ensuring the implementation of the switching rules has imposed fines on four large telecom companies (representing around 70 percent of the total number of complaints). Complaints have decreased to 43 000 complaints in the first 8 months of 2017 (from 83 000 in 2016 (full year data)).

Second bullet: The Federal Network Agency's measurement tool (<https://breitbandmessung.de/>) allows since 25 September 2015 end-users of internet access services (fixed and mobile) to measure and compare actual and contracted speed. Moreover, since the entry into force of the Transparency Ordinance further improvement can be expected, as a result of the additional information internet access providers are required to provide to the users.

67. The Commission notes that the requirements for investing in black areas are set out in paragraphs 82-85 of the Broadband Guidelines, such as demonstration that the subsidized network has significant enhanced technological characteristics and performance compared to the existing networks; the subsidized network is operated as a wholesale only network and the aid does not lead to an excessive distortion of competition with other NGA technologies that have recently been the subject of significant new infrastructure investments by market operators.

68. In the Broadband Guidelines there are clear provisions stating that it is possible to grant aid in grey and black areas, subject to certain conditions (see paragraphs 67 and following, 76 and paragraphs 82-85 of the Guidelines).

69. There is no obligation under State aid rules for private investors to declare whether they will or will not invest in an area targeted by public investment. Private operators are free to change their investment plans and sometimes an operator may decide to invest in a given area, although in the mapping and public consultation exercise it had not announced an intention to intervene. From a State aid perspective, the only "sanction" of this change of plans is that the public intervention may continue. However, this does not prevent national authorities, including national regulatory authorities, from adopting national rules and procedures to provide a more rigorous framework to address such strategies by operators.

Furthermore, to avoid the potential problem of crowding-out and delays in coverage, the proposal for a European Electronic Communication Code (article 22 on geographical surveys) provides for the possibility for national regulatory authorities firstly to designate a "digital exclusion area" where no operator or public authority has deployed or plans to deploy a very high capacity network, and secondly to sanction operators which act differently from their stated intentions at the time of the call. This mechanism will allow the regulator to gather knowledge of the areas where regulation is not delivering, and is unlikely to deliver, improvements in terms of high quality connectivity.

76. Whereas the 2007-2013 programming period suffered from the lack of coordination of the ERDF broadband investments scattered between several regional and national operational programmes, under the 2014-2020 programming period the broadband rollout is co-financed under one Operational Programme Digital Poland. As a result, the current implementation of the programme is very well on track.

The text of the Operational Programme Digital Poland also envisages complementarity of the EU funds between 2007-2013 and 2014-2020 programming periods. The current programme concentrates on the last mile connections in the white areas, whereas during 2007-2013 mainly backbone and backhaul networks were supported. What is more, the possibility of the re-financing of the potentially not finished investments of 2007-13 was clearly excluded from financing in the operational programme in order to assure the best usage of the EU funds.

78. The Commission notes that the general take-up problem of the fast internet was recognised by the Polish authorities and is dealt, inter alia, by the 3rd priority axis of the OP Digital Poland.

As to the underuse of the backbone infrastructure financed in the 2007-2013 period – the issue needs to be further analysed and effectively addressed. However, it is important to notice that the dialogue between telecoms and the regional administration (who owns the infrastructure) about the possibilities of better use of the regional broadband network created between 2007-13 period was already initiated by the Polish authorities in the context of the Operational Programme Digital Poland implementation. A series of meetings and workshops was organised from late 2016 up to now by the national regulator Office of Electronic Communication, Ministry of Digital Affairs and Implementing Authority of Digital Poland.

CONCLUSION AND RECOMMENDATIONS

79. The European Commission monitors all the broadband objectives identified in the Digital Agenda for Europe and collects relevant data, including on the share of fixed broadband subscriptions of at least 100 Mbps (since 2010).

The Commission also publishes an annual digital report called the Digital Economy and Society Index (DESI).

While 100 Mbps coverage and take-up data were already available, they were not included in the DESI.

