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Montenegro

Policy Note on Broadband

Achieving Universality of High-Speed Broadband: Review and Application Experience of the EU State Aid Framework

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EUROPE AND CENTRAL ASIA



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Abbreviations

ADSL - Asynchronous Digital Subscriber Line
EBRD - European Bank for Reconstruction and Development
EC - European Commission
EKIP - Electronic Communications and Postal Services
EU - European Union
FTTH - Fiber To The Home
FTTx - Fiber To The x
GBER - General Block Exemption Regulation
GDP - Gross Domestic Product
HFC - Hybrid Fibre Coaxial
HHI - Herfindahl-Hirschman index
ICT - Information and Communications Technology
IMF - International Monetary Fund
ISP - Internet Service Providers
ITU - International Telecommunications Union
MDD - Montenegro Development Directions MDD
MEO - Market Economy Operator
NGA - Next Generation Access
SDIS - Strategy of Development of Information Society 2012 – 2016
SGEI - Service of General Economic Interest
UN - United Nation's
USO - Universal service obligation

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Executive Summary

It is widely recognized that broadband is of fundamental importance to the social and economic development of all nations. International case studies show that broadband networks have a strong impact on economic growth and development. Understanding the importance of broadband, Montenegro has set national broadband targets in the Strategy for the Development of Information society 2012-2016. As the period of the Strategy implementation is coming to an end, Montenegrin authorities are now in the process of evaluation and reconsideration of broadband targets and measures to reach them.

This report provides a brief evaluation of the Strategy implementation, as well as gives an overview of high-speed broadband availability and adoption at the national, municipality and locality levels. To achieve its strategic objectives Montenegro primarily relied on market forces and private investments. The state was working towards strengthening of a competitive and enabling environment that is important for the acceleration of broadband infrastructure investments. Despite its efforts, the country has faced a challenge of achieving broadband objectives. Evaluation of the Strategy objectives has revealed that broadband coverage goals were only partially achieved (as of March 2016): 79% of population is estimated to have access to up to 10 Mbps against the target of 100% of population, and 17% of population is estimated to have access to at least 30 Mbps against the target of 50% of population.

Furthermore, the situational analysis has revealed that the availability of high-speed broadband is not homogeneous, i.e. varies across the country, thus creating significant differences in terms of broadband access between urban and rural areas of the country. For example, in the central part of the country, the broadband coverage in rural areas is slightly above 40% of population, whereas in urban areas it reaches 85% of population. In the coastal part of the country the difference in broadband coverage of rural and urban areas accounts for 31 percentage points (58% of population covered in rural areas vs. 89% in urban) and this is the smallest difference throughout the country. The lack of broadband infrastructure in rural and sparsely-populated areas of Montenegro, together with socio-economic indicators, like low population density, low potential revenues and monopolistic structure of the telecommunications market, indicates that there might be a potential market failure in providing high-speed broadband access, implying a greater need for the state intervention.

State aid is a common approach of addressing market failures and contributing to the achievement of specific state objectives. Although by March 2016, Montenegro as an EU accession country has transposed the majority of European Union (EU) State aid rules into its national legislation, the country does lack experience in implementing the State Aid framework. So far, the potential existence of a market failure has not been explicitly identified in the country's strategic documents, and therefore has not been consistently addressed. Because the EU State aid framework is quite complex, while having separate regulations for different economic sectors, and extensive regulations on State aid treatment and procedures, this report provides an overview of main regulations and goes into analysis of their practical application.

The European Commission (EC) and Member States have rich experience in the State aid rules application, including the implementation of State aid for broadband deployment. The Digital Agenda for Europe sets ambitious broadband targets and requires EU Member States to implement equally ambitious national broadband plans. At the same time the EC, as well as Member States recognize, that public support is inevitable in order to achieve these targets and employs State aid extensively. Montenegrin authorities, therefore, would benefit from learning about relevant country cases this report. Croatia was selected as a neighboring country, which joined the EU relatively recently and got the EC clearance on its State aid measure just a few months ago. Finland was chosen as a country with the lowest population density in the whole EU. Sweden is on the list due to important role given to local municipalities in broadband deployment; Lithuania as being a leader in Europe in terms of the fiber-optic penetration. Romania's broadband market is relatively competitive (compared to other EU countries), nevertheless the public funding still plays an important role in broadband deployment. Finally, the report outlines the only negative EC decision on State Aid taken to date, which is related to the case of planning of broadband network deployment in Appingedam, the Netherlands.

As a final point, the paper provides a set of observations and recommendations that may facilitate the achievement of Montenegro's national broadband targets, as the current performance requires certain improvements. First, it is recommended that Montenegrin authorities perform the in-depth analysis of broadband market dynamics and of existing regulatory framework in order to evaluate the potential of the market forces closing of the existing infrastructure gap. In this regard, a detailed mapping exercise followed by public consultations with market players is needed to confirm the existence of market failure (if any) and to determine the amount of private and/or public investments required. Second, it is recommended that an *ex ante* assessment of State aid benefits and potential drawbacks should be undertaken. Third, at the stage of designing a State aid measure, Montenegrin authorities should maintain the guiding principle of keeping State's intervention at a minimum possible level to avoid competition distortions. Finally, it is strongly recommended that the authorities carry out capacity building with regards to State aid application.

I. Introduction

In 2016 the Ministry of Information Society and Telecommunications of Montenegro (Ministry) intends to perform a review of the national Strategy of Development of Information Society 2012 – 2016 (SDIS), and is planning its subsequent update. Among other strategic priorities, SDIS is guiding development of the broadband infrastructure nationwide. At a glance, the implementation status of the SDIS goals, related to availability of broadband, reveals lower than expected roll-out of high-speed broadband infrastructure. The Ministry believes that under the updated strategy more proactive measures involving state intervention (support) may be required in less attractive and (or) most difficult to reach geographical areas, possibly through the State aid mechanisms. As the EU candidate country, Montenegro is expected, whenever possible, to follow EU policies and regulations. Therefore, the Ministry intends to take into account the EU state aid framework while considering its own approach for a state intervention for broadband development.

Given the aforementioned, the Ministry has requested the World Bank (Bank) support in reviewing the EU state aid rules, as well as reviewing specific experiences of State Aid projects in the EU countries. Both should provide the basis for the Ministry to think through and, if decided so, to design relevant policy measures under the reviewed strategy that would systematically address broadband infrastructure gaps across the national territory.

With that objective this paper provides:

- (i) Review of the Information and Communications Technology (ICT) sector strategic planning, funding and implementation, with a particular focus on high-speed broadband infrastructure;
- (ii) *Status quo* of high-speed broadband availability and adoption at the national, municipality and locality levels; identification of under (un) covered localities;
- (iii) Overview of the EU state aid rules and their application in a particular case of broadband;
- (iv) Review of specific state aid cases adopted across the EU that could be relevant for the Montenegrin case; and
- (v) Observations and recommendations on the next steps that may support state efforts in achieving the national policy objectives related to roll-out of broadband infrastructure.

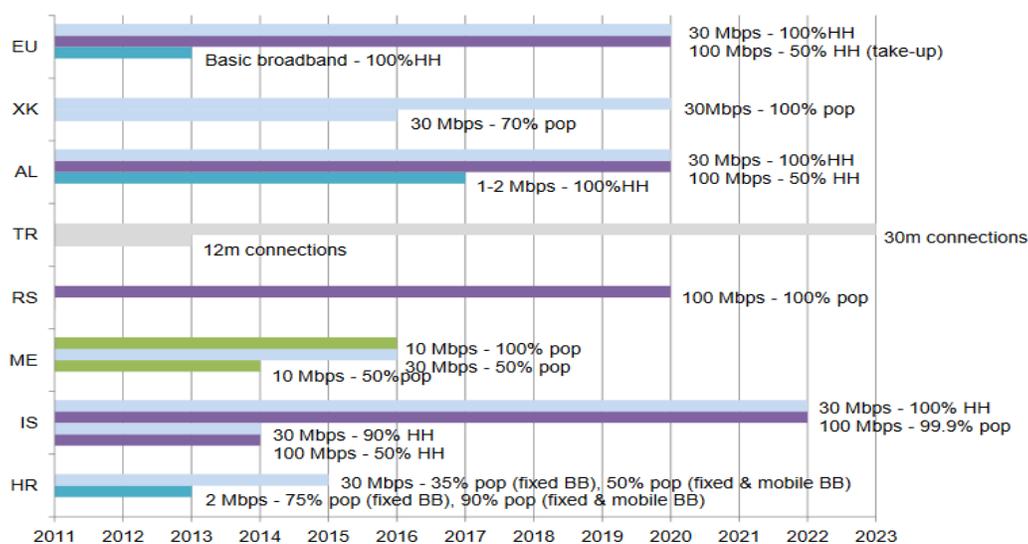
Analysis of the current state of broadband adoption and penetration presented in this report builds in its majority on the data that were collected through the survey of Internet Service Providers (ISPs) (Survey). The Survey was developed by the Bank team and conducted in cooperation with Electronic Communications and Postal Services (EKIP). The survey answers were collected and analyzed in March 2016. The Survey covered broadband indicators at a settlement level; the requested data included: broadband coverage per technology, per settlement and per connection speed; subscriptions per technology, per settlement and per connection speeds.

II. Strategic planning approach, funding and measure foreseen towards broadband infrastructure development

Overall development of the ICT sector in Montenegro is guided by the *Strategy for the Development of Information Society 2012-2016* (SDIS) adopted by the Government. SDIS is also a core strategic document outlining the development outlook and measures for the deployment of broadband infrastructure under its ICT infrastructure program. Specific activities (projects) dedicated to the implementation of the program and that are responsibility of the Ministry are being planned each year as part of the annual Ministerial working program. Similarly, the Ministry adopts progress implementation reports of its program for each fiscal year.¹ The Ministry and sector specific regulator EKIP are two public agencies responsible for implementation of the ICT infrastructure program under SDIS (**Box 1**).

Broadband targets established under the current ICT infrastructure program of SDIS are less ambitious than those established by the EU ICT strategy “*Digital Agenda for Europe*”, i.e. coverage – 30 Mbps or more for all by 2020; and uptake – 50% of households having 100 Mbps or higher subscriptions. However, as indicated in the **Figure 1**, many countries in the region have settled broadband deployment objectives, which are more or less deviating from those of the EU. Montenegrin strategic ICT sector planning approach is more detailed and aims to reach 2020 in two phases (strategies) – SDIS covering the period of 2012-2016 and updated SDIS covering the period of 2017-2020 or beyond.

Figure 1 Current national broadband targets (coverage)



Note: EU – European Union; XK – Kosovo; AL – Albania, TR – Turkey; RS – Serbia; ME – Montenegro, IS – Iceland; HR – Croatia;

¹ <http://www.mid.gov.me/informacije>

Box 1 Brief outline of ICT infrastructure – program 2 under SDIS

ICT infrastructure program aims to provide high-quality broadband Internet access and ICT infrastructure in accordance with the needs of end users. In parallel, it should provide adequate, affordable and secure international Internet connectivity which will meet all current and future requirements and throughput capacities at the state level, serving current and future interests of all persons interested in ICT sector.

The Program establishes two goals

- (i) Act in order to encourage development of the ICT sector and promote access to other business sectors and the use of ICT services;
- (ii) Improve e-Inclusion and help bridge digital gap through an open and permanent access.

And two objectives

(1) High-speed broadband access:

By 2014: Provide 50% of the population with a minimum of 10Mbps broadband access*;

By 2016: Reach 100% of the population with a minimum of 10Mbps broadband access; and
50% of the population with a minimum 30 Mbps broadband access.

(2) International connection:

Provide technologically divergent, capacitive and multiple international Internet access by 2014, which will allow open access and affordable international connection to the symmetrical Internet for all interested service providers.

Action Plan for SDIS implementation outlines three groups of measures:

I. National Broadband Network / Implementing agencies: Ministry and EKIP

Accelerate establishment of a broadband high-speed network and open access, in order to offer connectivity to all citizens and enterprises in Montenegro, regardless of where they are. Necessary actions include:

- (a) Commitment of service providers to symmetric guaranteed speed broadband access as defined in Objectives;
- (b) Identification of opportunities for the development of broadband access infrastructure through PPP, EU structural funds, participation of regional authorities and other special privileges (e.g. reduced taxes, cheaper loans, subsidies) for service providers from private sector in order to develop necessary infrastructure;
- (c) Supplement development by commercial wireless broadband, along with the establishment of Wi-Fi hot-spots/mesh, networks as part of the project "Wireless Montenegro."

II. International connection / implementing agencies: Ministry and EKIP

Ensure very fast, highly capacitive, affordable, secure and continuous international Internet connection. Prescribed measures include:

- (a) Identification of the width of connection needs, based on expected demand and identification of optimal mechanism (e.g. use of national utility networks, expansion of existing capacities for international connectivity services, etc.) which will provide adequate international connection.
- (b) Analysis, based on cost basis, for immediate payment of international connections and take all necessary regulatory activities in order to ensure affordable access to all service providers providing connection to the Internet.

² <http://www.cullen-international.com/asset/?location=/content/assets/research/studies/2011/11/final-summary-report-4-feb-2014.pdf/final-summary-report-4-feb-2014.pdf>

III. Facilitation of infrastructure sharing / implementing agency: EKIP

Collect data about the existing passive infrastructure (owned by the operator, but also local government units, state companies etc.) which can be used to build a broadband network, which would eliminate unnecessary duplication and thus reduce building costs.

Note: * - symmetrical and guaranteed

Source: Authors based on SDIS

SDIS places a particular emphasis on strengthening of the broadband connectivity as a basic infrastructure for the development of information society and further economic growth. In line with this prioritization, in 2013 the Ministry of Finance developed a national economic development strategy “Montenegro Development Directions 2013-2016” (MDD)³, in which the main emphasis of the ICT sector development was similarly placed on the expansion of broadband infrastructure.⁴ In terms of financing, however, only EUR 1.79 million was dedicated to the ICT sector development from the State budget, which is the 5th smallest dotation per thematic area (out of 18 thematic areas in total) from the national budget, and is among four thematic areas that are supported neither form EU funds nor from the loans.⁵ It may be concluded therefore that the expansion of broadband connectivity in Montenegro mainly relies on the private sector investments (**Box 2**).

Box 2 Measures, goals and funding allocated for ICT sector development under the MDD

ICT sector development measures and goals are featured under the Smart Growth pillar of the MDD. In total, MDD establishes three strategic pillars of Smart growth, Sustainable growth and Inclusive growth. To the Sustainable growth pillar 93% of the total funding allocated to strategy implementation (EUR 1164.71 million) is attributed, including state budget, grants, loans and EU funds. To the pillar of the Smart Growth 3% of the total funding is allocated, the smallest portion of out of three pillars (EUR 7.93 million) (**Fig. a**).

Smart growth pillar is, in turn, divided into six policy areas: Business environment, SMEs, Competitiveness, Science, High education and ICT. ICT sector allocation constitutes 7% of total funding allocated to Smart Growth or EUR 1.79 million (**Fig. b**). Highest allocation within the Smart growth pillar is provided to science policy area (60%).

Figure a. Funding allocated per strategic pillar, % total MDD funding

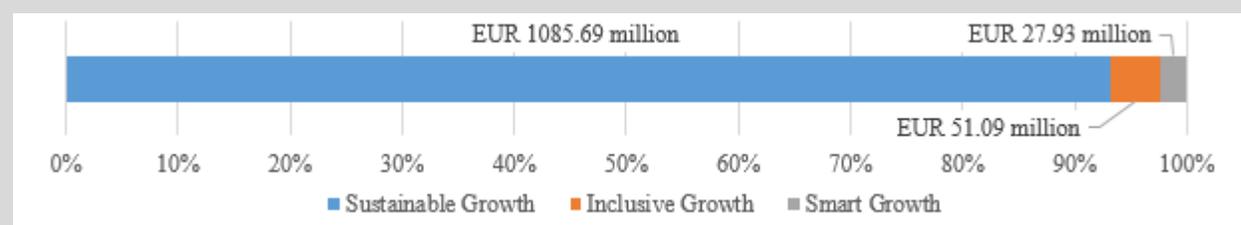


Figure b. Funding allocated per policy area in strategic pillar of Smart growth, % of total funding allocated to Smart growth pillar

³ <http://www.gov.me/en/search/128212/Montenegro-Development-Directions-2013-2016.html>

⁴ See MDD's Table 17 defining headline targets for Montenegro's Smart growth pillar, p. 51

⁵ See MDD's Table 1 defining sources of funding of required investments/development measures in the period 2013 – 2016, p.10

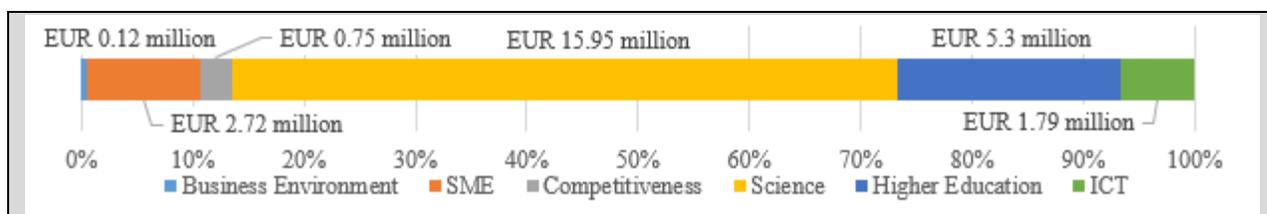


Table below presents the distribution of allocated funds per different sources, i.e. state budget, grants, loans, EU funds. There could be seen five measures established under the ICT policy area and one joint and clear objective for all of them – better broadband access.

Table. Investments and development measures under the Smart growth pillar of MDD

No	Policy area	Funds (million €)					Main objectives and indicators
		Total	Budget	Grants	Loans	EU	
I	SMART GROWTH	27.93	14.39	2.61	8.70	2.23	
1.	Business Environment	0.12	0.12				
2.	SME	2.72	1.31	1.41			
3.	Competitiveness	0.75	0.25		0.50		
4.	Science	15.95	9.27		5.70	0.98	
5.	Higher Education	5.30	0.35	1.20	2.50	1.25	
6.	ICT	1.79	1.79				Better broadband access
6.1.	Further and rapid development of broadband internet access and ICT sectors						
6.2.	Investments in the broadband internet access and ICT sectors						
6.3.	Foster the competition in the market of electronic communications						
6.4.	Ensure the availability of broadband Internet access						
6.5.	Encourage end-users, citizens and businesses to use the available ICT tools and services in everyday life and business						

Source: Authors based on MDD

Table 1 State projects aiming to increase broadband availability, 2012-2016

Project / Implementation dates	Implementing agency / Implementation status	Objectives and Results related to broadband infrastructure	Implementation budget / Source of funding
“Wireless Montenegro” http://www.wirelessmontenegro.com	Ministry / Ongoing	Network of wireless hot-spots across the territory of Montenegro; At the time of writing this report, the network covered urban centers of Podgorica, Budva, Nikšić, Bar, Kotor, Tivat, Pljevlja, Bijelo Polje, Berane, Žabljak, Kolašin, Rožaje. ⁶	n/a / state budget

⁶ http://www.wirelessmontenegro.com/?page_id=2953&lang=en

<p>“Promoting Connectivity of Internet Broadband in the Accursed Mountain Border Area”</p> <p>2014-2015</p> <p>www.ibbproject.net</p>	<p>Ministry / Implemented</p>	<p>Increase Internet accessibility & connectivity in cross-border mountain areas of Accursed Mountains (Montenegrin territory of Andrijevisa, Plav, Gusinje and Rozaje municipalities);</p> <p>Access to broadband internet at speed of 20 Mbps;</p>	<p>EUR 260,244.40* / State budget, EU delegation to Albania and IPA CBC Albania – Montenegro Program 2007-2013</p>
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Note: * - Grant amount EU contribution of 84.86% of the total project budget allocated to Montenegrin part of the project; remaining part of ~ EUR 39,400.00 was allocated from the state budget, at: http://www.albania-montenegro.org/assets/award_notice_3rd_call_al-mne.pdf

Source: Adopted from <http://www.wirelessmontenegro.com> and www.ibbproject.net

In its efforts to achieve policy objectives of better and more widespread broadband infrastructure, during the planning period of 2012-2016, Montenegro has implemented two strategic projects aiming to extend broadband connectivity: “Wireless Montenegro” and “Promoting Connectivity of Internet Broadband in the Accursed Mountain Border Area”. A brief summary of both projects is presented in the **Table 1**. “Wireless Montenegro” Project is currently providing free Internet access in about 40 attractive locations in Podgorica and mainly in the coastal municipalities, e.g. airports, education institutions, town squares, promenades, locations visited by a large number of people (tourists), etc. The Project objectives are aligned with the strategic goal of provision of basic Internet access and they are not aimed at supporting high-speed broadband roll-out that would ensure “symmetrical and guaranteed” connection foreseen by SDIS. In turn, the second project is specifically addressing the lack of broadband connectivity in Accursed Mountain area across Montenegrin-Albania border on the altitude above 2000m. The Project covered cross-border locations that are eligible for the funding under the EU’s CBC Albania – Montenegro Program.⁷

It shall be noted that neither of both projects was specifically aiming to achieve SDIS objectives for high-speed broadband nationwide. So far, a systematic approach to monitor broadband infrastructure roll-out per SDIS goals and identify underserved areas has not been established. On its way to achieve strategic objectives of high-speed broadband adoption and coverage foreseen under SDIS, the state primarily relied on market forces and private investments. To this end, the state was working towards strengthening of a competitive and enabling environment that is important for acceleration of broadband infrastructure investments.

As part of these efforts it could be acknowledged that Montenegro has successfully operationalized infrastructure sharing across different infrastructure sectors. Such a policy significantly decreases the costs of broadband deployment. For instance, Electric Transmission System of Montenegro (Crnogorskog elektroprenosnog sistema - CGES-a) owns optical fiber⁸ infrastructure with total length of 656 km and offers it to market players (information on availability and prices are provided in **Annex 1**).

⁷ <http://www.albania-montenegro.org/>

⁸ Optical Ground Wire (OPGW) is installed over its electricity transmission lines

On the other hand, universal service obligation (USO) may also be instrumental to ensure proper supply of broadband services. With the growing demand for broadband and plans to bring broadband to all, the inclusion of broadband in universal service is becoming a common practice, as more and more countries are taking steps to include broadband into the scope of national universal service obligations. These include Finland, Malta, Spain as well as the UK with its recent announcement.⁹ However, as of now there is no accumulated experience and common position regarding the application of the USO instrument for high-speed broadband (above 10 Mbps).

In Montenegro, EKIP established a nationwide USO scheme in 2015, following a public tender procedure. Crnogorski Telekom A.D. Podgorica was designated to offer connections and access to publicly available telephony services, including functional internet access at a fixed location and benefits for the disabled and the socially vulnerable. MTel d.o.o. Podgorica was designated as a provider for directory and directory enquiry services. Functional internet access in the case of Montenegro is defined as a connection providing a guaranteed minimum data-download speed of 384 kbit/s and data-upload speed of at least 128 kbit/s. In its substance USO framework is aligned with the strategic goal of provision of basic Internet access and is not designed to support high-speed broadband targets as those are established by SDIS.

When it comes to direct public support to high-speed broadband infrastructure, in general terms the state was not excluding the possibility of *“identification of opportunities for the development of broadband access infrastructure through PPP [...], subsidies [...]”*¹⁰ per SDIS, but active steps towards a more systematic and nationwide approach for state intervention, i.e. state aid measures, so have not been taken so far.

While performing the review of the results under the SDIS and planning for its update, the Ministry seeks to design relevant policy measures that would systematically address broadband infrastructure gaps across its national territory. At a glance, the status of the implementation of the SDIS goals reveals lower availability and adoption of high-speed broadband than was initially planned (**Figure 2** and **Figure 3**), and it is a position of the Ministry that new measures may require a more proactive state intervention (support) in less attractive and (or) most difficult to reach geographical areas as purely economic rationale is apparently leading to the exclusion of such areas.

More specifically, the evaluation of SDIS 2012-2016 objectives reveals that broadband coverage goals were only partially achieved. In particular, as of March 2016, 79% of Montenegrin population is covered by up to 10 Mbps high-speed broadband¹¹, and 17% of population has access to at least 30 Mbps high-speed broadband¹² (**Table 2**). While evaluating high-speed broadband coverage, 4G mobile broadband

⁹ UK Government's ambition is to set the USO at a minimum speed of 10 Mbps received mixed feedback; summary of responses to public consultation could be found at:

<https://www.gov.uk/government/consultations/broadband-universal-service-obligation>

¹⁰ SDIS

¹¹ Coverage of Asynchronous Digital Subscriber Line (ADSL) national-wide incumbent's (Crnogorski Telekom) network was used as a proxy for this estimate; incumbent offers high-speed packages over this infrastructure that provide up to 10 Mbps download speed; it shall be noted however that ADSL is not providing symmetrical connection speeds as it is required by SDIS;

¹² Coverage of Fiber To The x (FTTx) deployed by national incumbent was used as a proxy for national coverage for speeds at least 30 Mbps; FTTx provides both symmetrical and guaranteed connection;

technology coverage was not taken into account because at the moment of writing of this report it was not covering areas outside the existing high-speed broadband availability areas.¹³ 3G broadband connectivity coverage was not considered due to lower connectivity speeds and technical limitations to comply with the requirements of guaranteed and symmetrical connections.

In terms of penetration (actual adoption of high-speed broadband), 50% household penetration was achieved on the national level. In the Northern and Central regions, household penetration for high-speed broadband is lower (20% and 40% in the Northern and Central regions respectively – see **Figure 3**).

¹³ According to the Survey data;

Table 2 Progress against SDIS 2012-2016 Objectives, 1Q 2016

Type of Objective	Formulation of the Objective	Outcome (as of March 2016)*
Broadband coverage / availability	“Provide access to broadband of at least 10 Mbps for 50% of population by 2014.”	Achieved;
	“Provide access to broadband of at least 10 Mbps for 100% of population by 2016.”	Partially achieved; 79% of population is estimated to have access to up to 10 Mbps ADSL connectivity;
	“Provide access to broadband of at least 30 Mbps for 50% of population by 2016.”	Partially achieved; 17% of population is estimated to have access to at least 30 Mbps FTTx connectivity;

Source: Authors based on the results of the Survey

Figure 2 Progress against SDIS 2012-2016: regional breakdown, Households penetration, 1Q 2016

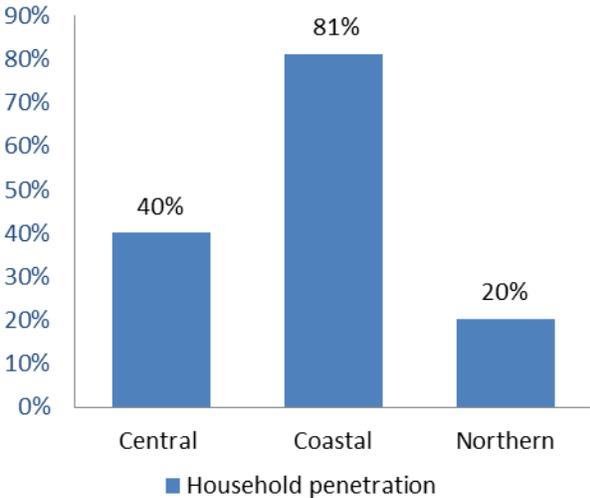
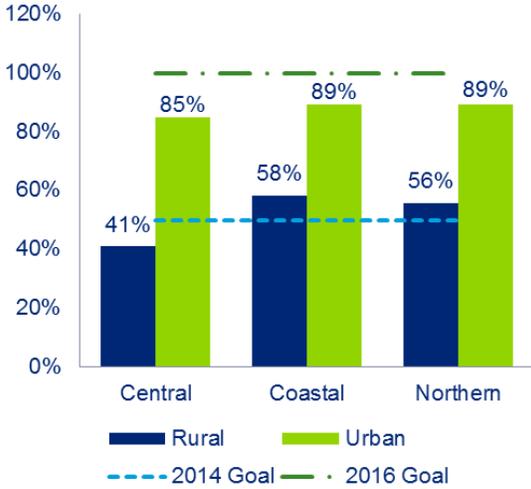


Figure 3 Progress against SDIS 2012-2016: Rural-Urban breakdown, High-speed broadband population coverage, 1Q 2016



Source: Authors’ calculations based on the results of the Survey.

Note: * - on Figure 3 2014 and 2016 goal mean 10 Mbps coverage goal;

Analyzing availability of high-speed broadband in more detail, it becomes evident that availability and adoption of high-speed broadband is not homogeneous and levels of both indicators vary significantly across the country. Despite its efforts and already undertaken initiatives, Montenegro is clearly facing a challenge of closing the broadband gap both in terms of availability and adoption of high-speed broadband. The following Chapter will provide a more detailed *status quo* overview on the availability and adoption of the high-speed broadband connectivity on regional, municipality and locality levels. It

will also reveal more prominently those localities that are under (un) served in terms of the high-speed broadband.

III. Status quo of high-speed broadband adoption and availability in Montenegro

It is widely recognized that broadband is of fundamental importance to the social and economic development of all nations. International case studies show that broadband networks have a strong impact on economic growth and development – studies estimate that the impact of broadband on Gross Domestic Product (GDP) varies from 0.25 to 1.5 percent for every 10 percent increase in penetration. For instance, a World Bank study on the impact of broadband concluded that, on average, an increase of 10 percent in broadband penetration can over the long term lead to 1.21-1.38 percentage point increase in GDP.¹⁴ Broadband contributes to a country's economic growth in multiple ways - through increased productivity, employment, and foreign direct investments. Some evidence shows that the higher the penetration of broadband, the greater its contribution to economic growth.¹⁵

Furthermore, broadband offers huge opportunities to help raise the standard of living, quality of life and business competitiveness.¹⁶ It may also significantly improve the availability, quality and delivery of public services, especially in the sectors of education and healthcare. In addition, broadband enhances opportunities for social networking, community organization and a more active engagement in the civic, political and democratic life of nations.¹⁷

This Chapter will take a closer look at the Montenegrin high-speed broadband availability and adoption at the settlement (locality) level, and then, while synthesizing the findings, will derive regional and national trends. It focuses on three key groups of indicators: (i) socio-demographic factors (income levels, education levels, age pyramid and population trends) that are important preconditions for broadband adoption; (ii) demand characteristics (Internet usage and subscriber dynamics among households and businesses) determining current broadband adoption; and (iii) supply factors (market structure, broadband availability and pricing) affecting high-speed broadband coverage.

3.1. Socio-demographic analysis

Three main socio-demographic factors influencing broadband adoption are income level, education level, and distribution of population (by age and geographically). These indicators were analyzed to infer the structural drivers of residential broadband demand gap. According to the Bank's Broadband Strategies Toolkit¹⁸, the obstacles to broadband adoption can be grouped into three following categories:

¹⁴ Qiang & Rossotto 2009, IC4D Report, The World Bank, 2009

¹⁵ Koutroumpis, P. 2009. The Economic Impact of Broadband on Growth: A Simultaneous Approach. Telecommunications Policy.

¹⁶ http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2013/05/22/000442464_20130522114526/Rendered/PDF/738260ESW0P1270port0Eng0Dec02702012.pdf

¹⁷ http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2013/05/22/000442464_20130522114526/Rendered/PDF/738260ESW0P1270port0Eng0Dec02702012.pdf

¹⁸ <http://broadbandtoolkit.org/6.2>

- (a) Limited affordability (driven by income levels and number of people per household);
- (b) Limited digital literacy (driven by education attainment levels and age distribution);
- (c) Lack of relevance or interest (driven by education, age, and cultural factors).

Following that approach, the following socio-demographic premises for broadband adoption could be highlighted in the particular case of Montenegro:

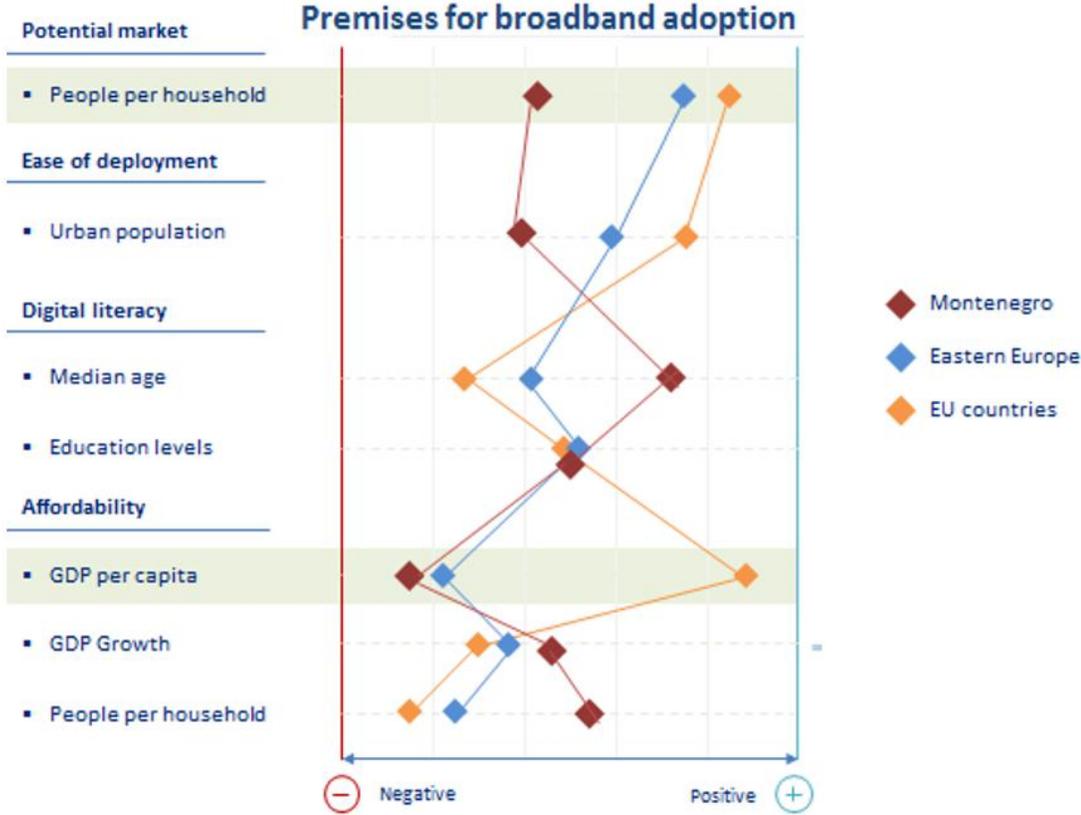
- Cost of basic broadband (below 10 Mbps) is currently above the affordability threshold of 5% of disposable income established by the International Telecommunications Union (ITU)¹⁹; while 10 Mbps connection accounts for ~10% of monthly household expenses. This is both due to high broadband prices and relatively low GDP per capita (the latter is 5 times lower than the EU average). Hence, limited affordability seems to be one of the factors limiting high-speed broadband adoption;
- The educational attainment profile of Montenegro is favorable for broadband adoption, given that 28.3% of 30-34 year olds have tertiary education (below the EU average of 37.9%, but above most Balkan countries); Montenegro also demonstrates the lowest percentage of early school leavers in the region (5.1%);
- Montenegro follows a similar age pyramid as the EU, but the 30-44 years old age group (with the third most widespread usage of internet) is relatively larger, adding to the positive dynamics in favor of broadband adoption;
- Montenegro is above the EU average in terms of inhabitants per household: average number of people per household of 3.2 is above the EU average of 2.3, and is also among the highest in the Balkan region (higher is only in Macedonia – 3.8 and Kosovo – 5.8 people per household). On one hand, this makes broadband more affordable at the household level, but on the other hand it limits the size of potential broadband market (which could be greater in terms of households);
- Despite having largely urban population (only 36% live in rural areas), Montenegro faces rather low population density (46.2 people per sq. km, compared to the EU average of 120 people per sq. km). 42% of Montenegro's population is concentrated in two largest municipalities – Podgorica and Niksic, while 10 largest municipalities (out of 21) account for 82% of population. This uneven distribution of population drives the costs of broadband deployment up and impedes broadband investments in scarcely populated regions.²⁰

Visual representation of the above facts as well as their benchmarking against socio-demographic premises of the EU and Eastern Europe is provided on the **Figure 4**.

¹⁹ Specialized United Nation's (UN) agency for telecommunications

²⁰ Broadband deployment costs (and subsequently penetration is strongly correlated with population density;

Figure 4 Socio-demographic premises for broadband adoption



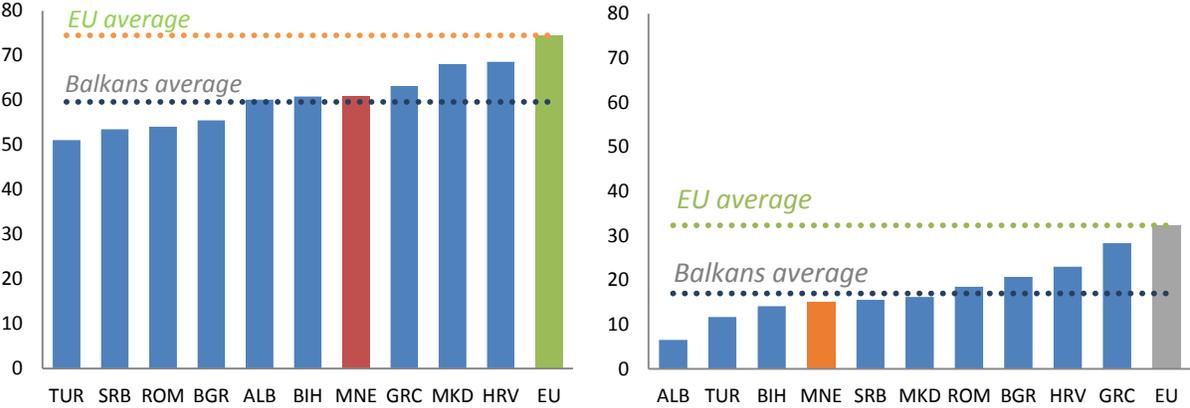
Source: Authors

3.2. Demand analysis

To reveal the trends in demand for broadband, three main factors are analyzed: dynamics of Internet usage in Montenegro, penetration rates and subscriber growth. The breakdown by rural vs. urban areas, as well as by household vs. business sectors allow to disentangle the drivers of broadband demand gap.

Comparing the statistics on the Internet usage with that on broadband penetration reveals the unmet demand for broadband connectivity. As demonstrated in **Figure 5**, according to ITU with 61% internet usage in 2014, Montenegro exceeds the Balkans average (59.6%), although it still lags behind the EU, where 74.5% of people use internet. However, the gap in broadband penetration is wider: Montenegro lags behind the EU in broadband penetration by 17 p.p. (15% vs. 32%), compared to 13p.p. gap in internet usage (61% vs 74%). As 61 % of individuals are regularly using Internet and only 15 % of the population has access to broadband, this indicates that people either are sharing broadband access (one connection per household) or are using high-speed internet in offices, libraries or public hot-spots. This suggests the potential unmet demand for broadband connectivity.

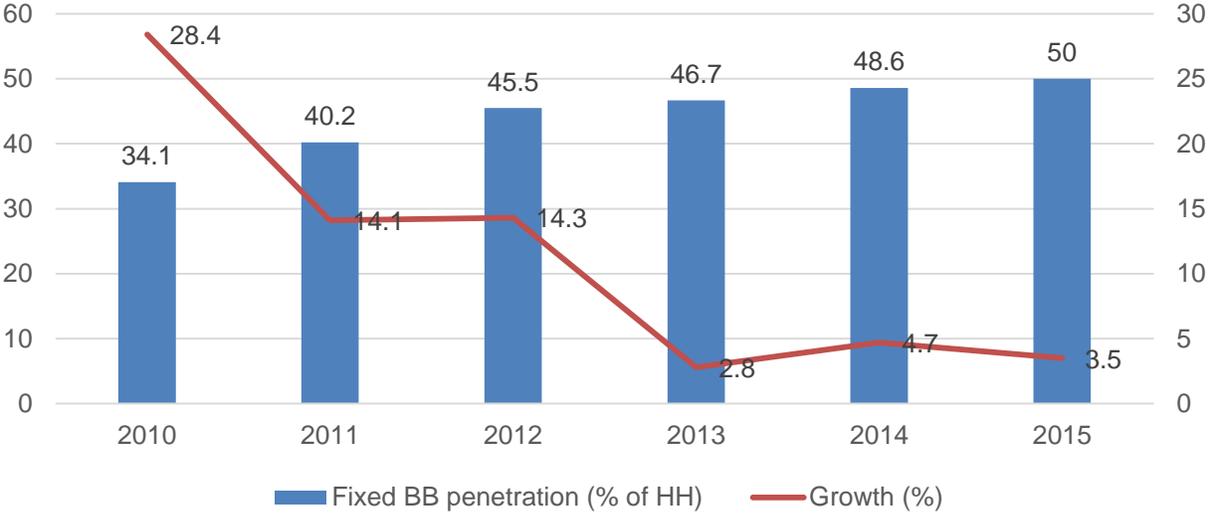
Figure 5 Internet usage²¹ and broadband penetration, per capita, 2014



Source: ITU

Montenegro’s fixed broadband penetration and growth are in line with the Western Balkans averages, but behind that of the EU and the wider Balkan region average. In particular, Montenegro had 15.2% population penetration of broadband (compared to EU average of 32.3%) in 2014 – a 4.7 p.p. increase in broadband penetration, compared to 2010. This growth exceeded the Balkan’s average growth of 4.45 p.p., but lagged behind the EU growth of 6.1 p.p. Montenegro has to achieve substantially higher growth in penetration rates in order to catch up with the EU average. However, the overall growth dynamics show that broadband subscription growth on the households’ level is saturating (See **Figure 6**).²²

Figure 6 Fixed broadband penetration, households, and growth. 2010-2015



Source: TeleGeography Global Comms database, accessed in March 2016

²¹ Internet usage rates are demonstrated in the graph to the left, while broadband penetration rates – in the graph to the right. Both graphs refer to numbers as of 2014, as that is the latest year for which ITU provides internet usage and internet penetration statistics across countries.

²² The other country in Western Balkans reaching saturation point is Serbia.

At the national level, the fixed broadband penetration slowdown stems from two visible gaps in broadband adoption: between Central & Coastal vs. Northern regions, and between rural vs. urban households. In particular, broadband penetration in urban areas is up to 4 times higher compared to rural areas. As shown in **Figure 7**, urban Coastal region has the highest fixed broadband penetration at the population level (33%), and also the smallest gap between rural and urban areas. Broadband technologies also vary by region. Central and Coastal regions demonstrate the highest adoption rates of more advanced technologies (e.g. FTTx), while in the Northern region old-generation technologies (e.g. xDSL, Hybrid Fibre Coaxial (HFC)) prevail (**Figure 8**).

Figure 7 Population penetration per region, 1Q 2016

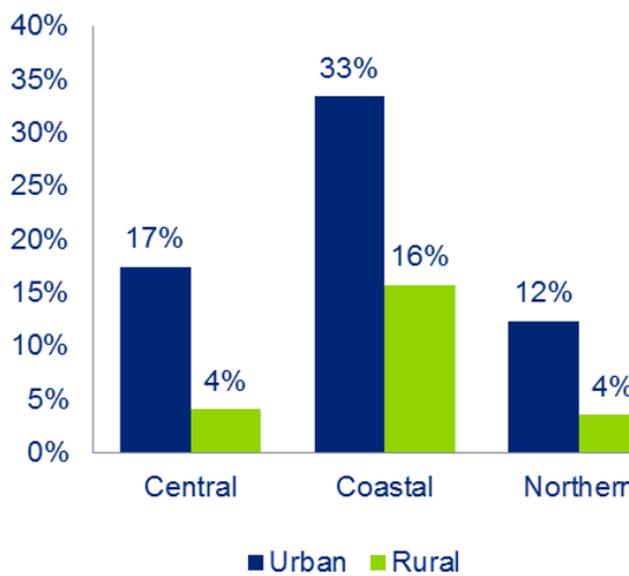
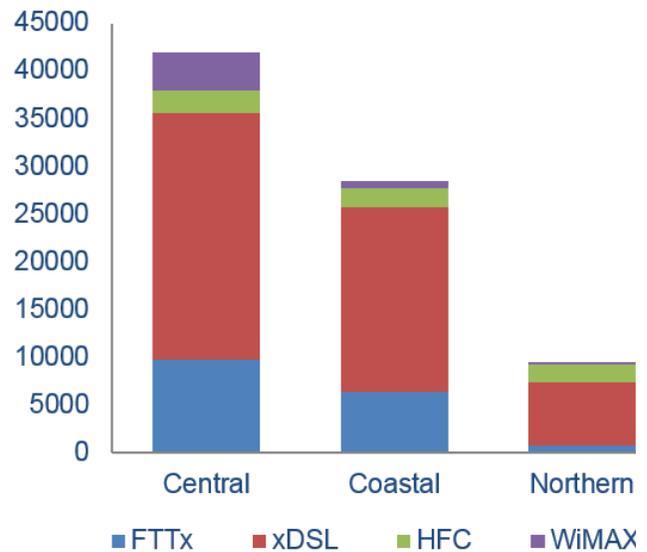


Figure 8 Absolute number of subscribers per technology per region, 1Q 2016

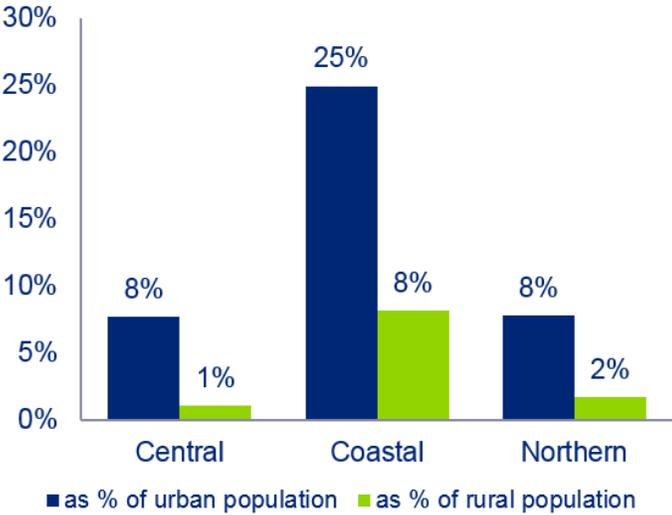


Source: Authors based on the results of the Survey

Analysis of wireless broadband (limited to computer-dedicated dongle subscriptions only²³) shows similar trends as in the case of fixed broadband, although there is an even wider gap observed between rural and urban areas. Overall, the wireless broadband penetration is on average just above 7% in urban areas of Central and Northern regions, and 1% to 1.7% in rural areas of the respective regions (**Figure 9**). The Coastal region has a relatively higher number of wireless subscribers – 25% of urban population and 8% of rural population. The demand for broadband in the Coastal region is likely to be stimulated by the tourism industry.