For 2018, DESI will include in its country profiles ultrafast broadband (of at least 100 Mbps) coverage and take-up.

The Commission acknowledges that monitoring of expenditure and result in ESIF could be improved to better reflect EU broadband targets.

Please see also Commission replies to paragraphs 31 to 33 for additional information on monitoring.

80. See Commission reply to paragraph 44 for studies supporting Germany's investment plan.

81. The European Commission has insisted vis-à-vis NRAs that conditions for the deployment of vectoring technologies in access networks are adapted to the needs of alternative investors. The Commission recalls at the same time the ultimate responsibility in respect of deployment lies with the national regulators.

83. See Commission reply to paragraph 44.

84. The Commission notes that EFSI support is meant to demonstrate additionality (please see Commission replies to paragraphs 58 to 60), which is not proven only on the basis of the high level of risk attached to a project.

EFSI regulation does not require EFSI financing to be limited to white and grey areas (see article 6 of EFSI Regulation requiring that EFSI projects are "economically viable").

85. Regarding the enforceability of the Irish NRA's decisions, the Commission already underlined in the EU Digital Progress Report 2017 (Telecoms chapter) that "Under Irish law, ComReg is not vested with powers to impose fines, which is the courts' prerogative. Because of this, ComReg is out of step with other NRAs, and this appears to present obstacles to timely and effective intervention". The expected amendments to comply with the Telecom Single Market Regulation shall contribute to improve the situation.

In addition, in its Proposal for a Directive of the European Parliament and of the Council establishing the European Electronic Communications Code the Commission proposed in article 29 that Member States should enable their NRA to impose penalties to enforce their decisions.

See also Commission replies to paragraphs 63 to 69.

86. See Commission replies to paragraphs 76 and 78.

Recommendations

(1) The Commission accepts this recommendation.

See Commission reply to recommendation 2) regarding the mode of implementation by the Commission of this recommendation.

(2) The Commission notes that this recommendation is addressed to the Member States.

Insofar as the Commission is concerned, in its Communication "Connectivity for a Competitive Digital Single Market - Towards a European Gigabit Society" (COM(2016) 587 final), it defined three strategic objectives for 2025 and called on Member States to review progress of their National Broadband Plans and update them by the end of 2017 with a time horizon of 2025, in line with the strategic objectives set in this Communication and the 5G Action Plan.

In this respect, discussions on the implementation of the 5G Action Plan and Gigabit strategy have started in a dedicated Working Group with Member States representatives.

(3) The Commission partially accepts the recommendation and notes that at this stage it is not in a position to make specific commitments in relation to legislative proposals for the post 2020 period, inter alia due to uncertainties about the future thematic coverage of the different Funds co-financing the operational programmes.

The Commission is looking into different possibilities for establishing a more streamlined, simplified and harmonised system of indicators across ESI Funds for the post-2020 Multi annual Financial Framework (MFF), including by way of relying on common indicators as much as possible, where practicable, in the policy fields covered by the Funds' interventions.

(4) The Commission notes that this recommendation is addressed to the Member States.

Insofar as the Commission is concerned in supporting this process, in its proposal for revised EU telecom rules it has proposed enhanced provisions on the independence and regulatory capacity of NRAs responsible for ex ante market regulation, including available resources. Furthermore, the Commission proposed the harmonisation of a minimum list of tasks which Member States should assign to the NRAs (in view of their political independence and expertise), to ensure that they are vested with powers in all areas necessary to achieve their objectives.

Moreover, in order to ensure that NRAs have the necessary powers to enforce their decisions the Commission proposed that, within the limits of national constitutional law, NRAs have the power to directly impose penalties.

(5) The Commission accepts this recommendation and considers it partially implemented as explained below.