²³ In mobile broadband analysis, only dongle subscriptions are considered due to the focus of the analysis on computer-dedicated broadband connectivity

Figure 9 Wireless broadband penetration, subscribers, 1Q 2016

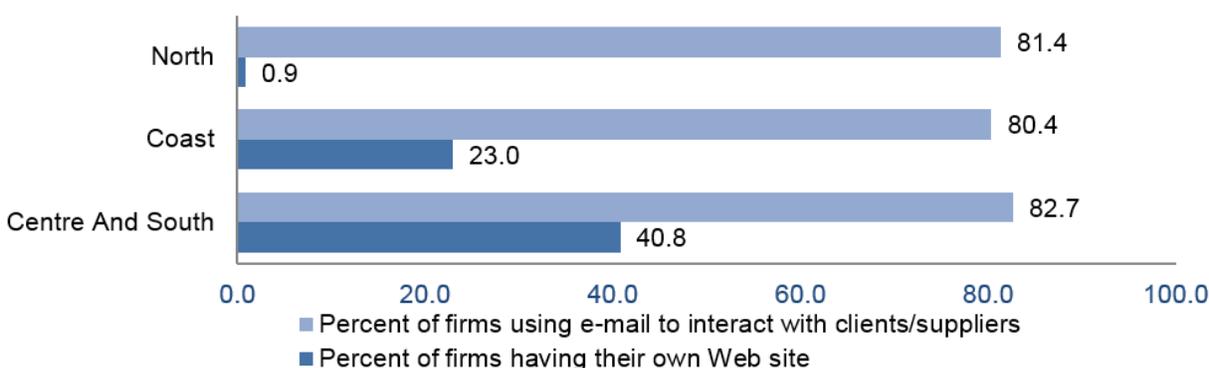


Source: Authors based on the results of the Survey

In the business sector, World Bank Enterprise Surveys indicate widespread demand for broadband connectivity. Montenegro has a relatively high percentage of firms using e-mail services in everyday business (81% vs. 73% for the countries surveyed, as shown in **Figure 10**). However, the percentage of firms with their own web-sites is lower than the average for the countries surveyed (30% vs. 46%). Within Montenegro, the Central region hosts the most active users of Internet connectivity for web-site maintenance (40.8%) and e-mail communication (82.7%), while the Northern region is the least active in this regard (0.9% of businesses have their own web-sites, although 81% use e-mail for communication), as shown in **Figure 11**.

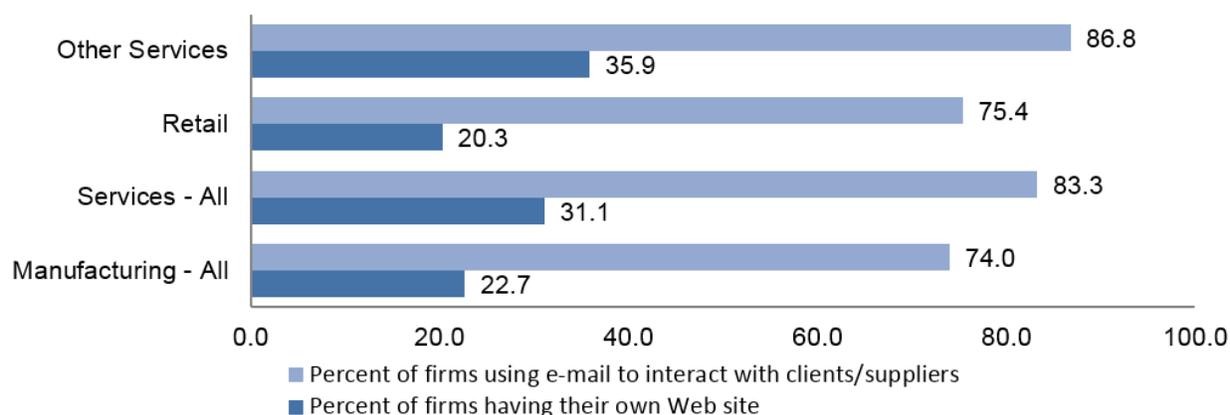
The breakdown by the type of enterprise reveals that service sector firms are relatively more active users of web services, compared to large and non-exporting firms and non-exporters. Since broadband connectivity is crucial in high-priority service industries such as tourism, broadband penetration growth is likely to stimulate business activity and enable economic growth in these sectors in particular.

Figure 10 Internet usage by enterprises by region, 2013



Source: World Bank Enterprise Surveys

Figure 11 Internet usage by enterprises by region, 2013



Source: World Bank Enterprise Surveys

3.3. Supply analysis

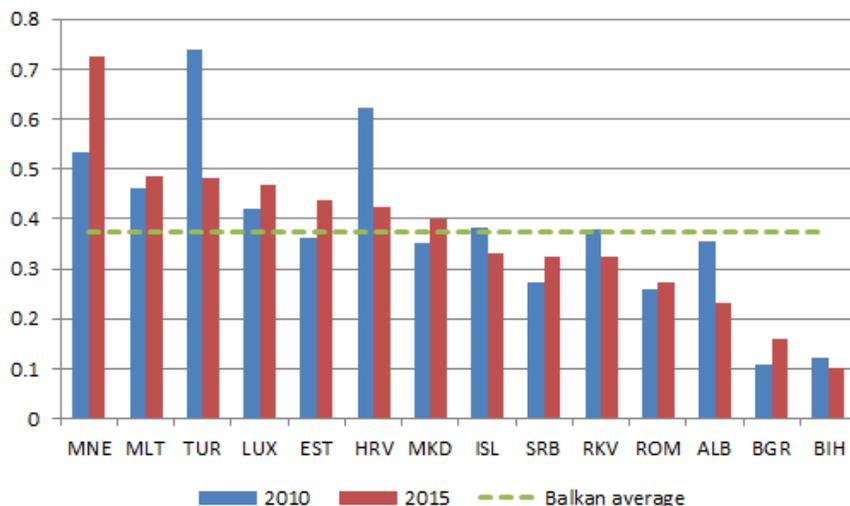
Supply side of high-speed broadband connectivity market in Montenegro is crucial for understanding the nature of possible market failures in Montenegrin telecommunications market. Three key aspects analyzed in this report include: market structure, broadband coverage²⁴, and pricing. Montenegro's broadband market is highly concentrated, with Crnogorski Telekom (T-Com) controlling 85% of market share (by number of subscriptions), as of December 2015. The position of the market leader has strengthened over time, as T-Com's market share increased from 73% in 2010 to 85% in 2015. As a result, Montenegro has one of the most concentrated broadband markets in the Balkan region, as measured by Herfindahl-Hirschman index (HHI)²⁵ (**Figure 12**). This is likely to be a result of a small potential market size, low population density and unfavorable (for network deployment) terrain

²⁴ See section II for approach used to estimate broadband coverage

²⁵ Values of Hirschman-Herfindahl index can range from almost 0 (perfect competition) to 10 000 (monopoly)

(mountainous), all of which are severe obstacles for achieving economies of scale and scope in the high-speed broadband market. Market concentration is high and is following similar dynamics as in other small countries such as Malta, Luxembourg or Estonia, although absolute increase in HHI value is lower in those countries.

Figure 12 HHI, 2010 and 2015

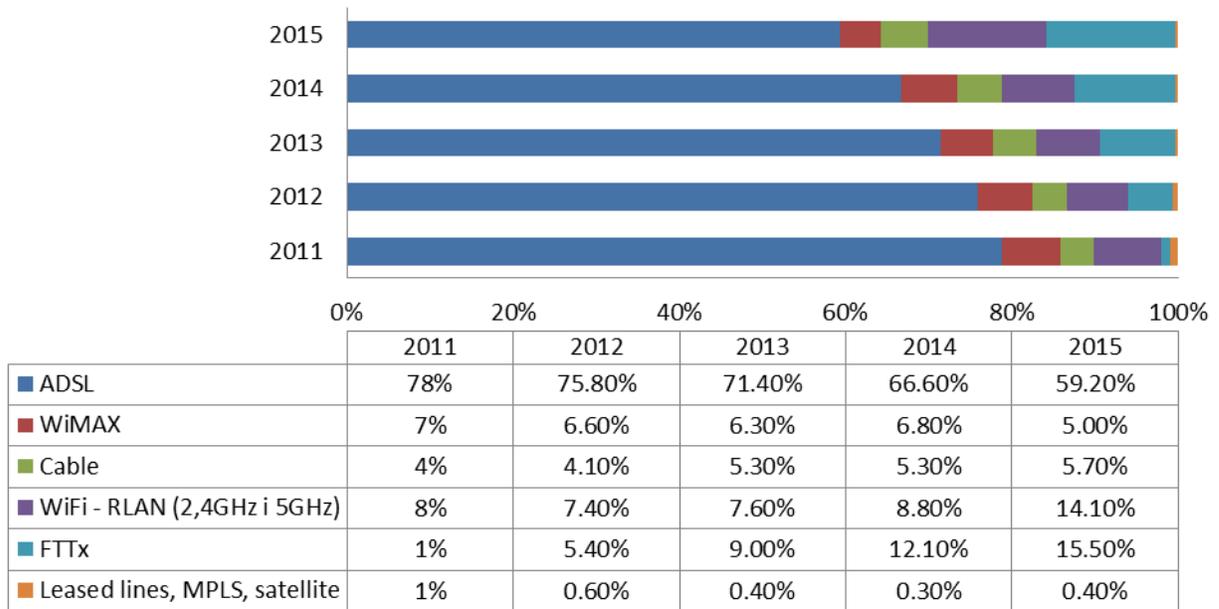


Source: Authors calculations based on data (number of subscribers) from TeleGeography Global Comms database, accessed in March 2016

Less intense competition is among the likely reasons behind slower introduction of new connectivity technologies in Montenegro. Since the nationwide launch of xDSL network (operated by Crnogorski Telekom) in 2005, 2-10 Mbps²⁶ ADSL connection remains the most prevalent in Montenegro, accounting for 59.2% of all subscriptions (**Figure 13**). In 2011, Crnogorski Telekom launched its EUR 7.4 million Fiber To The Home (FTTH) network, which covered 10 cities (37 000 properties) as of 2015. As a result, the number of T-Com FTTH users grew from 0 to 15% of all subscribers. With the rise of more modern connectivity technologies such as FTTH, more subscribers will potentially have access to high-speed broadband connectivity of at least 30 Mbps. However, as of now, only 3% of broadband subscribers are actually subscribed to 30 Mbps. The gap in connectivity speeds is especially pronounced between rural vs. urban areas. For example, 13% of urban subscribers use from 10 to 30 Mbps broadband, compared to only 3% of subscribers in rural areas (**Figure 14**).

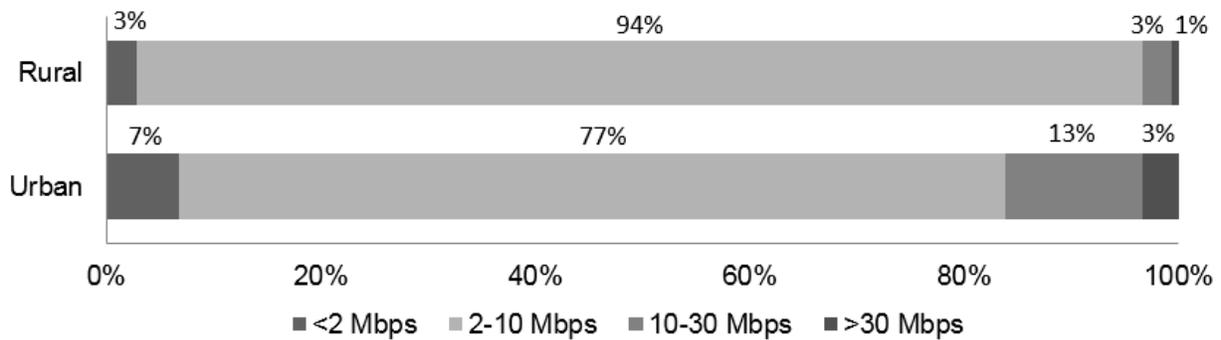
²⁶ In Figure 10 and thereafter, the range of connectivity speeds includes the upper limit, but does not include the lower limit. For example, the 2-10 Mbps connectivity range refers to connectivity speeds larger or equal to 2 Mbps, but smaller than 10 Mbps, 10-30 Mbps range refers to connectivity speeds larger or equal to 10 Mbps, but smaller than 30 Mbps. Above 30 Mbps range includes 30 Mbps speed.

Figure 13 Breakdown of broadband subscriptions by speed and technology, 2015



Source: EKIP

Figure 14 Breakdown of broadband subscriptions by speed and technology, 1Q 2016

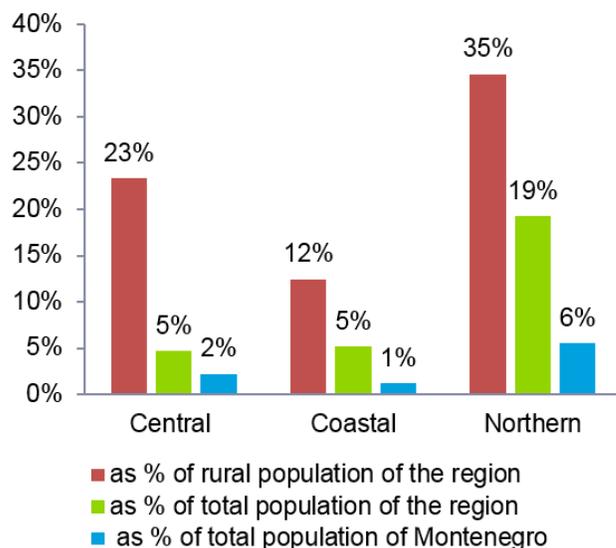


Source: Authors based on the Survey

Current deficiencies in the broadband coverage result from the potential market failure to incentivize the provision of broadband (aka public good) in hard to access, scarcely populated areas of the country. Under the current market structure, the market discourages expansion of broadband infrastructure whenever marginal revenue from additional subscribers is below marginal costs of network expansion. What it means in practice is that profit-maximizing broadband operators are discouraged from investing

in broadband infrastructure in rural areas and hard to access mountainous areas of the country. This amplifies the problem of coverage gap between urban and rural areas, especially when the latter are facing low population density. Regional analysis reveals that it is indeed the case that rural areas widely lack not only access, but also backhaul connections²⁷ (see **Figure 15**). Connectivity is also unequally distributed among regions, with the Northern region lagging behind. For example, 19% of population in the Northern region (368 out of 578 settlements) does not have backhaul connectivity, compared to 5% in the Central region (301 out of 405 settlements) and 5% in Coastal region (88 out of 217 settlements). Overall, 9% of Montenegro’s population (757 settlements in total) lives in settlements without backhaul connection.

Figure 15 Percentage of population without fiber optics backhaul connection, 1Q 2016



Source: Authors based on data collected by ERKIP

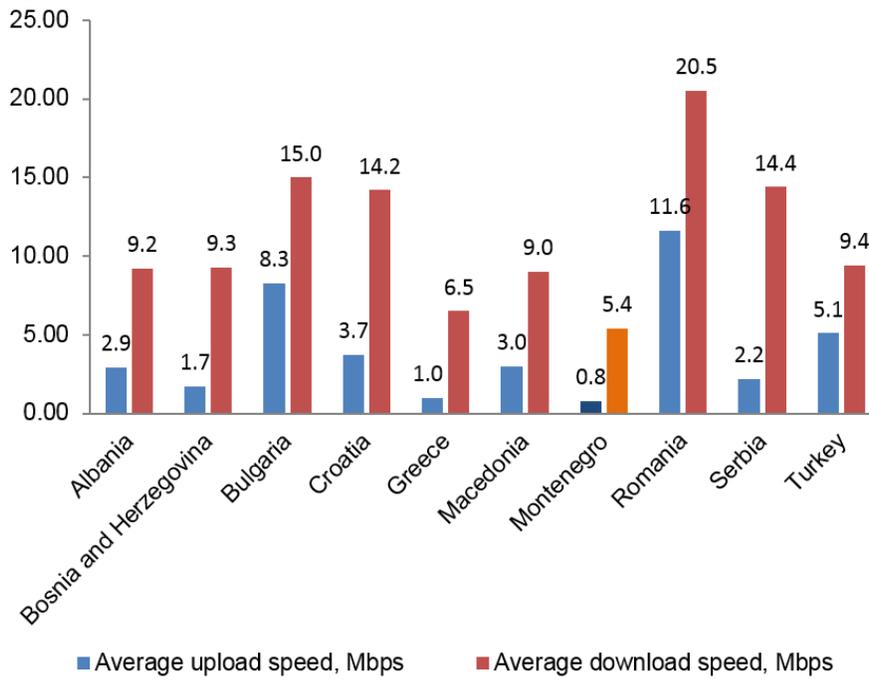
Underinvestment in broadband infrastructure results in nearly the slowest broadband connections when the entire region is concerned (**Figure 16**). In terms of speed, 12.28% of population uses 2-10 Mbps connectivity, with the second most used speed being 10-30 Mbps (1.71% of population). Above 30 Mbps connectivity is used only by 0.44% of population. The urban vs. rural gap prevails in the dominant connectivity speed – 2-10 Mbps; in rural areas, high-speed penetrations are 2-3 times lower, compared to urban areas. The gap is relatively larger in the Central and Northern regions.

T-Com ADSL broadband has the widest coverage in Montenegro, and it can be used as a proxy for fixed broadband coverage overall. Even though the Montenegro country-wide average coverage is 79%, the gaps still remain: in rural areas only 41% (Central region) to 58% (Coastal region) have ADSL access (**Figure 17**). In terms of 4G coverage, the dynamics resembles ADSL coverage, but with an even wider

²⁷ The Survey launched by EKIP has collected the information on the backhaul connectivity per settlement and per technology, i.e. fiber optic, microwave, other. In a number of occasions it was found that some settlements lack any sort of backhaul connectivity and therefore are not connected to high-speed broadband Internet.

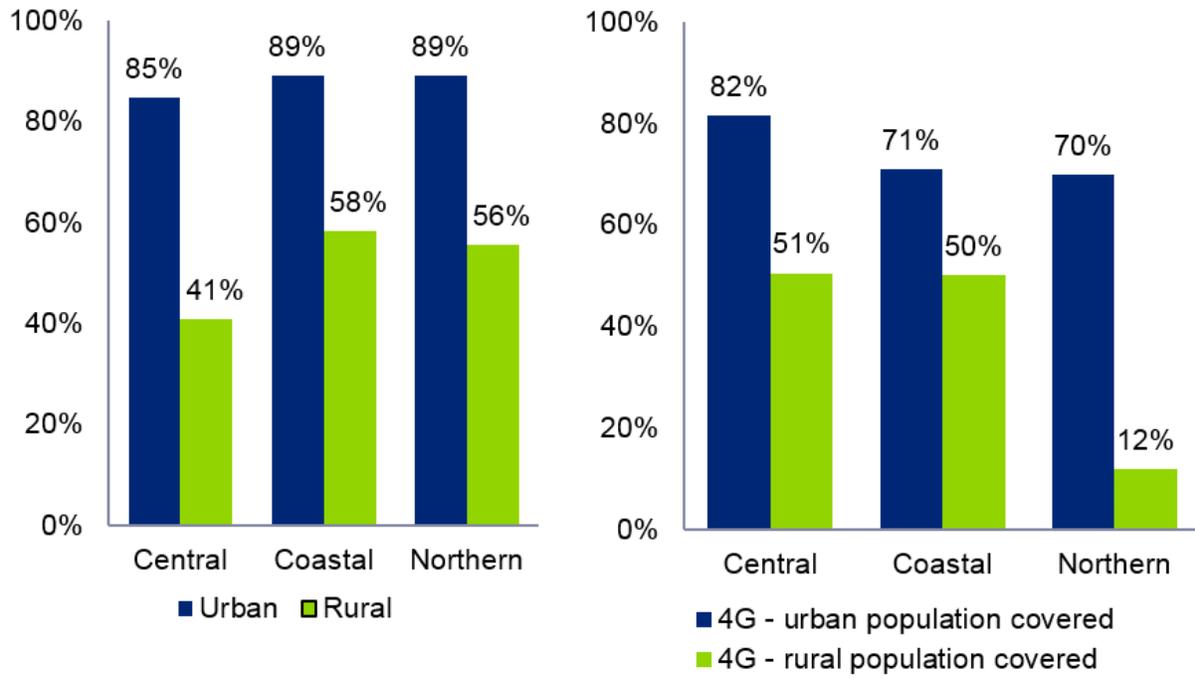
gap in the Northern region: 70% coverage in urban areas vs. 12% in rural ones. There is a clear positive relationship between population density and broadband penetration (**Figure 18**).

Figure 16 Average connection speeds



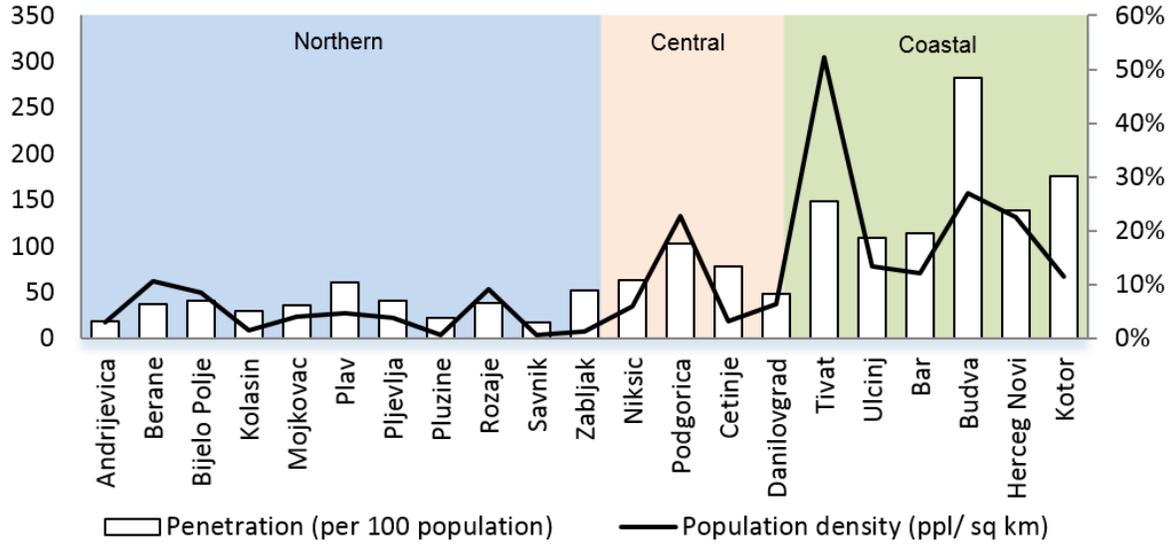
Source: Authors based on the Survey

Figure 17 ADSL and 4G broadband coverage per region, 1Q 2016



Source: Authors based on the data provided by EKIP

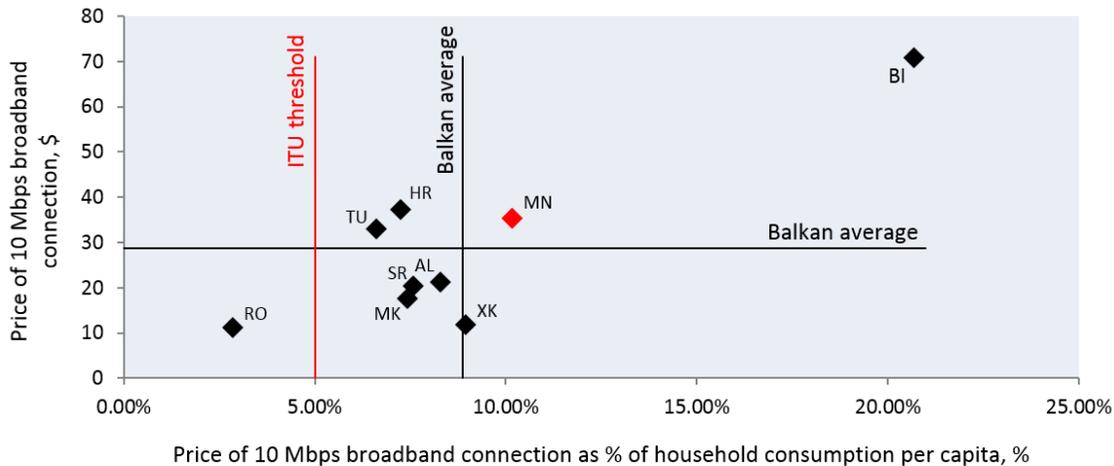
Figure 18 Broadband penetration and population density



Source: World Bank Project team and MAECPS survey of ISPs (Q1, 2016).

In terms of affordability, Montenegro’s broadband connectivity is more expensive compared to the regional averages (**Figure 19**). For example, 1Mbps connectivity accounts for 4.99% of household monthly expense, above most countries in the region, and just below the ITU threshold of 5%. 10 Mbps broadband connectivity constitutes 10% of monthly household disposable income, above the 5% ITU threshold, and above all regional peers, apart from Bosnia and Herzegovina. One driver of this dynamics is likely to be monopolistic price-setting behavior of Crnogorski Telekom. Another factor is relatively low disposable income in Montenegro, which weighs on broadband affordability. The latter is consistent with the fact that Montenegro has significantly higher broadband penetration (50% household penetration) compared to the average for the countries in the respective GDP / capita decile (28% household penetration).

Figure 19 Affordability of 10 Mbps broadband access package



Source: TeleGeography Business Broadband Research service (Q4, 2015)

In line with the indications of coverage deficiencies and affordability barriers, the Gaps model of Stern & Townsend (See **Box 3**) reveals that Montenegrin broadband market suffers from access gaps, which means that broadband service provision cannot be achieved by market alone; hence the state intervention is needed.

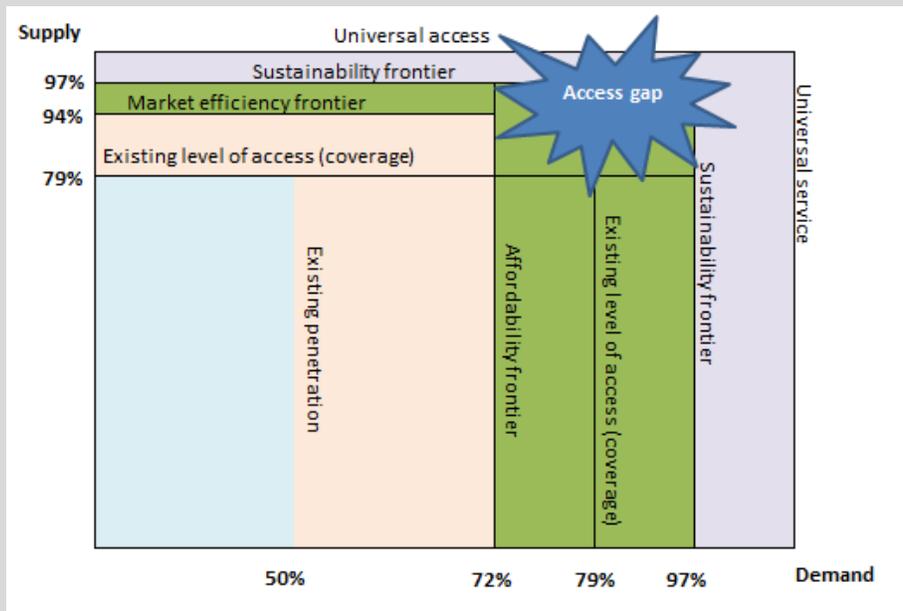
To sum up, the analysis performed has established that 757 localities (accounting for 9% of the population) have no backhaul connection (list of those settlements is provided in the **Annex 1**), while 802 localities (accounting for 10.4% of the population) are not connected to the backbone infrastructure over the fiber optic backhaul which limits their technical possibility to provide high speed broadband access in those settlements. Some of those settlements are however connected over the microwave links. 21% of population is not covered by ADSL connectivity of up to 10 Mbps, and in 869 localities this ADSL connectivity passes through less than 50% of homes (list of locations not covered by ADSL connectivity of up to 10 Mbps is provided in the **Annex 2**). At the same time, 82.6% of population does not have access to high-speed broadband connectivity above 30 Mbps, as 1245 localities (out of 1269 localities in total) are not yet connected to high-speed FTTH infrastructure.

Box 3 Stern & Townsend Gaps model of broadband

The theoretical model of Stern & Townsend (2007) could be applied to analyze the economic foundations of telecommunications development in Montenegro. The model outcome is likely to confirm the existence of a broadband access gap in Montenegro; the Ministry may wish to undertake this exercise in collaboration with EKIP using the most recent data from all operators. Below is an estimate for which the data were used, which had been collected during the Survey.

As demonstrated in the **Figure** below, the access gap is an area outside the market efficiency frontier and affordability frontier, as telecommunications services in this area cannot be achieved by the market alone. To bridge the access gap, two types of measures may be required: a one-time capital subsidy to reach the sustainability frontier, and regular subsidies to ensure universal access beyond sustainability frontier. These state interventions are typically required to ensure broadband access in rural areas with low population density, as well as to stimulate usage by low-income population.

Figure. Stern & Townsend Gaps model of broadband



Definitions (in line with Stern and Townsend, 2007)

The **y-axis** represents the supply side - availability of broadband service (as % of the population), while **x-axis** represents the demand side - actual broadband subscriptions (as % of households);

Coverage numbers (y-axis) are proxied by xDSL coverage (at the population level). Penetration numbers (x-axis) are proxied by fixed broadband penetration (at the household level);

Universal Access: Absolute universal access is achieved when 100% of the population of a given country has access to a given service. *Here:* Proxied by SDIS 2016 10 Mbps broadband coverage goal;

Universal Service: Absolute universal service is achieved when a given telecommunications service is affordable to 100% of individuals or households;

Market Efficiency Frontier: The penetration level achievable in a well-functioning and competitive market under a stable regulatory environment; *Here:* proxied by xDSL broadband coverage in the EU;

Sustainability Frontier: The penetration level achievable in an efficient market with the aid of a one-time financial intervention to support start-up costs; *Here:* proxied by fixed broadband coverage in the EU, after state interventions for broadband development.

Affordability Frontier: The boundary on the demand-side that indicates the maximum percentage of households that could afford to pay for market-based services in an efficient market. *Here:* proxied by EU broadband household penetration.

3.4. Conclusions

Perhaps the most important conclusion from the above analysis is a likely presence of a market failure in Montenegrin high-speed broadband market: i.e. there is an unmet demand for broadband services, which is currently not being satisfied by market players. Firm confirmation of the presence of the market failure can only be established through in-depth consultations with the market players. To further substantiate potential market failure it is suggested to undertake a comprehensive review of the regulatory tools, potential and already used, in order to understand the efficiency of their application and limits to which they could potentially support high-speed broadband infrastructure expansion by private sector. This analysis would allow to adjust and optimize utilization of the regulatory instruments; and to minimize the expenditure of public funds to strictly necessary amount.

From the information collected so far, it is likely that the growing demand for high-speed broadband will not be satisfied in the near future (this, however, should be confirmed by market players). Identified gaps (coverage and connection speeds) in high-speed broadband supply are likely to result from the fact that ISPs are not entering into potentially unprofitable settlements with low economies of scale. The state intervention might therefore be rightly considered to confirm and, if indeed present, to correct this market failure through incentives for broadband availability and adoption in less densely populated areas.

The localities with the lowest take up of high-speed penetration are concentrated in rural areas, with only 3.4% population penetration in rural Northern region (compared to 12% in urban Northern region), 4.1% - in rural Central region (comp. to 17.4% in urban Central region), and 15.8% in rural Coastal region (comp. to 33.4% in urban Coastal region). Taking into account the saturating growth in new broadband connections, it is advisable for the state to better understand the willingness of the private sector operators to invest in those specific localities through comprehensive public consultations, including validation of possible regulatory instruments that could potentially resolve market failure. In the case when no concrete investment plans are being put in place in the near future, (even in case relevant and efficient regulatory instruments would be applied), it would be recommended to consider a more pro-active intervention from the state to address persistent broadband availability gaps in those areas.

The following Chapter will elaborate on existing EU state aid legal and regulatory framework that is relevant for the Ministry in its design and thinking about the policy measures under the new sector strategy.

IV. Main features of the EU State aid framework

State aid, which distorts or threatens to distort competition and affects trade between Member States, is in general prohibited in the EU by the Treaty on the Functioning of the European Union (formerly called the Treaty establishing the European Community; hereinafter – the Treaty). State aid policy is an integral part of EU competition policy, mainly aiming at controlling aid, which distorts (or potentially can distort) competition in the internal EU market. The main reasoning for controlling State aid granted by Member States at the EU level is the potentially negative effects of national subsidies (or alternative remedies) on the EU market. Negative effects (or externalities) occur, because national governments rarely build on their State aid decisions on cost-benefit analysis or international impact evaluation. State aid decisions quite often are biased by political influence, tend to support potentially inefficient national companies (which under normal circumstances would exit the market) or increase their market power. This is why the prohibition of State aid exists in the first place.

The Treaty prohibition of State aid is, however, not absolute. It leaves room for a number of exceptions. The EU competition policy (including State aid rules) is broadly based on the *laissez-faire* approach, whereby demanded goods are expected to be brought by the free market. However, in some cases the market fails to deliver expected results, and specific interventions become necessary. Therefore, the Treaty allows some exceptions where the proposed State aid is justified by reasons of economic nature and may have a beneficial developmental impact.

Generally, **the main economic rationale for granting State aid is to correct market failures (market power, information asymmetries, inefficient allocation of resources, public services), the main political rationale is that it helps to achieve common policy objectives (like social and regional cohesion, employment, research and development, sustainable development).** In the "State Aid Action Plan — Less and better targeted state aid: A roadmap for state aid reform 2005-2009"²⁸ the European Commission (EC) also recognizes these two types of positive effects of State aid measures: i) State aid can become an effective tool for achieving objectives of common interest; ii) State aid can correct market failures, by improving the functioning of the market and its competitiveness. Economic development (general, regional or sectorial) and common European interests are the allowed exemption areas, where State aid can be considered compatible with the EU policy.

The EC has a mandate to assess State aid compatibility, and it is responsible for enforcing the EU State aid policy. In exercising its discretionary power to assess State aid's compatibility, **the EC has to find a balance between State aid's necessity, proportionality, and its ability to contribute in achieving common EU objectives versus the distortion of competition that the aid may bring.**²⁹ The legislation, which the EC adopts in close cooperation with Member States, stipulates the **exemptions, i.e. specifies which State aid measures may be compatible with the Treaty.** It also describes the procedures on State aid verification. For this purpose the EC has issued a number of documents in the form of regulations, communications, notices, frameworks, guidelines (See: the Compilation of State aid rules in force³⁰).

²⁸ <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=URISERV%3A126115>

²⁹ http://ec.europa.eu/competition/state_aid/studies_reports/sa_manproc_en.pdf

³⁰ http://ec.europa.eu/competition/state_aid/legislation/compilation/index_en.html

The EU State Aid Scoreboards³¹ (periodical surveys on State aid in the EU) show, that State aid may be a **significant contributor to EU Member States economies**. In 2014, EU Member States spent 101.2 billion EUR, i.e. 0.72% of GDP on State aid (0.49% in 2013), ranging from 2.08% in Latvia to 0.3% in Spain³². It is also commonly acknowledged that State aid helped to contain the financial crisis (in 2010, crisis aid accounted for 9.9% of EU GDP)³³.

Despite the importance and wide application of State aid, **its definition remains a subject for discussions, with a great number of attempts to interpret it**. It is so because the Treaty³⁴, by which the State aid is governed, gives a very broad definition of the concept. Moreover, in a legally binding manner, the Treaty can only be interpreted by the Court of Justice of the European Union (the European Court).

As a candidate country for membership in the EU, Montenegro has to implement the EU law (*acquis*) in 35 policy areas. Competition policy, which mainly covers anti-trust and State aid rules, is one of them. **As the EC stated in its Montenegro progress report of 2015, the country is moderately prepared on competition policy and State aid policy remains an issue of concern**.³⁵ The country should complete the alignment of the State aid rules with the *acquis*, ensure the operational independence of its State aid authority and improve administrative capacity. Even though by March 2016, Montenegro had transposed the majority of EU State aid rules into the national legislation³⁶, the country still lacks experience in operationalizing it. According to one local law company, “the majority of aid given so far by the grantors in Montenegro falls into the category of *de minimis*”³⁷. Therefore, “the entire field of State aid law is still a *terra incognita* in Montenegro”³⁸.

The objective of this task is to provide an overview of the basic State aid concepts and rules (particularly, in the broadband area). The notion of what constitutes State aid is fundamental to being able to discipline it. Domestic policymakers must make some *a priori* assessment in order to decide what steps to take, since definitional issue also determines which procedures have to be followed.

³¹ See: http://ec.europa.eu/competition/state_aid/scoreboard/index_en.html

³² http://ec.europa.eu/competition/state_aid/scoreboard/index_en.html

³³ http://www.europarl.europa.eu/RegData/bibliotheque/briefing/2013/130467/LDM_BRI%282013%29130467_REV2_EN.pdf

³⁴ http://ec.europa.eu/competition/state_aid/legislation/provisions.html

³⁵ http://ec.europa.eu/enlargement/pdf/key_documents/2015/20151110_report_montenegro.pdf

³⁶ <http://www.bdklegal.com/blogs/competition/state-aid/832-montenegro-makes-a-step-forward-in-harmonization-with-the-eu-state-aid-acquis>

³⁷ <http://www.bdklegal.com/blogs/competition/state-aid/832-montenegro-makes-a-step-forward-in-harmonization-with-the-eu-state-aid-acquis>

³⁸ <http://www.bdklegal.com/blogs/competition/state-aid/832-montenegro-makes-a-step-forward-in-harmonization-with-the-eu-state-aid-acquis>

4.1. State aid: formal definition and main concepts

As already mentioned, **the State aid in the EU is governed by the Treaty, mainly Articles 107-109³⁹**. The Treaty says that "any aid granted by a Member State or through State resources in any form whatsoever which distorts or threatens to distort competition by favouring certain undertakings or the production of certain goods shall, in so far as it affects trade between Member States, be incompatible with the internal market" (Article 107(1) of the Treaty)⁴⁰. This paragraph of the Article 107 provides us with a formal definition of State aid and discloses a general approach towards State aid, i.e., it contains a general prohibition of State aid.

While trying to understand the concept of State aid, it has to be stated first, that **the term State aid is not of an economic, but a legal nature**. It is so because **in a legally binding manner it can only be interpreted by the European Court**. It has to be noted that some aspects of the State aid definition have been a subject for European Court cases and interpretation of them are already available (e.g. undertakings⁴¹). However, a concrete State aid definition remains elusive: "the European Court has not yet provided a consistent and comprehensive interpretation of the conditions for State aid"⁴².

The role of the EC is limited to clarifying how it understands and applies the Treaty provisions in line with the case law. For this purpose, in 2014 the EC issued a communication "*Draft Commission Notice on the notion of State aid pursuant to Article 107(1) TFEU*", where it provides "further clarification on the key concepts relating to the notion of State aid provided for in Article 107(1) of the Treaty"⁴³. The document is quite extensive and aims to cover all of the elements of the notion of State aid. A public consultation on the communication took place in 2014⁴⁴, the final document was published in May, 2016⁴⁵, whereas the clarification and interpretation of basic concepts and principles are provided hereafter (based on available documentation).

- **Cumulative approach**. "According to the case-law, classification as State aid requires that all the conditions set out in Article 107(1) TFEU are fulfilled"⁴⁶. "A measure will constitute 'State aid' if four cumulative conditions are met: (i) there must be an intervention by the State or through **State resources**; (ii) that intervention must be liable to **affect trade** between Member States; (iii) it must confer a **selective advantage on the recipient**; and (iv) it must distort or threaten to **distort competition**."⁴⁷ I.e. the provisions of the Article have been broken down into four cumulative criteria, and State aid will only exist if all four are met.

³⁹ Article 107-109 entail main provisions on State aid. Other related provisions are also available here: http://ec.europa.eu/competition/state_aid/legislation/provisions.html

⁴⁰ <http://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX:12008E107>

⁴¹ Joined Cases C-180/98 to C-184/98 Pavlov and Others [2000] ECR I-6451, paragraph 74

⁴² Bacon, K (2013) European Union Law of State Aid, Second edition, Oxford University Press, p20.

⁴³ http://ec.europa.eu/competition/consultations/2014_state_aid_notion/draft_guidance_en.pdf

⁴⁴ http://ec.europa.eu/competition/consultations/2014_state_aid_notion/index_en.html

⁴⁵ http://europa.eu/rapid/press-release_IP-16-1782_en.htm

⁴⁶ <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A62011TJ0399> para 31

⁴⁷ <http://curia.europa.eu/jcms/upload/docs/application/pdf/2013-12/cp130163en.pdf>

- **State resources** include all resources of the public sector⁴⁸, including central and all local governments, together with public or private bodies that use or administrate State resources or are controlled by the State. This means that resources of public undertakings also constitute State resources, because the State is capable of directing the use of them.⁴⁹ What is also important to notice in this context is that “resources coming from the Union (e.g. from structural funds) or international financial institutions, such as the International Monetary Fund (IMF) or the European Bank for Reconstruction and Development (EBRD), should also be considered as State resource if national authorities have discretion as to the use of those resources (in particular the selection of beneficiaries)”⁵⁰. In such case resources coming from the World Bank should also be considered as State resources.
- **An undertaking** is an entity in any legal form whatsoever which is engaged in an economic activity, or as defined by the European Court - “entities engaged in an economic activity, regardless of their legal status and the way in which they are financed”⁵¹. It could be a publicly owned company, a non-profit company or even a charity, if it is engaged in an economic activity in competition with others. “Any activity consisting in offering goods and services on a market is an economic activity”⁵², meaning that if a market, even very limited, for given goods or services exists, it will be treated as economic activity. Police, armed forces, air traffic control may be examples of non-economic activities, but the scope of them are rather limited and may depend on the way how these services are organized in a certain country.
- **An advantage on the recipient** is any economic benefit which an undertaking(s) would not have obtained under normal market conditions, i.e. in the absence of State intervention⁵³. Not only the granting of positive economic advantages relevant for the notion of State aid, but relief from economic burdens can also constitute an advantage.⁵⁴ The EC in its draft communication on the notion of State aid also advises to pay attention on possible indirect advantages, i.e. if a State aid measure is “designed in such a way so as to channel its secondary effects towards identifiable undertakings or groups of undertakings”⁵⁵.

To answer the question, whether an economic advantage has been given by the State aid, the 'Market Economy Operator' (MEO)⁵⁶ test can be used. It seeks to

⁴⁸Case T-358/94 Air France v Commission.

⁴⁹ http://ec.europa.eu/competition/consultations/2014_state_aid_notion/draft_guidance_en.pdf

⁵⁰ http://ec.europa.eu/competition/consultations/2014_state_aid_notion/draft_guidance_en.pdf, para 62.

⁵¹ http://ec.europa.eu/competition/consultations/2014_state_aid_notion/draft_guidance_en.pdf, para 7.

⁵² http://ec.europa.eu/competition/consultations/2014_state_aid_notion/draft_guidance_en.pdf, para 12.

⁵³ Case C-39/94 SFEI and Others; Case C-342/96 Spain v Commission.

⁵⁴ http://ec.europa.eu/competition/consultations/2014_state_aid_notion/draft_guidance_en.pdf, para 69.

⁵⁵ http://ec.europa.eu/competition/consultations/2014_state_aid_notion/draft_guidance_en.pdf, para 75.

⁵⁶ It covers three tests developed by the EC: Market Economy Investors Test - to evaluate if a private investor would have made the same investments under normal market economy conditions; Private Creditor Test – to compare the behavior of public creditors with hypothetical private ones in similar

evaluate if a private and public entity would have come to similar results under comparable circumstances if it were operating under normal market economy conditions. The key element is “whether the public authorities acted as a market economy operator would have done in a similar situation”⁵⁷. The burden of proving, that a measure is in line with MEO, would fall on a Member State issuing a measure.⁵⁸

- **Selectivity** - an advantage (direct or indirect) should be given on the selective basis, i.e. only to a certain/specific undertaking(s) or categories of undertakings or to certain economic sectors.⁵⁹ The measures, which are equally open to all undertakings operating within a Member State, would not be selective, thus, would not create a selective advantage.
- Although the **distortion of competition and effect on trade** are two distinct elements of the notion of State aid, in practice, they often seem to be treated jointly as they are considered to be closely linked. As a general rule, as soon as a State grants an advantage to an undertaking in a liberalized sector, the measure is treated as distorting (or having a potential to distort) competition. Similarly, most products and services are traded between Member States and therefore State aid for almost any selected business or economic activity is capable of affecting trade between Member States. Exceptions are very rare, purely local and very specific markets (e.g. hospitals and other health care facilities aimed at a local population only⁶⁰). As in practice there are no requirements for an actual distortion or effect to be proved, this part of the State aid definition is therefore easy to satisfy.⁶¹

To sum it up, **if a measure meets all four criteria mentioned above, it has to be treated as a State aid** (i.e. State aid rules applies and formal notification to the EC may be required, see **Figure 20**). Examples of State aid are extensive and include direct state grants and subsidies, tax exemptions, loans at preferential interest rates, guarantees, disposal of land or buildings at lower than market price and etc. Less obvious examples where State aid might arise include: consultancy advice, assistance to help companies invest in environmental projects, legislation to protect or guarantee market share, public private partnerships and contracts not open to competitive tendering, infrastructure projects benefiting specific users.⁶²

circumstances; Private Vendor Test – to assess if private vendor under normal market conditions would have obtain the same price as a public body in question.

⁵⁷ http://ec.europa.eu/competition/consultations/2014_state_aid_notion/draft_guidance_en.pdf, para 79.

⁵⁸ Details on application of MEO test may be found in the EC communication “Draft Commission Notice on the notion of State aid pursuant to Article 107(1) TFEU”.

⁵⁹ http://ec.europa.eu/competition/consultations/2014_state_aid_notion/draft_guidance_en.pdf, para 118.

⁶⁰ http://ec.europa.eu/competition/consultations/2014_state_aid_notion/draft_guidance_en.pdf, para 197.

⁶¹ <http://www.out-law.com/en/topics/eu--competition/state-aid1/-introduction-to-state-aid/>

⁶² https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/31700/11-1040-state-aid-guide.pdf

4.2. Measures not constituting State Aid

Box 1 Article 107 of the Treaty

1. Save as otherwise provided in the Treaties, any aid granted by a Member State or through State resources in any form whatsoever which distorts or threatens to distort competition by favouring certain undertakings or the production of certain goods shall, in so far as it affects trade between Member States, be incompatible with the internal market.
2. The following shall be compatible with the internal market:
 - (a) aid having a social character, granted to individual consumers, provided that such aid is granted without discrimination related to the origin of the products concerned;
 - (b) aid to make good the damage caused by natural disasters or exceptional occurrences;
 - (c) aid granted to the economy of certain areas of the Federal Republic of Germany affected by the division of Germany, in so far as such aid is required in order to compensate for the economic disadvantages caused by that division. Five years after the entry into force of the Treaty of Lisbon, the Council, acting on a proposal from the Commission, may adopt a decision repealing this point.
3. The following may be considered to be compatible with the internal market:
 - (a) aid to promote the economic development of areas where the standard of living is abnormally low or where there is serious underemployment, and of the regions referred to in Article 349, in view of their structural, economic and social situation;
 - (b) aid to promote the execution of an important project of common European interest or to remedy a serious disturbance in the economy of a Member State;
 - (c) aid to facilitate the development of certain economic activities or of certain economic areas, where such aid does not adversely affect trading conditions to an extent contrary to the common interest;
 - (d) aid to promote culture and heritage conservation where such aid does not affect trading conditions and competition in the Union to an extent that is contrary to the common interest;
 - (e) such other categories of aid as may be specified by decision of the Council on a proposal from the Commission.

Source: <http://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX:12008E107>

State aid rules apply only to aid that has all four elements set out in Article 107(1).⁶³ Some examples when not all criteria are fulfilled will be provided in the following paragraphs. However, it should be noted, that they are provided just for introductory purposes, because each case should be analyzed separately in more detail.

a. Measures not meeting definition criteria: no state resources

Intervention by the State or through State resources is one of the primary criteria in the State aid definition. *Only advantages granted directly or indirectly through State resources are to be considered State aid within the meaning of the Treaty.* In the *Case PreussenElektra AG v Schleswag AG*⁶⁴, the European Court recognized that the German electricity feed-in tariff system (financing system supporting electricity from renewable resources) not constitute State aid, as it was not the State, but the

⁶³ <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A62011TJ0399> para 31

⁶⁴ <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A61998CJ0379>

German system operators themselves, allocating the money to the recipients⁶⁵⁶⁶. However, many other renewable energy support schemes in other countries have been found to meet the criterion, as they have chosen different financing and administration schemes (e.g. specific fund-like institutions directly or indirectly controlled by the State).⁶⁷

b. Measures not meeting definition criteria: no selective advantage

General measures available to all economic undertakings in all parts of the Member State are normally outside the scope of State aid, since the criterion of selectivity is not fulfilled.⁶⁸ One of very common examples includes general tax exemptions.