The Commission already provides substantial guidance for Member States for the application of State Aid for broadband and will continue to do so. In particular:

(i) DG COMP encourages pre-notification meetings (from 2016 until today, DG COMP provided advice for 23 pre-notifications from 13 Member States);

(ii) DG COMP created a dedicated platform, eState aid Wiki where all Member States can ask questions on the application of the GBER and the State aid Grids;

(iii) an analytical grid for the application of State aid rules for broadband is presented on DG COMP's website;

(iv) Commission State aid decisions are published on DG COMP's website;

(v) DG COMP actively participates in delivering various training sessions in the framework of the Broadband Competence Offices Network and other initiatives in cooperation with DG REGIO, DG CNECT and DG AGRI.

One aim of the conditions is to avoid overbuilding of good private investment, for which an assessment of available infrastructure is always needed, even though Member States do not always prepare this well.

In the context of updating the Commission's guide on very high-speed broadband investment, the Commission intends to include further information on granting aid in grey and black areas, especially with regard to the 100 Mbps and the Gigabit society targets, so that Member States would have even more clarity on the subject.

(6) The Commission accepts this recommendation and considers it partially implemented as explained below.

In order to incentivize the deployment of very high capacity networks, in particular in economically less viable areas such as low population density/rural areas, the Commission has already proposed to introduce in the revised EU telecom rules, currently being negotiated between the EU co-legislators - a specific article dealing with wholesale-only undertakings. This proposal aims to incentivise investment through the definition of a simplified regulatory model proposed for wholesale-only networks with a significant market position, limited to fair, reasonable and non-discriminatory access rules. The Commission will monitor the transposition of this measure.

Indeed, State Aid rules already require effective wholesale access to subsidized infrastructure in all areas (white, grey or black). Moreover wholesale only projects are already considered especially pro-competitive and treated favourably under State aid rules. For instance, competitive procedures to award State aid can award additional points to wholesale only projects.

The forthcoming Guide on Broadband investment will provide additional guidance (notably updating the section on business models already provided in the Guide to High-speed Broadband investment) and highlight these aspects.

(7) The Commission accepts the recommendation.

The Commission will provide guidance and disseminate best practices on the matter recommended by the ECA as well as on other relevant investment issues through the activity of the Broadband Competence Offices Network and its review of its Broadband Investment Guide. The Commission will in particular clarify the risks and opportunities attached to the different size of projects, different technologies and investment, models with a view to improve the viability of investment, promote competition, facilitate penetration and ease access to long-term financing.

(8) The EIB considers that grant-type public sector support is most needed for projects that no private investor is ready to support because of their lack of economic viability. According to Article 6(1)(a) of the EFSI Regulation 2015/1017, EFSI should target projects that are economically viable, as confirmed by a cost-benefit analysis.

The Commission notes that the draft CEBF investment guidelines already foresee that the Fund should provide support for up to EUR30 million to one single company and generally to greenfield broadband projects, predominantly in white and grey areas. Furthermore, the Commission has already taken steps to agree with the CEBF Fund Manager on appropriate reporting obligations, which are to be still defined in a Side Letter. The profile of the projects supported by the CEBF (greenfield projects undertaken by smaller project promoters) is in line with our interest to deploy in underserved (grey and white) areas.

Event	Date
Adoption of Audit Planning Memorandum (APM) / Start of audit	14.12.2016
Official sending of draft report to Commission (or other auditee)	31.1.2018
Adoption of the final report after the adversarial procedure	21.3.2018
Commission's (or other auditee's) official replies received in all languages	25.4.2018

Broadband, meaning faster, better quality access to the internet, is becoming increasingly important not only for business competitiveness, but also for helping social inclusion. As part of its Europe 2020 strategy, the EU has set targets for broadband, including fast broadband availability for all Europeans by 2020. To support these objectives, the EU has made some 15 billion euro available to Member States in the period 2014-2020. We found that broadband coverage has generally been improving across the EU, but that the Europe 2020 targets will not all be achieved. Rural areas, where there is less incentive for the private sector to invest, remain less well connected than cities, and take up of ultra-fast broadband is significantly behind target.



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