In two recent cases⁶⁹ on fiscal State aid, the European Court found that certain aspects of the Spanish tax system did not constitute State aid. The Spanish law determined that if a Spanish company acquired of at least 5% of the shares of a foreign company and the shares were kept for at least a year, the goodwill arising from this investment could be deducted from the tax liability of the acquiring company.⁷⁰ The EC argued that the tax measure constitutes State aid, which is incompatible with the internal market. According to the EC, the measure gave an advantage to Spanish companies investing in non-Spanish entities over Spanish companies investing in Spanish entities, i.e. it created a selective advantage. However, the European Court decided that the EC failed to show that the measure creates a selective advantage for a particular category of undertakings.⁷¹ The European Court acknowledged that the measure can be applied to all acquisitions by at least 5% of foreign companies that were held without interruption for at least one year, i.e. in order to take advantage of the measure, a company had to purchase shares in a foreign company. The measure did not refer to a particular business or production category, but to a particular category of economic operations or transactions. This implies, that for a measure to be selective, it is not enough to be an exemption of general system. It still has to favor certain undertakings.

Additionally, if a State is acting in a way that a private investor would in a market economy, this means that it is not providing State aid within the meaning of Article 107 (1). This usually applies when the State is the main shareholder of an undertaking. When it is a State-controlled company, the key question is whether a private investor - who would not take into account regional development or employment concerns, but who would expect to make an eventual return - would invest/ behave in this

⁶⁵ Operators first paid the minimum prices and then equalized their costs among themselves in the market. "Statutory provisions of a Member State which, first, require private electricity supply undertakings to purchase electricity produced in their area of supply from renewable energy sources at minimum prices higher than the real economic value of that type of electricity, and, second, distribute the financial burden resulting from that obligation between those electricity supply undertakings and upstream private electricity network operators do not constitute State aid"

⁶⁶ <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A61998CJ0379>

⁶⁷ <http://www.keepontrack.eu/contents/virtualhelpdeskdocuments/update-state-aid.pdf>

⁶⁸ C-156/98 Germany v Commission (2000),

⁶⁹ Case T-219/10, Autogrill España SA v. European Commission ("Autogrill"); and Case T-399/11, Banco Santander SA and Santusa Holding SL v. European Commission ("Santander")

⁷⁰ <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32011D0282&rid=1>

⁷¹ <https://www.sullcrom.com/eu-state-aid-and-tax-law-european-court-finds-that-spanish-tax-rules-were-not-unlawful-state-aid-because-they-did-not-give-a-selective-advantage>

way.⁷² If it is proven that the State acted under the same terms and conditions as a commercial investor when providing the necessary funding, then State aid is not involved. One very common example is airport fees. Since many airports are State-owned, it is indeed possible that they may not charge fees at commercial rates which are MEO compliant⁷³. Such actions may be considered as State aid.

Support for general infrastructure projects that do not benefit specific users would also normally fall outside the scope of State aid. Public funding of infrastructure, which is open to any user does not constitute State aid. Fees charged to users of publicly-funded infrastructure must cover incremental costs and include a reasonable margin.⁷⁴ In the case of German investment aid to an enterprise (Propapier) for a project to build a paper production plant in a disadvantaged region, the EC found that not only the aid measure was in line with the EU State aid rules, but also the surrounding infrastructure built by the German state did not involve State aid, as they were general infrastructure, not dedicated specifically to a particular market player. Charges for the use of this general infrastructure covered incremental costs⁷⁵.

c. Measures not meeting definition criteria: no economic activity

State aid refers to public assistance given to a certain undertaking(s). According to the case law, an undertaking is any entity engaged in an economic activity, regardless of its legal status and of how it is financed⁷⁶. Thus, aid to public bodies not involved in economic activities will not constitute State aid. For example, in the case of Welsh Public Sector Network Scheme the EC recognized that the suggested measure did not constitute State aid, as it intended to support public bodies not involved in economic activities.⁷⁷ The measure aimed at providing public sector organizations in Wales with high bandwidth network services, by procuring one public service contract for the provision of consolidated network services.⁷⁸ The EC concluded, that the end users of the measure are public sector organizations, which do not carry out economic activities, thus do not qualify as “undertakings”.

d. Measures not meeting definition criteria: no potential effect on competition and trade

As already mentioned, effect (or potential effect) on competition and trade within the EU are criteria, which seem to be relatively easy to fulfill. However, seeking to simplify State aid rules, the EC has adopted a *de minimis* Regulation on small aid amounts that fall outside the scope of EU State aid control because they are deemed to have no impact on competition and trade in the internal market.⁷⁹ Support granted under the *de minimis*

⁷² https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/31700/11-1040-state-aid-guide.pdf

⁷³ http://ec.europa.eu/competition/state_aid/modernisation/aviation_guidelines_en.pdf

⁷⁴ <http://stateaidhub.eu/blogs/stateaiduncovered/post/1185>

⁷⁵ http://europa.eu/rapid/press-release_IP-14-1069_en.htm

⁷⁶ http://ec.europa.eu/competition/consultations/2014_state_aid_notion/draft_guidance_en.pdf, para 7.

⁷⁷ http://ec.europa.eu/competition/state_aid/cases/218491/218491_683319_19_2.pdf

⁷⁸ Public organisations in Wales had their own networks, which were procured separately by the different public service organisations. This resulted in higher costs, lack of sufficient connectivity and duplication of resources. See: http://ec.europa.eu/competition/publications/cpn/2007_3_15.pdf

⁷⁹ http://europa.eu/rapid/press-release_IP-13-1293_en.htm

Regulation is not regarded as State aid, if no more than EUR 200 000 is granted to a single undertaking over a period of three years.

Other examples of low impact on competition and trade might be very local and specific markets. For example, in the case of State support for developing a certain historic site in Poland, the EC recognized that the local and very small scale character of the commercial activities ensure that an effect on intra-Union trade “can for all practical purposes be excluded”.⁸⁰

e. Service of General Economic Interest

Another group of services, which will be treated separately by the EC, are so called Services of General Economic Interest (SGEI).

SGEI are services of an economic nature that public authorities identify as being of particular importance to citizens, but which are not supplied by market forces alone, or at least not to the extent and under the conditions requested by society. Examples of SGEI range from providing large commercial services (such as postal services, energy security of supply) to the entire population at affordable conditions, to a wide range of health and social services (such as care for the elderly or people with disabilities).⁸¹

Member States are basically free to define which services are of general interest. However, as these services usually are commercially unjustified (profitless or lossmaking), they often include some compensation or State funding mechanisms. This public funding or compensation granted for the provision of such services still has not to unduly distort competition in the EU. The renewed package of legislation related to SGEI was adopted in 2011.⁸² It not only clarifies key concepts of SGEI, but also identifies criteria, that should be met for financing of such services not to be treated as State aid. Four so called Almark criteria should be fulfilled (see **Box 5**), otherwise - the public service compensation will be examined under State aid rules.

Box 5 Almark criteria for SGEI compensation

In its Almark judgment of 24 July 2003, the European Court provided clarification as to when public service compensation does not constitute State aid. According to the judgment four cumulative conditions have to be satisfied:

- *there must be an entrustment act clearly defining the public service obligation;*
- *the parameters for calculating the compensation must be established in advance in an objective and transparent manner;*
- *the compensation cannot exceed the relevant costs and a reasonable profit (i.e. there is no overcompensation);*
and
- *the provider is either chosen through a public procurement procedure or the level of compensation is determined based on an analysis of the costs of an average "well-run" undertaking in the sector concerned.*

The Almark ruling highlighted the fact that many instances of public service compensation for SGEI providers represent State aid. In order to provide legal certainty, the EC adopted in 2005 a set of specific rules for the compatibility of such State aid with the internal market. In 2011, a renewed set of legal acts were adopted.

⁸⁰ http://ec.europa.eu/competition/state_aid/cases/244866/244866_1398073_222_3.pdf

⁸¹ http://ec.europa.eu/competition/publications/cpn/2012_1_9_en.pdf

⁸² http://europa.eu/rapid/press-release_IP-11-1571_en.htm?locale=en

In 2005, for example, the EC decided that, the public co-funding of an open broadband infrastructure in Limousin, France constituted compensation for the provision of SGEI and was not considered to be a State aid, as the project fulfilled the Almark criteria⁸³. Similarly, in 2009, the EC adopted a decision declaring that the compensation for public service charges for the establishment and operation of a very high-speed broadband electronic communications network in the French Hauts-de-Seine department did not constitute State aid.⁸⁴

4.3. Objectives and measures compatible with the State aid

The Treaty leaves room for a number of **policy objectives for which State aid can be considered compatible**.⁸⁵ Articles 107 (2) and 107 (3) of the Treaty list exceptions that are not part of the general ban on State aid, as in some circumstances government interventions are necessary for a well-functioning and equitable economy.

Article 107(2) specifies three types of aid that it declares compatible (see **Box 4**), although it should be noted that in practice these categories will seldom arise:

- Social aid granted to individual consumers, i.e. the ultimate beneficiary of the aid must be an individual, rather than an undertaking, and has to be of social character (covering only certain groups, like children, elderly people);
- Aid to make good damage by natural disasters or exceptional occurrences;
- Aid to certain areas of Germany affected by the division of Germany.

Although these categories are automatically considered as being compatible with the internal market, they still have to be satisfied prior to being put into effect, so as to allow the EC to verify that the conditions laid down in the Treaty are met.⁸⁶

Article 107(3) defines categories that may be considered compatible with the common market:

- Aid to promote the economic development of areas where the standard of living is abnormally low or where there is serious underemployment⁸⁷;
- Aid to promote the execution of an important project of common European interest or to remedy a serious disturbance in the economy of a Member State⁸⁸;
- Aid to facilitate the development of certain economic activities or of certain economic areas, where such aid does not adversely affect trading conditions to an extent contrary to the common interest⁸⁹;

⁸³ http://europa.eu/rapid/press-release_IP-05-530_en.htm

⁸⁴ <http://www.lexology.com/library/detail.aspx?g=f2b9c892-7fbd-41f8-9d1c-a188cbf8368f>

⁸⁵ http://ec.europa.eu/competition/state_aid/overview/index_en.html

⁸⁶ http://ec.europa.eu/competition/state_aid/studies_reports/sa_manproc_en.pdf

⁸⁷ According to the guidelines on regional aid, this point applies to regions having a per capita GDP of less than 75% of the EU average. See: <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52014XC0405%2802%29>

⁸⁸ To satisfy this criterion, a measure/ project normally should involve more than one Member State and benefits from it should be extended to a wide part of the EU. It also should clearly contribute to one or more EU objectives. See Communication on State aid to promote CIP: http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.C_.2014.188.01.0004.01.ENG

- Aid to promote culture and heritage conservation where such aid does not affect trading conditions and competition in the Union to an extent that is contrary to the common interest;
- Such other categories of aid as may be specified by decision of the Council on a proposal from the Commission.

The Treaty gives the EC the sole competence to determine whether the conditions for compatibility are fulfilled⁸⁹, i.e. the EC is authorised under Article 108 of the Treaty to control State aid. The EC has to evaluate both positive and negative effect of a measure in question, in order to approve/disapprove giving of the State aid (even if it could have some effect on competition). For that purpose, the EC has issued a number of different documents, explaining how and on what basis decisions are taken. So that the EC may adopt a position on State aid measure and its applicability, Member States are obliged, under Article 108 (3) of the Treaty to **inform in sufficient time** of any plans to grant new aid or alter existing aid (i.e. to notify the EC)⁹¹. Aid may not be granted by Member States until the EC has taken a final decision on it. The EC decisions can be appealed in the EU courts.

⁸⁹ The disturbance must affect the economy of a Member State as a whole and it should be serious compared to the general situation in the EU.

⁹⁰ http://ec.europa.eu/competition/state_aid/studies_reports/sa_manproc_en.pdf

⁹¹ <http://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX:12008E108>

4.4. Measures not requiring formal notification

The underlying principle of the State aid procedures is that the EC must be notified in advance of all planned aid schemes, unless it falls under a few possible exemptions.

a. General Block Exemption Regulation

In a **General Block Exemption Regulation (GBER)**, the EC declares that certain categories of State aid are compatible with the internal market and shall not be subject to the requirement of prior notification. Consequently, Member States may implement State aid measures, which fulfill the conditions of the GBER without having gone through the notification procedure. It should be noted, however, that the EC may withdraw the benefits of the GBER if a Member State does not comply with any of common or specific conditions.⁹²

In 2014 the EC renewed GBER, with one of the objectives **to induce Member States to use the GBER for most of the State aid measures, which have limited budgets.**⁹³ The first version of GBER was published in 2008, while amended version of the GBER⁹⁴ entered into force on July 1, 2014. It considerably broadens the scope of pre-approved aid and encompasses several new categories of aid. The EC estimates that about 3/4 of State aid measures will be exempted under the revised GBER.⁹⁵ Some state that up to 90% of aid measures could potentially fall under the GBER.⁹⁶

The GBER sets out categories of aid and the conditions under which aid measures can potentially benefit from such an exemption. Many categories and types of aid measures are covered by the GBER and these include among others: regional aid; SME aid; aid for environmental protection, aid for research, development and innovations, as well as aid for broadband infrastructure (detailed analysis of this specific type of aid is provided in the Section 5.4 of the paper) or local infrastructure.⁹⁷ The regulation also sets sectors⁹⁸ and measures, for which GBER cannot be applied, including:

- State aid schemes with average annual State aid budget that exceed EUR 150 million for following categories: regional aid, aid for SMEs, aid for access to finance for SMEs, aid for R&D&I, aid for environmental protection and aid for broadband infrastructures. Schemes in other categories will not be exempted from GBER, regardless of their budget, if other conditions are fulfilled⁹⁹;
- Export-related activities;
- Primary agriculture production & fisheries;

⁹² http://ec.europa.eu/competition/state_aid/legislation/gber_regulation_en.pdf

⁹³ http://europa.eu/rapid/press-release_MEMO-14-369_en.htm

⁹⁴ http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=OJ:JOL_2014_187_R_0001&from=EN

⁹⁵ http://europa.eu/rapid/press-release_IP-14-587_en.htm

⁹⁶ <http://www.euroacad.eu/events/event/the-general-block-exemption-regulation-gber-in-practice.html>

⁹⁷ http://europa.eu/rapid/press-release_MEMO-14-369_en.htm

⁹⁸ In general, GBER applies to all sectors of the economy with some exceptions. Sectoral restrictions are set out in Article 1, paragraphs 3-5 of the Regulation: <http://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1404295693570&uri=CELEX:32014R0651>

⁹⁹ <https://www.djei.ie/en/What-We-Do/EU-Internal-Market/EU-State-Aid-Rules/What-is-State-Aid-/Options-for-proposals-involving-State-Aid/#sthash.IdppRhd0.dpuf>

- Closure of coal mines;
- Undertakings in difficulty.

The GBER not only determines eligible beneficiaries, but also maximum aid intensities (i.e. the maximum proportion of the eligible costs of a project that can benefit from State aid) and eligible expenses.¹⁰⁰ These are determined for each category separately. Basic requirements for a measure to fall under GBER include: aid must be transparent, must have incentive effect, must be cumulated¹⁰¹, aid measures must be published. Other requirements are set for each category separately.

It is important to notice, that **in general measures adopted on the basis of the GBER do not have to be notified**. Member States have to submit to the EC a summary information within 20 working days of adopting a measure and also to submit annual reports. However, when the amount for an individual award or when the cost of a project exceeds some determined thresholds, individual notification is necessary, e.g.:

- Regional investment: EUR 100 million
- Regional urban development: EUR 20 million/project
- Broadband infrastructure: EUR 70 million /project¹⁰²

The EC can withdraw the benefits of the GBER if a Member State does not comply with any of common or specific conditions.

b. *De minimis* Regulation

In 2006, the EC adopted a ***de minimis* Regulation - a regulation exempting small amounts of State aid (under EUR 200 000 in any rolling three-year period) from the obligation to notify the EC in advance for clearance under the State aid rules**. On January 1, 2014, the new *de minimis* Regulation entered into force, the main idea of which remains the same. i.e. small amounts of State aid have a negligible effect of the EU trade and competition, therefore there is no requirement to notify it.¹⁰³

Small amounts of aid to one undertaking, i.e. less than EUR 200,000 in any rolling three-year period, are considered as having no appreciable effect on competition or trade. This aid may be given without the need for notification or approval, though records of the aid granted must be maintained. All terms of the *de minimis* Regulation must be followed (e.g. cannot be given to export related activities).

c. Existing aid scheme

If State aid is granted under an aid scheme already authorised by the EC, no additional notification to the EC is required. Member States may grant aid in conformity with the conditions established in the

¹⁰⁰ europa.eu/rapid/press-release_MEMO-14-369_en.pdf

¹⁰¹ The EC clarifies which aid must be cumulated in order to calculate the total aid.

¹⁰² <http://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1404295693570&uri=CELEX:32014R0651>

¹⁰³ <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2013:352:0001:0008:EN:PDF>

relevant EC decision. Example of such case may be a recently approved State aid scheme for broadband roll-out in Germany.¹⁰⁴

In February 2014, Germany notified plans to support Next Generation Access (NGA) broadband roll-out with EUR 3 billion over the coming seven years.¹⁰⁵ Private operators and municipalities can apply for funding in target areas where only basic broadband access¹⁰⁶ is available and where there are no private investment plans to develop NGA for the coming three years. The objective was to establish networks that are capable of delivering download speeds of at least 30 Mbit/s for 95% of the population and 50 Mbit/s for 75% of the population in the target area. As a general rule, download speeds have to be at least doubled by the intervention and upload speeds need to increase at least by the same proportion as download speeds.¹⁰⁷ The EC has found that the Germany's proposal “meets the compatibility criteria set out in the Broadband Guidelines and is thus compatible with Article 107(3)(c) TFEU”.¹⁰⁸ It recognized that the measure will contribute greatly to achieve the objectives of the Digital Agenda for Europe and will have limited negative effect on competition in the EU.

The approval means that any State aid granted under this particular scheme will not require an additional notification to the EC. Germany will have to submit annual reports on the application of the measure and to inform the EC of any plans to amend or extend the measure.

The list of all EC decisions regarding the State aid rules concerning broadband is available at the following website:

http://ec.europa.eu/competition/sectors/telecommunications/broadband_decisions.pdf

¹⁰⁴ http://europa.eu/rapid/press-release_IP-15-5186_en.htm

¹⁰⁵ http://ec.europa.eu/competition/state_aid/cases/251861/251861_1670916_80_2.pdf

¹⁰⁶ “Several different technology platforms can be considered as basic broadband networks including asymmetric digital subscriber lines (up to ADSL2+ networks), non-enhanced cable (e.g. DOCSIS 2.0), mobile networks of third generation (UMTS) and satellite systems.” See: <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:C:2013:025:0001:0026:EN:PDF>

¹⁰⁷ http://ec.europa.eu/competition/state_aid/cases/251861/251861_1670916_80_2.pdf, para 11.

¹⁰⁸ http://ec.europa.eu/competition/state_aid/cases/251861/251861_1670916_80_2.pdf, para 74.

4.5. Verification procedures

As already mentioned, the EC has a sole competence to assess the compatibility of the State aid. In order to complete this task, **the EC must be informed in sufficient time of any plans to grant new State aid or alter the existing one, i.e. if a measure constitutes State aid and does not meet the conditions allowing an exemption, a notification to the EC for State aid clearance is required.** The objective behind the notification procedure is to allow the EC to verify the compatibility of aid with the common market.

New (or altered) aid schemes or individual aid cannot be introduced or implemented before the EU authorization is granted. This is known as the suspension obligation or standstill clause. It means that the measure may not be put into effect prior to the decision by the EC explicitly authorizing it.¹⁰⁹ Aid granted without prior notification is unlawful or illegal (except for the foreseen exemptions, i.e. *de minimis* or GBER).¹¹⁰

In preparing aid schemes, the authorities should take into account that **the notification procedure takes around 4 - 6 months.**¹¹¹ Furthermore, anyone can make a complaint to the EC provided they can demonstrate that they have an interest in a particular case (e.g. potential beneficiaries of a State aid, competitors or others). As a result, complaints are usually made by a competitor to the aid recipient. This also makes a process lengthy and sometimes complicated.

Detailed procedural regulations for notification are provided in the **Council Regulation (EU) 2015/1589 of 13 July 2015 laying down detailed rules for the application of Article 108 of the Treaty on the Functioning of the European Union.**¹¹² To put in a simplified way, under regular circumstances, the notification entails two phases:

Step 1. Pre-notification phase. This phase is not “officially” part of the notification procedure under Article 108, but it has emerged from the practice. All Member States are invited to submit a draft notification of their plans for State aid measures. After examining the case, the EC will inform the Member State if a simplified or normal procedure have to be followed.

Step 2. Procedural phase. It may took two different ways, as described in **Table 3. State aid notification procedures**

¹⁰⁹ <http://www.keepontrack.eu/contents/virtualhelpdeskdocuments/update-state-aid.pdf>

¹¹⁰ http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2015.248.01.0009.01.ENG

¹¹¹

https://www.tem.fi/en/consumers_and_the_market/eu_rules_on_state_aid/procedures_and_coordination

¹¹² http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2015.248.01.0009.01.ENG

Table 3. State aid notification procedures

Steps under Simplified procedure	Steps under Normal procedure
MS should submit the official notification no later than in 2 months	Preliminary examination to be done by the EC within 2 months after receiving a complete notification. The EC may decide ¹¹³ : <ul style="list-style-type: none"> - there is no State aid within the meaning of the EU rules, and the measure may be implemented; - the aid is compatible with EU rules, and may be implemented; - serious doubts remain as to the compatibility of the aid and the EC opens an in-depth/formal investigation. In this case, the measure may not be implemented until the investigation is completed.
The EC will ask interested parties for comments within 10 working days	The EC starts formal investigation procedure and takes decision within 18 months:
A short-form decision to be issued within 20 working days	The EC asks the MS and interested parties for their comments (1 month)
	MS has 1 month to respond to the comments
	At the end of formal investigation, the EC can adopt a positive decision (the measure does not constitute aid or is compatible with the internal market), a conditional decision (imposing certain conditions on the measure in order to make it compatible) or a negative decision (the measure is incompatible and may not be put into effect).

Source: Authors based on EC

In case the EC decides that the measure may not be implemented but the aid has already been granted, the Member State usually has to take all measures necessary to recover it, i.e. the aid granted must be actually paid back.¹¹⁴ In case a Member State would decide to implement aid measures prior to notification, a full, and often lengthy, assessment of the compatibility of the aid would normally be still required before the EC can order the recovery of that aid (unlawful aid). It is considered that national courts could potentially ensure a swifter aid recovery process than the EC can achieve.¹¹⁵

¹¹³ ec.europa.eu/competition/state_aid/overview/state_aid_procedures_en.html

¹¹⁴ Council Regulation (EU) 2015/1589 http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2015.248.01.0009.01.ENG

¹¹⁵ <http://www.out-law.com/en/topics/eu--competition/state-aid1/-introduction-to-state-aid/>

4.6. Summary

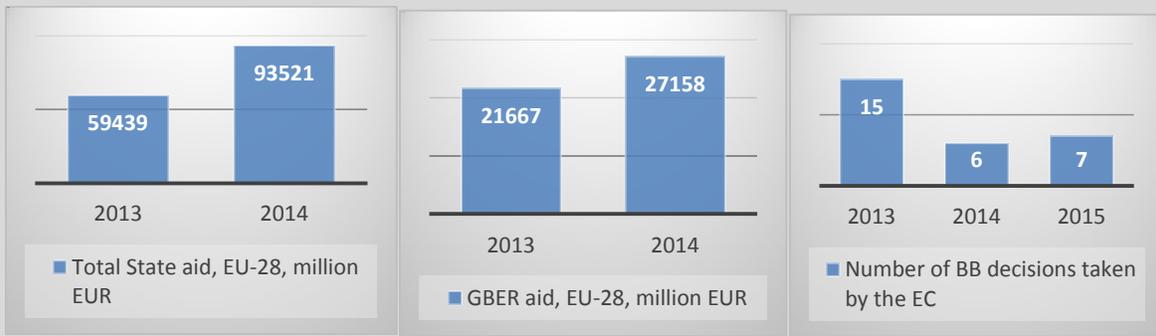
The EU State aid framework is quite complex, having separate regulations for different economic sectors, extensive regulations on State aid treatment and procedures. A list of some important regulations is provided in **Annex 4**.

The framework is being frequently reviewed and improved. The attempts of the EC to shape the State aid policy to be more targeted towards achieving common EU policy objectives, were most likely the main reasons why the EU's State aid policy has undergone several serious reforms in past decades. In 2000 the EC asked Member States to reduce the level of State aid (as percentage of GDP)¹¹⁶ and to promote horizontal aid instead of benefiting individual companies or sectors¹¹⁷, seeking to shape State aid policy to target more effectively the *Lisbon Strategy* goals, i.e. "to become the most dynamic and competitive knowledge-based economy in the world"¹¹⁸. In 2005, the State aid action plan was launched. It covered the period of 2005-2009 and brought about further changes, in line with the midterm review of the *Lisbon Strategy*. Finally, State aid modernization initiative was issued in 2012 with the main goal to support EU growth strategy for 2020¹¹⁹. The summary of the latest modernization and its implications are provided in **Box 7** and **Box 6**. The summary of State aid notion (main criteria) and notification requirements are provided in *Figure 20*.

Box 6 Implications of State aid modernization

One of the main objectives of State aid modernization was the simplification of State aid procedures, especially the ones concerning aid with limited effect on EU internal market. I.e. the EC aimed at focusing its enforcement on the cases with the biggest impact on the internal market, allowing greater part of State aid decisions be taken by Member States following the renewed regulations, in particular GBER and *de minimis* regulation.

As State aid modernization mainly took place in 2014, the evaluation of real implications of this initiative is still premature. However, the first data show the total amount of State aid has increased along with the amount of State aid granted under the GBER in 2014, although a number of State aid decisions taken by the EC decreased (at least in the case of broadband). This means that the reform shows the first positive results.



¹¹⁶ Historically, State aid has been used by Member States in the past explicitly and extensively in defense of their national industries. See: Ganoulis, <http://www.econstor.eu/bitstream/10419/41131/1/338182462.pdf>

¹¹⁷ Sectorial and individual aid is considered to have potentially the strongest distortive effects on the allocation of resources and competition or trade. See: Ganoulis, <http://www.econstor.eu/bitstream/10419/41131/1/338182462.pdf>

¹¹⁸ http://www.europarl.europa.eu/summits/lis1_en.htm

¹¹⁹ <http://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX:52012DC0209>

Source: EC. http://ec.europa.eu/competition/state_aid/scoreboard/index_en.html

Box 7 State aid modernization

In May 2012, the EC issued the Communication on State aid modernization, where it set out an ambitious State aid reform programme. The programme had three main objectives: (i) to foster sustainable, smart and inclusive growth in a competitive internal market; (ii) to focus Commission *ex ante* scrutiny on cases with the biggest impact on internal market; (iii) to streamline the rules and provide for faster decisions.

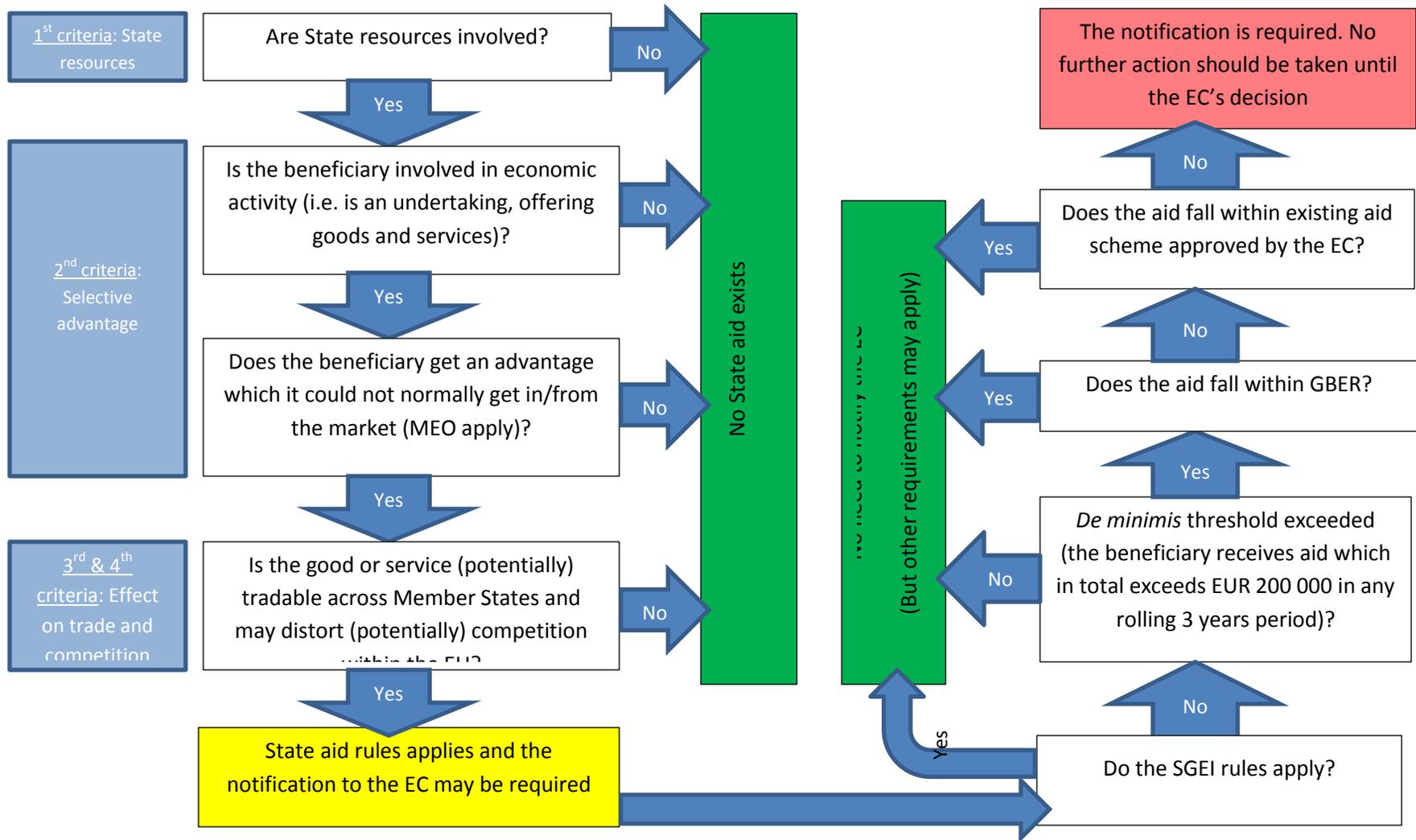
In 2013-2014, the EC revised existing rules on State aid and adopted new ones in line with identified targets and principles. A number of documents were renewed, including:

- **Guidelines on regional aid for 2014-2020.** Key features of the new guidelines include increased coverage of regions where regional aid may be granted, more aid categories to be exempted from notification procedure, increased transparency of granted aid.
- **Broadband Guidelines.** The new guidelines focus more on technological neutrality principles and open access availability, add possible support for ultra-fast broadband networks, and stress importance of transparency.
- **General Block Exemption Regulation.** The EC has considerably extended the scope of exemptions from prior notification of state aid granted to companies. The key improvements are increased thresholds, additional categories of aid, simplified conditions to meet GBER requirements.
- **De minimis regulation.** Though the exempts aid amounts of up to €200 000 per undertaking over a three-year period, remain unchanged, the treatment of small aid measures were simplified. I.e. companies undergoing financial difficulties are no longer excluded from the scope of the regulation, the definition of what constitutes an "undertaking" has been simplified and clarified, subsidized loans of up to €1 million may also benefit from the *de minimis* Regulation if certain conditions are met.
- **Notion of State aid** was explained in details for the first time.
- **Enabling regulation.** It introduces new categories of aid that the Commission may decide to exempt from the obligation of prior notification and allow the EC to focus more on the most important State aid cases.
- **Procedural regulation.** It improves the handling of complaints, leading to a swifter, more predictable and more transparent investigation of complaints.

The reform also included the revision of Guidelines on aid for research & development & innovation, Guidelines on environmental aid, Guidelines on risk finance aid, Aviation guidelines.

Source: EC. http://ec.europa.eu/competition/state_aid/modernisation/index_en.html

Figure 20 State aid notion and notification requirements



Source: Adopted from https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/443686/BIS-15-417-state-aid-the-basics-guide.pdf

V. Broadband specific State aid rules

5.1. Overview

Better, faster broadband is one of the top priorities in Digital Agenda for Europe, which constitutes one of seven pillars of the Europe 2020 Strategy aimed at fostering economic growth.¹²⁰ The Digital Agenda sets ambitious objectives for broadband infrastructure development. By 2020 it aims that (i) all Europeans have access to broadband of above 30 Mbps and (ii) 50% or more of European households subscribe to internet connections above 100 Mbps.¹²¹ Ubiquitous availability of access to broadband networks is widely recognized as one of the most important prerequisites for a knowledge-based society and economic growth.¹²²

“EU Guidelines for application of State aid rules in relation to the rapid deployment of broadband networks” (Broadband Guidelines) together with State aid provisions of the Treaty and documentation on procedural requirements form the main framework of State aid for broadband. Deployment of broadband (especially ultra-fast) networks requires significant investments.¹²³ Although the EC first tends to rely on private investors and market players, it recognizes that in some cases support from public sector and public funds will be inevitable. At the same time it means, that active governmental involvement in the rollout of broadband may bring a risk of crowding out private investment. Therefore, a State aid control framework was put in place to prevent this. Until 2009, the State aid for the broadband development was assessed directly under the State aid rules of the Treaty on a case-by-case basis.¹²⁴ In 2009, the EC issued Broadband Guidelines, based on its experience and case practice. The guidelines were revised in 2013 (came into force in 2014) to be better tailored for achieving the objectives of Digital Agenda for Europe and to make the State aid granting more transparent and effective.¹²⁵

Significant amounts of State aid to broadband were approved over the last 5-6 years (see Figure 21). These amounts, however, do not include all of the government support to the sector, as not all State measures fall under the definition of State aid and not all measures requires the clearance from the EC. Since 2009 (after approval of initial Broadband Guidelines) an increase in approved broadband support measures (in terms of numbers as well as amounts) has been observed, especially during the period of 2010-2012. According to the EC, until 2011, more than 5 billion EUR of State aid to broadband were authorized, that generated up to 10 billion EUR

¹²⁰ http://europa.eu/rapid/press-release_IP-12-1424_en.htm

¹²¹ http://europa.eu/rapid/press-release_IP-12-1424_en.htm

¹²² <https://bib.irb.hr/datoteka/695454.PID2783685.pdf>

¹²³ To achieve the objective of access to Internet speeds of above 30 Mbps it is estimated that up to EUR 60 billion of investment would be necessary and up to EUR 270 billion for at least 50 % of households to take up Internet connections above 100 Mbps. See: <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:C:2013:025:0001:0026:EN:PDF>

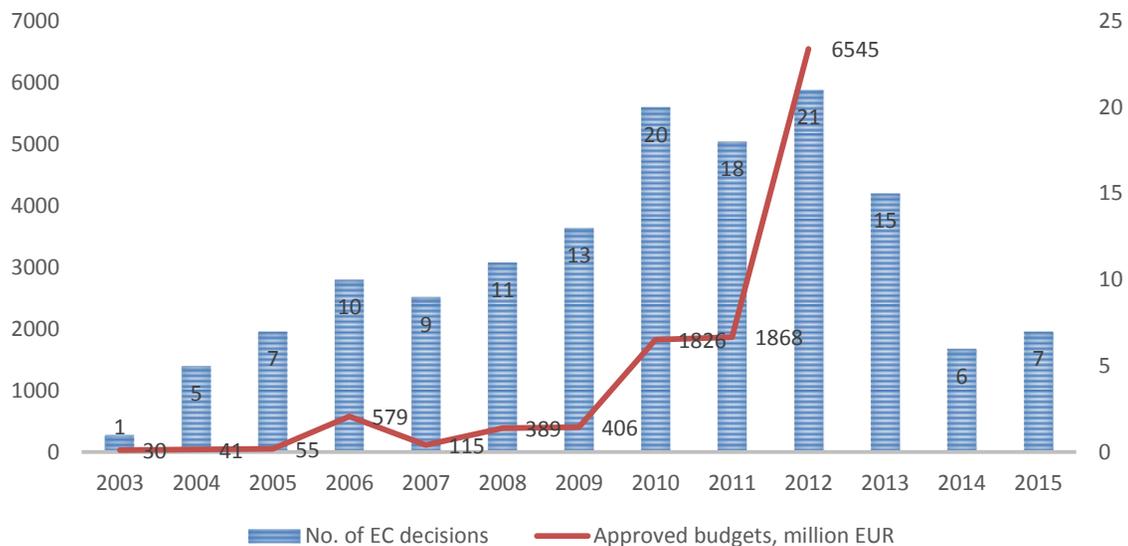
¹²⁴

http://ec.europa.eu/competition/international/multilateral/2014_jun_broadband_networks_en.pdf

¹²⁵ <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:C:2013:025:0001:0026:EN:PDF>

estimated investments.¹²⁶ In 2012 alone, more than 6 billion EUR of State aid to broadband were approved. The decline in a number of the EC decisions on State aid for broadband since 2014 can be explained by the modernization of State aid (See **Box 7**). In 2014, the renewed Broadband Guidelines (as well as GBER, de minimis regulation) came into force with one of the main objectives to simplify the decision making process and to focus more on the cases with the biggest impact on the internal market only. As a result Member States were able to support broadband deployment without going through lengthy notification and verification procedures. Therefore the **Figure 21** shows decreased number of EC decisions in 2014-2015. (See **Box 6** for more information on implications of State aid modernization).

Figure 21. Authorized State aid to broadband per year



Source: The EC¹²⁷¹²⁸

It is also worth mentioning that **the majority of State aid measures for broadband, approved by the EC, fall under 107(3)(c) of the Treaty**, i.e. they are usually considered to be compatible with the internal market, because they aim at facilitating “the development of certain economic activities or of certain economic areas, where such aid does not adversely affect trading conditions to an extent contrary to the common interest”.¹²⁹ A guiding principle is – a broadband deployment activity should be targeted at market failures, i.e. Member

¹²⁶ <http://www.cullen-international.com/asset/?location=/content/assets/training--conferences/conferences/2013/02/j-schwarz-european-commission-broadband-guidelines.pdf/j-schwarz-european-commission-broadband-guidelines.pdf>

¹²⁷ <http://www.cullen-international.com/asset/?location=/content/assets/training--conferences/conferences/2013/02/j-schwarz-european-commission-broadband-guidelines.pdf/j-schwarz-european-commission-broadband-guidelines.pdf>

¹²⁸ http://ec.europa.eu/competition/sectors/telecommunications/broadband_decisions.pdf

¹²⁹ <http://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX:12008E107>

States have to demonstrate the existence of market failures and to make *ex ante* assessment if State aid in the particular case will generate more benefits than potential drawbacks.¹³⁰ Broadband State aid projects may be implemented in assisted areas within the meaning of Article 107(3)(a) and (c) of the Treaty, i.e. under the Regional Aid specific rules. In this case, a Member State is responsible for demonstrating that the conditions of the regional aid rules have been fulfilled.

In general, there are a few common options how State aid for broadband could be granted. Usually it is either done under the SGEI framework or under the State aid framework. The latter is more common. Depending on the area covered by a measure in question, existing level of connectivity and amount of intended State aid, *de minimis*, GBER, Regional aid rules or Broadband Guidelines shall be followed. The options are summarized in the **Figure 22**.

The decision whether a concrete governmental intervention is compatible with the Treaty is taken solely by the EC. Therefore, while evaluating or designing a State aid measure, a Member State first have to consider what is the principle objective of this aid (which Article it may be compatible with) and which guiding rules it has to follow. Since the Broadband Guidelines form the fundamental reference for State aid assessment for broadband, the requirements of it will be analyzed first, followed by short description of other options.

¹³⁰ EU Guidelines for the application of state aid rules in relation to the rapid deployment of broadband networks [2013] OJ C 25/1

Figure 22. Options for granting State aid for broadband



Source: Authors

5.2. Broadband Guidelines

The Digital Agenda for Europe sets ambitious broadband targets and requires EU Member States to implement equally ambitious national broadband plans defined by their own National Broadband Strategies.¹³¹ When setting their own national broadband targets, Member States generally were following the ones set at the EU level. The same could be observed in the Western Balkans where most of the countries are following the EU approach when it comes to broadband targets setting (Figure 1).

However, similarly to the EC, Member States recognize that investments in broadband networks, particularly in Next Generation Access (NGA) networks, may require some public support in order to achieve national and EU targets. The cost structure of broadband deployment is such that usually there are regions within a given country (in particular those with a low population density) that lack a rollout of broadband infrastructure (especially NGA) if to rely on private investors only. In other words – it may be considered as a market failure. Understanding that State aid for broadband may help: i) to implement common EU objectives and ii) to correct market failures, the EC allows (at the same time setting strict rules) State intervention into the market. A guiding principle, however, is that any State intervention should be limited as much as possible, in order to minimize the risk of crowding out or replacing private investments, of altering commercial investment incentives and ultimately of distorting competition.¹³²

After clarifying what constitutes State aid, the Broadband Guidelines set out the conditions under which aid could be declared compatible. First, it sets seven necessary conditions that every measure in question has to comply with. “Failure to comply with one of the following conditions will result in declaring the aid incompatible with the internal market.”¹³³ The conditions are provided in Table 4.

Table 4. Mandatory requirements for Broadband State aid measures

Requirement	Compliance
Contribution to the achievement of objectives of common interest	The EC assesses to what extent the planned aid would contribute to the achievement of Digital Agenda objectives.
Absence of market delivery due to market failures or important inequalities	Market failure occurs when market by itself (without State intervention) is unable/ fails to provide demanded services. Governments may also decide to intervene in the cases of social or regional inequalities. Both cases should clearly demonstrate, that market fails to deliver expected results.
Appropriateness of State aid as a policy	In order to address the identified market failures, the

¹³¹ <https://ec.europa.eu/digital-agenda/en/news/commission-staff-working-document-implementation-national-broadband-plans>

¹³² www.digitalplan.gov.gr/resource-api/dipla/contentObject/The-Broadband-State-Aid-rules-explained/content

¹³³ <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:C:2013:025:0001:0026:EN:PDF>

instrument	proposed measure must be an appropriate instrument at the same time being the least distortive to competition. The chosen measure must be duly assessed and justified <i>ex ante</i> . The EC stresses the importance of avoiding duplications or incoherence between different schemes and coordination between different authorities (e.g. NRA, Competition Authority and etc.).
Existence of incentive effect	Member States must demonstrate that broadband investments would not be done without State intervention.
Aid limited to the minimum necessary	Suggested measure should be proportional.
Limited negative effects	Suggested measure must be the least distortive to competition and competitors.
Transparency	Aid shall be awarded in a transparent manner, requirements for transparency are specified in Broadband Guidelines.

Source: Authors based on Broadband Guidelines

The second step is the so-called balancing test. It weighs the positive impact of the aid measure against its potential negative effects such as distortion of competition or trade.¹³⁴ If the negative effects outweigh the benefits, the EC may not approve it or ask for remedial action.¹³⁵ The balancing test is performed for every suggested State aid measure. Examples of such evaluation may therefore be found in every EC's decision on State aid for broadband.¹³⁶

The third part of Broadband Guidelines goes into details on the assessment of State aid for broadband. For the purposes of the assessment, the EC makes a distinction between Basic and NGA networks and identifies three types of existing level of connectivity. The distinction is important, as different requirements for State aid measure will apply in each case (See

¹³⁴

http://ec.europa.eu/competition/international/multilateral/2014_jun_broadband_networks_en.pdf

¹³⁵ <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:C:2013:025:0001:0026:EN:PDF>

¹³⁶ See: http://ec.europa.eu/competition/sectors/telecommunications/broadband_decisions.pdf

Table 5)

- **Basic and NGA networks.** Asymmetric digital subscriber lines (up to ADSL2+ networks), non-enhanced cable (e.g. Data Over Cable Service Interface Specification 2.0, DOCSIS 2.0), mobile networks of third generation (Universal Mobile Telecommunications System, UMTS) and satellite systems are considered to be basic broadband. NGA networks are: “(i) fibre-based access networks (FTTx); (ii) advanced upgraded cable networks (DOCSIS 3.0); and (iii) certain advanced wireless access networks capable of delivering reliable high speeds per subscriber”.¹³⁷
- **Types of areas that may be targeted depending on the existing level of connectivity.** The areas may be classified into “white, “grey” and “black” areas according to the current level of broadband provision – where white indicates no network (currently and in the near future¹³⁸), grey indicates one existing network and black indicates that more than one network exists. Different requirements apply to each area. To sum them up, in white areas it is easier to satisfy requirements than those in grey or black areas where the market already provides a service and the potential for distortion of competition greater. Black areas in general are considered to be as not requiring State intervention. The exception may be done in the case of ultra-fast (well above 100 Mbps) broadband networks.

The Broadband Guidelines then set down a number of design features required in all measures in order to limit distortions of competition. These include a detailed mapping and coverage analysis, public consultations, an open tender process, acceptance of most economically advantageous offer, technology neutrality, use of existing infrastructure where possible, wholesale access to third parties for at least seven year at prices estimated using benchmark and a claw-back mechanism¹³⁹ to avoid over-compensation.

Additionally, the guidelines set obligations which will apply when granting State aid for NGA networks. The EC specifies, that in the case of NGA deployment support, a State aid measure should not only comply with seven general requirements (Part I in **Table 5**) and features to limit possible distortions (Part II in **Table 5**), but also has (Part III in **Table 5**) stricter wholesale access and non-discrimination requirements. The guidelines also cover the exceptional circumstances in which State aid to ultra-fast broadband networks might be permitted (Part IV in **Table 5**).

¹³⁷ <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:C:2013:025:0001:0026:EN:PDF>

¹³⁸ Near future is considered to be 3 years period, according to the Broadband Guidelines.

¹³⁹ Claw-back refers to the repayment of any excess aid that may have been granted to a beneficiary.

Table 5. Broadband Guidelines at a glance

<p>Part I. Necessary conditions that every measure in question have to comply with:</p> <p>(1) Contribution to the achievement of objectives of common interest; (2) Absence of market delivery due to market failures or important inequalities; (3) Appropriateness of State aid as a policy instrument; (4) Existence of incentive effect; (5) Aid limited to the minimum necessary; (6) Limited negative effects; (7) Transparency</p>	
<p>Part II. State aid design features to limit possible distortions (in addition to Part I):</p> <ul style="list-style-type: none"> – Detailed mapping and analysis of coverage – geographic areas covered by the measure should be clearly identified and justified; – Public consultation of suggested measure is required; – Competitive selection process – if a third-party operator has to be chosen to deploy a network, this shall be done in line with principles of the EU Public Procurement Directives; – Most economically advantageous offer- qualitative criteria should be established on which tender offers will be evaluated; – Technological neutrality – tender should not favor or exclude any technology; – Use of existing Infrastructure- tender should encourage the reusability of existing resources; – Wholesale access – wholesale access obligation for at least 7 years (and with wide range of wholesale products) should be imposed on subsidized network provider; – Wholesale pricing- wholesale access prices should be based on benchmarking principles; – Monitoring and claw-back mechanism- authorities should closely monitor the implementation of the project and to ensure the repayment of excess aid; – Transparency – information on the approved aid scheme and its implementing provisions, name of the aid beneficiary, aid amount, aid intensity and used technology for at least 10 years should be available publicly; – Reporting – periodical reports should be provided to the EC by the granting authority. 	<p>Part III. State aid design features for NGA (in addition to Part I and Part II):</p> <ul style="list-style-type: none"> – Wholesale access – third-party operators must have access to passive, not only active network infrastructure. Wholesale access should be granted for at least 7 years and the right of access to ducts or poles should not be limited in time; – Fair and non-discriminatory treatment - where the network operator is vertically integrated, adequate safeguards must be put in place to prevent any conflict of interest or discriminatory practices.
<p>Part IV. State aid for ultra-fast (well above 100Mbps) broadband (in addition to Part I, Part II and Part III):</p> <ul style="list-style-type: none"> – On exceptional basis in urban, black NGA areas – when fibre networks do not reach the end-user premises, market situation is not evolving towards the achievement of 100 Mbps and above broadband services, expected demand for such services exists; – Demonstration on a “step change” (significant new investments are taking place and the infrastructure brings significant new capabilities in terms of broadband availability, capacity, speeds and competition) is required; – Enhanced technological characteristics and performance of the subsidized network shall be demonstrated; – Subsidized networks shall be based on an open architecture and wholesale only networks; – The aid should not bring an excessive distortion of competition with other NGA technologies in the target areas. 	

Note: Part I, II and III apply both to White and Grey areas. However, for grey areas to be eligible, it must be proved that (i) no affordable or adequate services are offered to satisfy the needs of citizens or business users; (ii) there are no less distortive measures available to reach the same goals.

Source: Authors based on Broadband Guidelines

5.3. Support of broadband networks deployment under Regional aid or SGEI frameworks

As indicated in Figure 22, State aid for broadband deployment may also be granted following Regional aid guidelines¹⁴⁰ or SGEI framework¹⁴¹ provisions.

Aid to broadband infrastructure may be considered as the aid for an initial investment and it can be assessed on the basis of the compatibility conditions set out in the Regional aid guidelines.¹⁴² Besides general conditions laid down in the Regional aid guidelines, broadband support measures shall comply with the following conditions: (i) aid should be granted only to areas where there is no network (and will not be developed in the near future) of the same category (either basic broadband or NGA); (ii) the subsidized network operator offers active and passive wholesale access under fair and non-discriminatory conditions with the possibility of effective and full unbundling; (iii) aid should be allocated on the basis of a competitive selection.¹⁴³

The deployment and the operation of a broadband infrastructure can also qualify as a SGEI (see the first part of the paper). Broadband deployment as a SGEI should normally be based on the provision of a passive, technologically neutral and open infrastructure that provides universal service coverage for the given area.¹⁴⁴ Four Altmark criteria should be also fulfilled (see **Box 5**).

5.4. General block exemption regulation (GBER) for broadband

As discussed in Section 4.4 of the paper, **State aid measures may be exempted from notification if it is granted in conformity with the conditions of the GBER. This also applies for broadband support measures.** In particular, the GBER allow investment aid for broadband infrastructure up to 70 million EUR of total costs per project. It is also important to stress, that the GBER covers aid to “white” and “white NGA” areas (i.e. no broadband operator exists and is not likely to occur within the next three years), but excludes exemption for aid to “grey” and “black” areas. The requirements of an open tender for selecting the beneficiaries of aid, fair and non-discriminatory wholesale access to the supported network and full and effective unbundling to ensure maximum competitive benefits are set in the regulations.¹⁴⁵ A detailed list of requirements for broadband aid set in the GREB are provided in **Box 8**.

The GBER also allow support to broadband projects under regional aid conditions, if the investment takes place in an assisted area and aid intensities established in the regional aid map are not exceeded. Regional investment aid should not exceed 100 million EUR and shall fulfill the same three conditions: (i) aid should be granted only to areas where there is no

¹⁴⁰ [http://eur-lex.europa.eu/legal-](http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.C_.2013.209.01.0001.01.ENG&toc=OJ:C:2013:209:TOC)

[content/EN/TXT/?uri=uriserv:OJ.C_.2013.209.01.0001.01.ENG&toc=OJ:C:2013:209:TOC](http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.C_.2013.209.01.0001.01.ENG&toc=OJ:C:2013:209:TOC)

¹⁴¹ <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52012XC0111%2803%29>

¹⁴² http://ec.europa.eu/competition/state_aid/studies_reports/state_aid_grids_2015_en.pdf

¹⁴³ [http://eur-lex.europa.eu/legal-](http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.C_.2013.209.01.0001.01.ENG&toc=OJ:C:2013:209:TOC)

[content/EN/TXT/?uri=uriserv:OJ.C_.2013.209.01.0001.01.ENG&toc=OJ:C:2013:209:TOC](http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.C_.2013.209.01.0001.01.ENG&toc=OJ:C:2013:209:TOC); para

12.

¹⁴⁴ http://ec.europa.eu/competition/state_aid/studies_reports/state_aid_grids_2015_en.pdf

¹⁴⁵ http://europa.eu/rapid/press-release_MEMO-14-369_en.htm

network; (ii) the subsidized network operator offers active and passive wholesale access under fair and non-discriminatory conditions; (iii) aid should be allocated on the basis of a competitive selection. If a broadband deployment project is supported as regional aid, then other GREB provisions on regional aid will apply as well.

5.5. Summary

Typically State aid for broadband is evaluated and analyzed in compliance with Broadband Guidelines. Unless it satisfied the GREB provisions for broadband or *de minimis*¹⁴⁶ regulation, State aid for broadband can also be treated as Regional aid and evaluated under Regional aid regulation. The notification in this case is not necessary if a State aid measure in question fulfills GREB provisions on regional aid or, again, satisfies *de minimis* regulation. Finally, if broadband deployment is considered to be SGEI, requirement of SGEI framework will apply.

The notification of Broadband support measures is also not necessary, if i) four cumulative definition criteria are not met (see Section 4.1 of the paper) or ii) State aid is granted under existing scheme, i.e. the EC has approved a scheme allowing aid for broadband infrastructure and aid is granted in conformity with the conditions or approved scheme.¹⁴⁷

¹⁴⁶ No more than 200 000 EUR is granted to a single undertaking over a period of three years

¹⁴⁷ http://ec.europa.eu/competition/state_aid/studies_reports/state_aid_grids_2015_en.pdf

VI. Case studies

6.1. Choice of case studies

The objective of this part of the report is to identify and analyze selected cases of State aid in the EU, which may demonstrate valuable lessons for Montenegro. As there is a great variety of approved State aid to broadband measures¹⁴⁸, five country cases were chosen for this purpose. These are as follows:

- **Croatia.** It was selected as a neighboring country, which joined the EU relatively recently and got the EC clearance on its State aid measure just a few months ago. A recent experience with the aim to become an equal member of the EU may bring some valuable insights for Montenegro.
- **Finland.** Very often population density is considered to be one of the most important obstacles for smooth broadband deployment. It is because in such a case the deployment of broadband networks (especially in rural and sparsely populated areas) requires high investments, whereas a potential revenue for Internet Service Providers is low. Finland was chosen as a country with the lowest population density in the whole EU to see how it is addressing the broadband coverage gaps. Montenegro has the lowest population density in the Balkan region, therefore the issue should be taken into account in the preparation of broadband deployment plans (targets) and/or State aid measures.
- **Sweden.** The country was chosen due to its approach to broadband deployment, where the biggest initiative to deploy high-speed broadband networks comes from local municipalities. Facing a challenge of connecting any local fibre networks, the country has also chosen to use utilities infrastructure for backbone network throughout the country. As utilities in Montenegro are engaged in fibre sharing activities, the country may also consider Sweden's experience to extend broadband availability.
- **Lithuania.** For seven years in a row, Lithuania has had the leading position in Europe in terms of the fiber-optic penetration. Obviously, there are many factors influencing this result (like competition in the market, prices, demand and supply for ICT services), although it is important to see if and how State resources are being used to contribute to this success. Additionally, Lithuania's population density (47 people per sq. km.¹⁴⁹) is similar to the one of Montenegro (46 people per sq. km¹⁵⁰), though GDP per capita is more than twice higher. GDP per capita is an important indicator for two main reasons: first, if regional aid is considered

¹⁴⁸ By the time of writing there were 145 EC decisions regarding State aid to broadband. See: http://ec.europa.eu/competition/sectors/telecommunications/broadband_decisions.pdf

¹⁴⁹ <http://data.worldbank.org/indicator/EN.POP.DNST>

¹⁵⁰ <http://data.worldbank.org/indicator/EN.POP.DNST>

to be used¹⁵¹, second, it partly demonstrates State's budgetary capacities to contribute to the problem solving.

- **Romania.** The country was chosen, as it has one of the lowest incumbent's broadband market shares in the EU (26% vs 40 % in the EU on average, as of 2015) and a dynamic competitive environment. It also has one of the lowest GDP per capita in the EU. Nevertheless, public funds are still being used to deploy broadband networks.
- **Netherlands** (the case of broadband network in Appingedam) - as this is the only negative EC decision on State aid so far.

For the analysis of case studies, we indicated several main questions that would help to see State aid to broadband from different perspectives.

Table 6. Main components of State aid measures

1	Target area	Is a State aid measure in question regional or national-wide? Does it cover "white", "grey" or "black" areas?
2	Technologies	Does a measure in question support: <ul style="list-style-type: none"> - Basic broadband - NGA - Ultra-fast NGA?
3	Part of network	Does a measure in question support the deployment of: <ul style="list-style-type: none"> - Access network¹⁵² - Backhaul network - Core network
4	Market failure	How a market failure is justified?
5	State involvement	What kind of State involvement is foreseen in a suggested measure? <ul style="list-style-type: none"> - Direct (when State decides directly invest into broadband infrastructure and the ownership and operation activities belongs to the State. Usually it is implemented in the form of public DBO¹⁵³) - Indirect or Gap funding (when State only provides finances for the deployment of the network, the ownership, implementation and operation belongs to

¹⁵¹ According to the EC, to be eligible for regional State aid, the GDP per capita in purchasing power standards (PPS) in a region should be equal to or less than 75% of the EU average. Maximum aid intensity would also depend on GDP per capita in the region.

¹⁵² **Roll-out of access infrastructure** - This is probably one of the most common type of intervention in the basic broadband field, with public funding being used to roll out the missing last-mile infrastructure. See: http://ec.europa.eu/competition/publications/cpn/2011_1_10_en.pdf

¹⁵³ **Public design build and operate** – the public sector constructs the network itself, retaining full control and offering services on a retail or wholesale basis.

		<p>the private sector. Usually it is implemented in the form of private DBO¹⁵⁴)</p> <ul style="list-style-type: none"> - Partial (when State decides to share the risk and enters into a long-term contract with a private partner. It may be implemented in the form of public outsourcing¹⁵⁵, joint-venture¹⁵⁶, or other type of PPP)
6	State aid measure's scope	Does a State aid measure in question cover only one-off project or a financing scheme?
7	Financing option	In what form State aid will be transferred to beneficiaries (e.g. loan, direct grant, tax exempt)?
8	Budget	How big is the budget for a State aid measure in question?

Source: Authors

In designing a State aid measure, responsible authorities first have to find answers to the first four questions. According to the EC practice, the best way in doing this is to undertake mapping exercise, followed by public consultations with market players. Where possible, the link to the results of this exercise will be provided.

¹⁵⁴ **Private design builds and operates** – a private company receives funds (often a grant) from the public sector to assist in network deployment, but the private company retains full ownership.

¹⁵⁵ **Public outsourcing** – a public sector body outsources network build and operation to the private sector under a long-term agreement, but the public sector body retains ownership of the network.

¹⁵⁶ **Joint venture** – public and private sector bodies both retain a stake in the networks

6.2. Case study: Croatia

Croatia at a glance	
Area (sq km):	56,542
Population 2014 (million):	4.2
Households 2014 (million):	1.9
GDP per capita 2014 (USD thousand):	11.6
Broadband indicators, 2015	
Fixed BB coverage (% of HH)	97
NGA coverage (% of HH)	57
Fixed BB take-up (% of HH)	70
Share of >30 Mbps subscriptions (% of fixed BB subsc.)	2.8
HSPA mobile BB coverage (% of HH)	98*
LTE mobile BB coverage (% of HH)	58*
Mobile BB penetration (per 100 inhab.)	68

Note * - year 2014; Source: World Bank database, EC

Croatia has been chosen for a case study, as a neighboring country, which recently received clearance from the EC for its suggested State aid to broadband measure.

National targets. In its Strategy for Broadband Development in the Republic of Croatia for 2012 – 2015¹⁵⁷ Croatia has set two main objectives concerning the coverage of broadband networks, i.e. the country aimed that by 2015 to achieve:

- i) Coverage of fixed broadband (over 30Mbps) for at least 35 % of inhabitants;
- ii) Coverage of total (fixed and mobile) broadband connectivity (over 30 Mbps) for 50% of inhabitants.
- iii) 500,000 fixed connections (subscriptions) with a speed over 30 Mbps¹⁵⁸.

In November 2014 for the review of the Strategy was set up a working group for preparation of a new Broadband Development Strategy 2016-2020. The current Strategy for Broadband Development until 2020 has the following main objectives:

¹⁵⁷ http://ec.europa.eu/newsroom/dae/document.cfm?doc_id=4848

¹⁵⁸ ~12% of population or ~26% of households

- “- coverage with Next Generation Access Networks (NGA), which enable Internet access at a speed exceeding 30 Mbit/s for 100% of the Croatian population;
- 50% of Croatian homes using Internet access at a speed exceeding 100 Mbit/s or more”.¹⁵⁹

In other words, Croatia transposed broadband targets of the European Digital Agenda, which is the case for most EU Member States.

Broadband market. According to the EC, in 2015 fixed broadband coverage in Croatia was 97% of households. Fixed broadband connections were available to 81% of households in rural areas (91% of European households in rural areas). NGA coverage in Croatia amounted at 57% of households (when EU average was 71%).¹⁶⁰

Fixed broadband take-up in 2015 was 70% of households, almost the same as the EU average (72%). However subscriptions to broadband services over 30 Mbps constituted only 2.8% out of total fixed broadband subscriptions (or 2 % of households), compared to 30% in the EU on average (see **Figure 23**).¹⁶¹ One of the possible reasons for the low take-up (subscriptions) might be affordability, since the standalone fixed broadband subscription in Croatia costs as much as 2.5% of the average gross income, when the overall EU average was 1.3%.¹⁶² Another reason is likely to be that predominant technology in Croatia’s fixed broadband market remains to be xDSL (see **Figure 24**). Without the upgrade of the access infrastructure higher speeds cannot be ensured.

Figure 23. Fixed broadband take-up in the EU, 2015

Source: EC

Figure 24. Fixed broadband technologies, Croatia

Source: Telegeography database accessed in May, 2016

In its strategic documents, Croatia has foreseen that broadband access in areas lacking sufficient commercial interest for investment may be achieved through targeted projects at the regional and local levels. State’s financial incentives partially provided through the EU funds, i.e. State aid, was one of the financing options.

¹⁵⁹ <https://uprava.gov.hr/UserDocsImages//e-Hrvatska//e-Croatia%202020%20Strategy%20%2820.01.2016.%29.pdf>

¹⁶⁰ <https://ec.europa.eu/digital-single-market/en/node/66894>

¹⁶¹ <https://ec.europa.eu/digital-single-market/en/node/66894>

¹⁶² <https://ec.europa.eu/digital-single-market/en/node/66894>

Notified State aid measure. In fact, Croatia has developed two national programs for NGN development: i) for access and ii) for backhaul.¹⁶³ Both programs are intended to be implemented in parallel at the same time period until 2023. In April 2014, Croatia pre-notified to the EC services the program for NGA deployment, and in February 2015 - the program for backhaul broadband infrastructure covering State aid for backhaul part of NGN. The final decision for the latter one has not yet been taken at the time of writing this report. However, in March 2016, the EC approved Croatia’s State aid measure for NGA, which is reviewed in the following paragraphs.

The main aim of the State aid measure. The measure aims to promote the development of NGA networks in Croatia.

Table 7. Features of approved State aid measure, Croatia

1	Target area	Country-wide white NGA areas. Target areas are mainly rural or suburban.
2	Technology	NGA (at least 40 Mbps download speed upload speed of at least 5 Mbit/s.). Technology neutral.
3	Part of network	NGA
4	Market failure	Lack of investments into NGA networks in rural and suburban areas. Until mid-2013, investment into NGA broadband infrastructure was limited to parts of large cities, such as Zagreb, Split, Rijeka and Osijek. The incumbent made known its plans to invest in the upgrading of active network equipment in its existing exchanges only (offering 30 Mbps speeds), meaning that these services will be available to 32,5 % of households (or 16% of the Croatian population). Beyond this, the incumbent did not express any intention to invest into the deployment of new and/or upgrade of existing network. As stated in the EC decision of the State aid measure, “because telecom undertakings have not been willing to invest in NGA networks in sparsely populated areas or in deprived areas in cities, 75.3% of the population of Croatia

¹⁶³ The EC cleared the measure concerning the access NGA network and is now evaluating the backhauling network. Because Montenegro lacks of NGN backhauling as well as of access NGA infrastructure it might be a relevant example.

		live in white NGA areas with access to download speeds of less than 30 Mbit/s.” ¹⁶⁴
5	State involvement	<p>State aid measure in question foresees three options.</p> <p>Three main investment models may be used within the program¹⁶⁵:</p> <ul style="list-style-type: none"> - private DBO model: a private operator is responsible for the design, building and operation of the network and is the permanent owner of the developed network. - public DBO model: public sector is responsible for the design, building and operation of the network and the developed network will permanently remain in public ownership. - public-private partnership (PPP): in the context of projects for building of broadband access infrastructure, a private partner in the PPP model usually takes the responsibility for design, building, operation and management of the network, and in practice also partially finances network building (the remaining part of the network financing is ensured by a public partner, fully or partially, through state aid). <p>As the intension is to involve local administrative authorities (municipalities) into the implementation of the program, the concrete investment model and State’s involvement will vary case-by-case. The guiding principle is to keep State’s intervention at minimum possible level to avoid competition distortions.</p>
6	State aid measure’s scope	<p>A financing scheme.</p> <p>The measure is designed as a national scheme – ensuring consistency and coordination of local initiatives at national level. It will serve as an umbrella State aid scheme, providing guidance to local municipalities.</p>
7	Financing option	Direct grant
8	Budget	<p>The overall estimated (maximum) budget of the measure is EUR 252 million, of which EUR 117.2 million will be funded by ERDF and the remaining EUR 134.8 million by an EIB loan.</p> <p>The annual budget is EUR 31.5 million for the period 2016-2023.</p>

Source: Authors, based on EC decision¹⁶⁶.

¹⁶⁴ http://ec.europa.eu/competition/state_aid/cases/260901/260901_1733590_129_2.pdf

¹⁶⁵ http://ec.europa.eu/competition/state_aid/cases/260901/260901_1733590_129_2.pdf

Compliance with Broadband Guidelines. *The decision regarding Croatia's State aid measure was taken in 2016. The notification took place in 2015, meaning that the measure in question had to follow the requirements of the renewed version of Broadband Guidelines. As Croatia intends to support NGA with speed up to 40 Mbps, the designed State aid measure had to comply with requirements of Part I, Part II and Part III in*

¹⁶⁶ See: http://ec.europa.eu/competition/state_aid/cases/260901/260901_1733590_129_2.pdf

Table 5.

Table 8. Compliance with Broadband Guidelines of the approved State aid measure, Croatia

Requirement		Compliance
Contribution to common interest	√	National broadband targets are in line with European Digital Agenda targets.
Absence of market delivery due to market failures	√	Lack of investments into NGN networks in rural and suburban areas.
Appropriateness of State aid as a policy instrument	√	Croatia demonstrated that without further public intervention, it would seem impossible to national objectives.
Incentive effect	√	Authorities showed that the investment would not be made within the same timeframe without the aid, which produces a change in the investment decisions of operators and therefore has an incentive effect.
Aid limited to minimum necessity	√	<p>Croatia has designed the measure in such a way as to minimize the State aid involved and potential distortions of competition. In other words, the requirements of Part II and Part III of Table x are fulfilled.</p> <p>The Croatian authorities have undertaken a mapping exercise, i.e. a centralized inventory of existing infrastructure, in 2013.¹⁶⁷ It was based on the Croatian NRA's (HAKOM's) interactive map of availability of broadband infrastructure: http://bbzone.hakom.hr/en-US/ In addition, the Croatian authorities have set up a separate national database¹⁶⁸ on the availability of existing infrastructures that could be used for broadband rollout to encourage the use of existing infrastructure.</p> <p>After a mapping exercise a national public consultation took place. The second public consultation is foreseen to be carried out by local authorities before the start of implementation of each project. The tender documents for them must be technology and provider neutral.</p> <p>In all the cases private partners (if any) shall be selected in full compliance with Croatian and European public procurement rules</p>

¹⁶⁷ http://ec.europa.eu/competition/state_aid/cases/260901/260901_1733590_129_2.pdf

¹⁶⁸ It will indicate the availability of electronic communications infrastructure (e.g. ducts, fibres) that can be used for deployment of broadband networks. It will also include data on planned civil works that contain electronic communication infrastructure. It will be maintained by the State Geodetic Administration of Croatia.

		<p>(competitive selection and most economically advantageous offers).The selected operator must ensure full and effective unbundling and provide full open access to the subsidized network (including but not limited to access to ducts, dark fibre, street cabinets) on equal and non-discriminatory terms for at least 7 years on benchmarked prices.</p> <p>The monitoring and claw-back mechanisms are foreseen for each project.</p> <p>All relevant documentation concerning the State aid measure will be published on NRA website to ensure transparency. Reporting to the EC services will be performed by the NRA as well.</p>
Limited negative effects	√	The measure is confined to deploying a network in NGA white areas, where no operator is willing to invest. The subsidized infrastructure therefore brings new capabilities and limited negative effects.
Transparency	√	As indicated, all relevant documents shall be published at NRA website.

Source: Authors based on EC decision

Results. As the EC just recently approved the suggested State aid measure, the results are not yet available. However, it demonstrated the ability of the Croatian authorities to design a proper State aid measure.

Montenegrin authorities may use it as one of the examples, if they decide to use an umbrella principle (active involvement of local authorities, supervision of national authority) for financing broadband deployment. The main concern in choosing this approach may be competencies of local authorities, i.e. if local municipalities in white areas have enough awareness in preparation and management of projects for the development of broadband infrastructure in their communities.

6.3. Case study: Finland

Finland at a glance	
Area (sq km):	337,030
Population 2015 (million):	5.5
Households 2015 (million):	2.6
GDP per capita 2014 (USD thousand):	42.0
Broadband indicators, 2015	
Fixed BB coverage (% of HH)	97
NGA coverage (% of HH)	75
Fixed BB take-up (% of HH)	59
Share of >30 Mbps subscriptions (% of fixed BB subsc.)	31
HSPA mobile BB coverage (% of HH)	100*
LTE mobile BB coverage (% of HH)	92*
Mobile BB penetration (per 100 inhab.)	139

Note * - year 2014; Source: World Bank database, EC

Finland has been chosen for a case study, as it has almost absolute basic broadband coverage¹⁶⁹ and never used public funds to finance it. The support to basic broadband has not been considered necessary (as universal basic broadband coverage could have been achieved by market forces complemented with regulatory measures). However public funds have been used to achieve the goal of universal NGA coverage. Furthermore, it is a country with the lowest population density in the EU, which makes broadband deployment business cases even more complicated.

National targets. In 2008, the Finnish Government approved a national Plan of Actions for improving the infrastructure of the information society. The plan had set targets for years 2010 and 2015. Finland aimed that:

¹⁶⁹ Finland was one of the first countries in the world to define basic broadband as connections with speed of at least 1 Mbps. In 2010, it introduced a universal service of 1 Mbps to ensure full coverage with basic broadband. In 2015, the Finnish Government decided to double the required speed and to have the universal service broadband speed doubled to 2 Mbps from the beginning of November in 2015. A long-term goal is to increase this speed to 10 Mbps by 2021.

- By 2010 country had almost absolute coverage of basic broadband services with a minimum average downstream rate of 1 Mbps;
- By 2015 country had almost absolute coverage (more than 99 % of the population) of NGA with a minimum average downstream rate of 100 Mbps.

Finland was not considering to use public fund to achieve the first goal; as basic broadband was included into the scope of USO, i.e. the universal service provider shall provide basic broadband services to end users at a reasonable price. State aid measure was designed to achieve the second target related to the high-speed broadband.

On 17 February 2010, Finland notified a State aid measure “High-speed Broadband Construction Aid in Sparsely Populated Areas of Finland”¹⁷⁰. The EC approved the measure by decision of May 2010, amended by decisions of September 2012 and February 2014. Finally, the measure was prolonged by the EC decision of December 2015. Before the notification of this particular measure, State aid measure for high-speed broadband pilot projects in Finland was approved.¹⁷¹ It covered 10 pilot projects, on the basis of which the analyzed State aid measure was designed.

Broadband market. According to the data of the EC¹⁷², fixed broadband is available to 97% of Finnish homes, which is remarkable given the geographical characteristics of the country and the definition of basic broadband. Fixed broadband connections were available to 91% of households in rural areas (71% of European households in rural areas). NGA coverage amounted at 75% of households (when EU average was 71%).

Finland has the second most affordable broadband in the EU (the first place belongs to Lithuania). However, fixed broadband take-up is only 59% of households, compared to 72% in the EU on average.

At the same time it should be noted that Finland is the number one in the EU in mobile broadband take-up (see **Figure 25**).

Figure 25. Mobile broadband take-up in the EU

*Source: EC*¹⁷³

The main aim of State aid measure. The aim of the measure was “to grant public aid for the building of future-proof network and ensure that all citizens in the project areas will be able to

¹⁷⁰ http://ec.europa.eu/competition/elojade/isef/case_details.cfm?proc_code=3_N62_2010

¹⁷¹ http://ec.europa.eu/competition/state_aid/cases/235023/235023_1049491_14_1.pdf

¹⁷² <https://ec.europa.eu/digital-single-market/en/scoreboard/finland>

¹⁷³ <https://ec.europa.eu/digital-single-market/en/scoreboard/finland>

use high-speed broadband services in the future”¹⁷⁴. The target was considered to be reached if nearly all residential, business and public users were no more than within 2 kilometers’ reach to a fibre, cable or other by capacity and other characteristics equivalent network.

Table 9. Features of approved State aid measure, Finland

1	Target area	Country-wide white NGN areas. Target areas are sparsely populated areas of Finland which are not served and where there are no plans for such coverage in the near future.
2	Technology	NGN (with 100 Mbps download speed). Technology neutral.
3	Part of network	NGN backhaul network only (the last mile connections are not covered) The measure covers both the passive and active network infrastructure.
4	Market failure	Lack of NGN investments in sparsely populated areas of Finland. Finland is a sparsely populated country with around 5.5 million people. It is the most sparsely populated country in the EU, with the population not equally distributed throughout the country. ¹⁷⁵ The Finnish Government considered, that commercial operators are to provide NGA coverage for 95% of the country, but the remaining 5% of the population may be covered only with the help of public funds. ¹⁷⁶ The State aid measure analyzed in the following paragraphs is dedicated to provide NGA coverage in these 5%.
5	State involvement	Private DBO model. The selected operator had to build and operate a network in the area specified in the tender. The additional requirement was that the selected operator will have to provide retail services to end users (through its own retail branch or by entering into agreement with other operator) for 10 years after the last payment of the aid.
6	State aid measure’s scope	A financing scheme. The measure is designed as a national scheme – ensuring consistency and coordination of local initiatives at national level. It will serve as an umbrella State aid scheme, providing guidance to local municipalities.

¹⁷⁴ http://ec.europa.eu/competition/state_aid/cases/235159/235159_1106591_26_1.pdf See: para

6.
¹⁷⁵ <http://www.wseas.us/e-library/conferences/2010/Tenerife/CSCC/CSCC-39.pdf>

¹⁷⁶ http://ec.europa.eu/competition/publications/cpn/2011_1_10_en.pdf

7	Financing option	Direct grant (initially)
8	Budget	The total public aid was calculated to be 132 million EUR during the period of 2010-2015, consisting from 66 Million EUR from government, 24.6 million EUR European funds (EAFRD ¹⁷⁷) and 41.4 million EUR from local municipalities. It was expected that ~68 additional million EUR will come from private parties.

Source: authors, based on EC decision¹⁷⁸.

Compliance with Broadband Guidelines. The measure was notified to the EC in 2010. This means that it had to comply with the older version of Broadband Guidelines. Though the renewed version added some additional features, the main guiding principles and requirements for State aid to broadband remained the same.

Table 10. Compliance with Broadband Guidelines of the approved State aid measure, Finland

Requirement		Compliance
Measure aimed at well-defined objectives of common interests	√	By extending NGA coverage to areas where private operators have no commercial interest to invest, Finland pursued cohesion and economic development objectives of the Union.
Measure designed to deliver the objectives if common interest and is: <ul style="list-style-type: none"> - A appropriate instrument; - Have an incentive effect - Is proportional 	√	As alternative instruments (such as <i>ex ante</i> regulation, US obligations) did not solve the problem of investment shortage in sparsely populated areas of the country, State aid was considered to be an appropriate instrument. As such investments could take place only with the help of public funds (which the measure aims to distribute), the State aid measure provides a direct and appropriate investment incentive for selected operators.
Has limited negative effects and distortions of competitions	√	Finland has designed the measure in such a way as to minimize the State aid involved and potential distortions of competition, as a number of necessary conditions were met in order to minimize potential distortions: Market research of existing broadband infrastructure was carried out to identify areas of State intervention. Public

¹⁷⁷ European Agriculture Fund for Rural Development

¹⁷⁸ See: http://ec.europa.eu/competition/state_aid/cases/260901/260901_1733590_129_2.pdf

	<p>consultation had to ensure, that there are no plans to invest from private sector. Private operators shall be selected in open tender procedure, with most economically advantageous offer (the applicants with the lowest amount of aid requested were given a priority).</p> <p>Tender documents were technology neutral, but encouraging use of existing infrastructure.</p> <p>The wholesale access to the subsidized network was foreseen for 10 years at benchmarked prices.</p> <p>The monitoring and claw-back mechanisms are foreseen for each project.</p>
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Source: authors, based on EC decision¹⁷⁹.

Results. The implementation of the Finnish Broadband Measure started immediately after the EC's approval in May 2010. In approximately 230 projects the Finnish authorities managed to get to the stage of the selection procedure for building the broadband networks. However, half of the selection procedures were unsuccessful due to the lack of applicant operators interested in building the subsidized networks. Operators displayed a lack of interest in building new broadband networks there, despite the available public subsidies. Therefore, the aim of the first amendment of the measure was to increase the aid intensity (amount of the possible subsidy) and improve access to finance.¹⁸⁰ Additional 28 million EUR were dedicated by the Finnish government, aid intensity increased, prepayment for operators introduced and new financing instruments, like loans, guarantees and interest subsidies were included into the State aid measure. These amendments were justified and approved by the EC.

The main reason for the second modification of the State aid measure in question was to increase the threshold of State aid claw-back mechanism from 1 million EUR to 10 million EUR per project. Finnish authorities, again, were aiming at reducing the administrative burden for participating operators. This amendment was notified to the EC in November 2013, i.e. when renewed Broadband Guidelines have entered into force, meaning that in assessing the amended scheme, the EC applied Broadband Guidelines of 2013. The EC decided not to raise objectives, as the measure was designed well enough to fulfill the requirement of renewed Broadband guidelines.

As according to the initial evaluation, 130 000 Finnish subscribers had to be reached by subsidized NGA networks in sparsely populated areas in order to reach the initial objective (99 % of population by 2015), by the end of 2015 Finland roughly was on its midway. Therefore, Finish

¹⁷⁹ See: http://ec.europa.eu/competition/state_aid/cases/260901/260901_1733590_129_2.pdf

¹⁸⁰ http://ec.europa.eu/competition/state_aid/cases/243482/243482_1396581_81_2.pdf

authorities decided to prolong the State aid measure. The EC had no objection on this prolongation.¹⁸¹

By the end of 2015 the approved State aid measure provided¹⁸²:

- a total of EUR 72.3 million of state and EU aid has been granted for the building of broadband networks;
- 17,300 km of broadband network has been built;
- about EUR 4.2 of state and EU aid has been granted per built network meter;
- about 27,000 new optical fibre lines have been established (77% of them had a connection speed of 100 Mbps);
- the networks provide access for 70,000 subscribers.

¹⁸¹ http://ec.europa.eu/competition/elojade/isef/case_details.cfm?proc_code=3_SA_43404

¹⁸²

<https://www.viestintavirasto.fi/en/steeringandsupervision/broadband2015/stagesoftheproject.html>

6.4. Case study: Sweden

Sweden at a glance	
Area (sq km):	449,964
Population 2015 (million):	9.9
Households 2015 (million):	4.6
GDP per capita 2015 (USD thousand):	49.9
Broadband indicators, 2015	
Fixed BB coverage (% of HH)	99
NGA coverage (% of HH)	76
Fixed BB take-up (% of HH)	68
Share of >30 Mbps subscriptions (% of fixed BB subsc.)	57
HSPA mobile BB coverage (% of HH)	100*
LTE mobile BB coverage (% of HH)	92*
Mobile BB penetration (per 100 inhab.)	115

Note * - year 2014; Source: World Bank database, EC

Sweden was chosen for a case study for two main reasons. The first one – Sweden is one of the leading FTTx countries in Europe. According to the latest data of FTTH Council, in terms of penetration, while Lithuania (a separate case study is dedicated to it) is number one in the ranking with a penetration rate of 36.8%, Sweden is quickly catching up (35.2%) and stands at the 3rd place.¹⁸³ The second reason is the unique approach of Sweden, when local municipalities for a long time already are important (if not the main ones) drivers for broadband deployment. A recent OECD study recognizes, that the extensive municipal broadband development across Sweden has contributed to a remarkably high level of nationwide fiber penetration.¹⁸⁴ There are some 200 metropolitan networks in more than 100 towns owned and run by the local authorities. According to the OECD report, municipal networks accounted for 23% of the fixed broadband investments in Sweden during 2014.¹⁸⁵

¹⁸³

http://ftthcouncil.eu/documents/PressReleases/2016/PR20160217_FTTHranking_panorama_awa rd.pdf

¹⁸⁴ <https://muninetworks.org/content/oecd-study-munis-digs-deep-discovers-dividends>

¹⁸⁵ <http://www.oecd-ilibrary.org/docserver/download/5jrql7rvns3.pdf?expires=1464623430&id=id&accname=guest&checksum=D96F96107A109625EE5A843A51A9B1D5>

However, the contribution of national government is also important in terms of attributed funds and infrastructure sharing encouragement. Swedish government assigned Svenska Kraftnät, a national electricity utility company, to build a backbone network to link all of Sweden's municipalities on commercial grounds.¹⁸⁶ Furthermore, to assist the government's broadband objectives, the Swedish Transport Administration (Trafikverket) is likewise aiming to offer wholesale access to its extensive fibre broadband network, plus colocation in its ducting along its road network, both in existing ducts and in new construction or reconstruction of roads.¹⁸⁷

To sum it up, the Swedish broadband expansion model is based on a state-owned fibre backbone and is combined with municipal networks.

National targets. The National Broadband Strategy of Sweden aims to achieve the following objectives:

- (1) By 2020, 90% of all households and businesses should have access to broadband at a minimum speed of 100 Mbps,
- (2) By 2015, 40% of all households and businesses should have access to broadband at a minimum speed of 100 Mbps and
- (3) All households and businesses should have good opportunities to use electronic public services with broadband access.

Broadband market. According to the services of the EC¹⁸⁸, in 2015 fixed broadband was available to 99% of households in Sweden (97% in the EU). In rural areas it covered 94% of homes. In terms of fixed broadband access technologies, xDSL connections declined for several years in a row, giving their positions to fibre (See **Figure 26**).

The EC estimates, that NGN access was available to 76% of homes across Sweden (71% in the EU). Other sources claim, that 61% of households and workplaces had access to 100 Mbit/s, and 54% of the population had coverage of fibre by the end of 2014.¹⁸⁹ 21% of rural households able to access direct fibre by end-October 2015.¹⁹⁰ Knowing that Sweden is a country which is large in area, with the majority of population living in urban area (~ 85% of population live in urban areas), the results are noteworthy. Similarly to the case of Finland, Sweden also has a very low population density (24 inhabitants per sq. km.)

Figure 26. Fixed broadband technologies, Sweden, 2015

Source: Telegeography database, accessed in May, 2016

¹⁸⁶ <http://www.lvm.fi/lvm-site62-mahti-portlet/download?did=189278>

¹⁸⁷ <https://www.telegeography.com/products/globalcomms/data/country-profiles/we/sweden/broadband.html>

¹⁸⁸ <https://ec.europa.eu/digital-single-market/en/scoreboard/sweden#1-connectivity>

¹⁸⁹ <http://www.oecd-ilibrary.org/content/workingpaper/5jrql7rvns3-en>

¹⁹⁰ <https://www.telegeography.com/products/globalcomms/data/country-profiles/we/sweden/broadband.html>

It should be noted that Swedish government has recognized the importance of broadband back in 2000 and decided to provide financial stimulus to broadband deployment by creating a Rural Development Programme. This was the start of a strong development of fiber networks. Before the Rural Development Programme there was no real broadband investment in Sweden’s rural areas due to the lack of commercial interests, and although most areas had DSL, the quality was an issue.¹⁹¹ The Programme was extended for the periods of 2007-2013 and 2014-2020. As the Programme foresees State resources to stimulate broadband development in the country, it had to receive the clearance from the EC. The State aid to broadband within the framework of the rural development program was notified to the EC in January 2010.¹⁹² In 2011, Sweden notified and received clearance for the increase in the budget of measure in question.¹⁹³ The budget was increased one more time in 2013.¹⁹⁴

The main aim of State aid measure. Its aim is to help to achieve the objectives of Swedish Broadband Strategy by increasing broadband availability in rural areas. The measure aimed to cover both: i) areas where basic broadband is still not available and will not be in the nearest future – white areas; ii) areas where NGA networks do not exist and will not in the nearest future – white NGA areas.

Table 11. Features of approved State aid measure, Sweden

1	Target area	Country-wide white areas and white NGA areas.
2	Technology	Both basic broadband and NGN Technology neutral
3	Part of network	Access, backhaul and core networks are covered The measure also covers upgrade of existing broadband infrastructure and laying down passive broadband infrastructure ¹⁹⁵
4	Market failure	Unserved demand for broadband services. Around 12% of Swedish population lives in rural areas, where investments in infrastructure are expensive. As a result broadband availability is poorer in more sparsely populated areas. The need for broadband is, however, just as great as in other parts of the

¹⁹¹ <https://www.innova.puglia.it/documents/10180/14203/Guidetobroadbandinvestment-PartAnnexes.pdf>

¹⁹² http://ec.europa.eu/competition/state_aid/cases/234820/234820_1087454_35_2.pdf

¹⁹³ http://ec.europa.eu/competition/state_aid/cases/241098/241098_1274615_58_2.pdf

¹⁹⁴ http://ec.europa.eu/competition/state_aid/cases/247120/247120_1406408_94_2.pdf

¹⁹⁵ http://ec.europa.eu/competition/state_aid/cases/234820/234820_1087454_35_2.pdf

		country. Public services are being digitalized, what implies increased dependency on broadband infrastructure.
5	State involvement	Case-by-case decision on which type of intervention is the most suitable for the area concerned. Private DBO as the main alternative. Two alternatives: i) a bottom-up approach: the need for broadband could in many cases be identified and initiative taken by citizens and small enterprises in rural areas that could organize themselves in for example a non-profit organization. ii) In rare occasions the operator selected through an open tender procedure does not want to own the network, but is only interested in operating it (for instance, due to the high maintenance costs in comparison with the potential revenues that could be generated). In such circumstances, the Swedish authorities foresee the possibility for the project owners to own the network.
6	State aid measure's scope	A financing scheme. The measure is designed as a national scheme, serving as an umbrella State aid scheme.
7	Financing option	Direct grant
8	Budget (initial)	The total amount of public funding available for the measure is €28.152 million, of which 75% will stem from EAFRD funds and 25% from Swedish government funds.

Source: Authors, based on EC decision.

Compliance with Broadband Guidelines. The measure was notified to the EC in 2010. This means that it had to comply with the older version of Broadband Guidelines. Though the renewed version added some additional features, the main guiding principles and requirements for State aid to broadband remained the same.

Table 12. Compliance with Broadband Guidelines of the approved State aid measure, Sweden

Requirement		Compliance
Measure aimed at well-defined objectives of common interests	✓	By extending basic and NGA network coverage to areas where private operators have no commercial interest to invest, Sweden contributed to the EC objective of "broadband for all".
Measure designed to deliver the objectives if common interest and is: - A appropriate	✓	Swedish authorities stated, that efforts from alternative instruments (including ex ante regulation) do not solve the problems related to the lack of supply of basic or high speed broadband in rural areas.

<p>instrument;</p> <ul style="list-style-type: none"> - Have an incentive effect - Is proportional 		<p>It is anticipated that financial support given to market players selected in a tender manner will provide appropriate investment incentives.</p>
<p>Has limited negative effects and distortions of competitions</p>	<p>√</p>	<p>Sweden has designed the measure in such a way as to minimize the State aid involved and potential distortions of competition, as a number of necessary conditions were met in order to minimize potential distortions:</p> <p>Before approving State aid for each project, authorities shall conduct a market analysis to identify the existing broadband networks and services on the target areas, i.e. the mapping exercise shall be done, followed by public consultations and open tender selection procedures.</p> <p>Tender award criteria foreseen as follow: the amount of aid requested, the quality and quantity of the broadband, how long the applicant commits itself to offering services in the subsidized network, prices of services. The selection procedures shall be technology neutral.</p> <p>To avoid unnecessary and wasteful duplication of resources, the Swedish authorities encourage the use of existing infrastructure. The wholesale access to the subsidized network was foreseen for 7 years at benchmarked prices.</p> <p>The monitoring and claw-back mechanisms are foreseen for each project.</p>

Source: Authors, based on EC decision

Results. Under the Rural Development Programme in Sweden, a typical local investment project was initiated by residents and enterprises showing interest and forming into co-operatives or economic associations.¹⁹⁶ They applied to the local authority for support, making significant contributions by themselves (in a form of investments or work done, e.g. digging to install new ducts). Municipalities were actively involved as:

- They are responsible for providing a majority of public services (potential for exploiting synergies);
- Have a considerable degree of autonomy, may engage into business activities;
- Provide e-services;
- Regarded by the end-users as reliable service providers.¹⁹⁷

¹⁹⁶ <https://www.innova.puglia.it/documents/10180/14203/Guidetobroadbandinvestment-PartAnnexes.pdf>

¹⁹⁷ <http://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=DSTI/ICCP/CISP%282015%291/FINAL&docLanguage=En>

Such municipal networks are predominately providing basic (passive) infrastructure, operator neutral networks, based on fibre technologies, usually having more than one ISP using the network to provide broadband services to the end users.

There are more than 1000 community broadband networks in Sweden, either under construction, completed or planning to expand, according to the Swedish Broadband Forum.¹⁹⁸ This, together with the fact that the budget of the State aid measure was increased twice, with the number of applications for the grant money being much higher than anticipated, shows that Sweden's Rural Development Programme was successful, which may be measured not only by kilometers of the networks deployed. The OECD study revealed that at least in the case of Sweden, a 10% higher fibre penetration is correlated with:

- Reduced car use of 135 km per year and inhabitant (250 km for highly urbanised municipalities);
- 1.1% higher employment (1.7% for highly urbanised municipalities);
- Increased business creation by one additional company per 12000 inhabitants per year.¹⁹⁹

Sweden is a good example of state support with positive spillovers leading to broader economic development outcomes. At the same time, it should be noted that many rural broadband networks in Sweden have been built without governmental support.²⁰⁰

¹⁹⁸ <http://www.fibre-systems.com/news/story/survey-over-1000-rural-broadband-networks-sweden>

¹⁹⁹ <http://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=DSTI/ICCP/CISP%282015%291/FINAL&docLanguage=En>

²⁰⁰ <http://www.lvm.fi/lvm-site62-mahti-portlet/download?did=189278s>

6.5. Case study: Lithuania

Lithuania at a glance	
Area (sq km):	65,200
Population 2015 (million):	2.9
Households 2015 (million):	1.3
GDP per capita 2015 (USD thousand):	14.2
Broadband indicators, 2015	
Fixed BB coverage (% of HH)	98
NGA coverage (% of HH)	97
Fixed BB take-up (% of HH)	60
Share of >30 Mbps subscriptions (% of fixed BB subsc.)	58
HSPA mobile BB coverage (% of HH)	99 (2014)
LTE mobile BB coverage (% of HH)	80 (2014)
Mobile BB penetration (per 100 inhab.)	64

Note * - year 2014; Source: World Bank database, EC

Lithuania was chosen for a case study due to the following reasons. For seven years in a row, Lithuania has had the leading position in Europe in terms of the fiber-optic penetration.²⁰¹ Obviously, there are many factors influencing this result (like competition in the market, prices, demand and supply for ICT services), though State resources were also being used to contribute to this success. Additionally, Lithuania's population density (47 people per sq. km.²⁰²) is similar to the one of Montenegro (46 people per sq. km.²⁰³), though GDP per capita is more than twice higher.

The history of broadband deployment with support of public resources in Lithuania goes back to 2005. Then, a public non-profit entity "Placiajuostis internetas" was established with the mission to bring broadband access to unserved areas of the country. In the same year it started to implement the first project - Development of Rural Area Information Technology Network (abbreviated as RAIN)²⁰⁴, which initially focused on providing broadband access to public

²⁰¹

http://ftthcouncil.eu/documents/PressReleases/2016/PR20160217_FTTHranking_panorama_awa rd.pdf

²⁰² <http://data.worldbank.org/indicator/EN.POP.DNST>

²⁰³ <http://data.worldbank.org/indicator/EN.POP.DNST>

²⁰⁴ <https://www.placiajuostis.lt/lt/rain>

administrations in rural areas. Later, in 2008, Lithuanian government started discussions about the need to support further development of broadband networks in rural areas. At that time only 39% of Lithuanian population was covered by broadband networks in rural areas (compared to almost 100 % in urban areas). Around one third (1.1 million inhabitants) of Lithuanian population lived in rural areas, additionally, governmental, educational, healthcare institutions, libraries, public internet access points, local activity groups, businesses, in total about 11.000 institutions or entities were lacking a reliable access to broadband internet. This unmet demand was the main stimulus to initiate a support programme for Development of Rural Area Information Technology Network. Lithuania notified the initial measure to the EC in 2009 (later it was amended several times: in 2012 expanding geographical scope²⁰⁵ and in 2013 prolonging the duration and increasing the budget²⁰⁶), when the economic downturn in the country was at its peak. This indicated that the government understood the potential benefits of broadband deployment for society and economy and was ready to allocate resources to it.

National targets. National objectives for broadband deployment are determined in Lithuania's Digital Agenda approved in 2014. The national targets are in line with the European Digital Agenda, i.e. aims for:

- at least 30 Mbps for 100% of the population until 2020 and
- 50% of households using 100 Mbps or faster internet access until 2020.

In the areas of broadband development, Lithuania's Digital Agenda focuses on providing incentives for investments in broadband infrastructure and intervenes where market operators fail to satisfy the demand.²⁰⁷

Broadband market. According to the latest EC report, broadband is available to 98% of households in Lithuania.²⁰⁸ Almost all connections are capable of providing at least 30 Mbps, which makes Lithuania one of the European leaders in NGA deployment. As in the other Baltic countries, telecoms operators have been traditionally focused on FTTx deployments rather than upgrades to VDSL. VDSL technology is absent in the country. As a result, in terms of fixed broadband technologies, Lithuania may be characterized by relatively low DSL coverage, with 69% homes (with only 15% in rural areas) passed by DSL networks, compared with 94% in the EU, on average.²⁰⁹ Though, Lithuania's FTTx coverage has already reached 95% in 2015 and is the highest in the EU (EU-28 average is 18.7% of homes).²¹⁰ Although Lithuanian consumers also

²⁰⁵ http://ec.europa.eu/competition/state_aid/cases/243182/243182_1335424_70_2.pdf

²⁰⁶ http://ec.europa.eu/competition/state_aid/cases/247516/247516_1435107_91_2.pdf

²⁰⁷ http://www3.lrs.lt/pls/inter3/dokpaieska.showdoc_l?p_id=467638&p_tr2=2

²⁰⁸ <https://ec.europa.eu/digital-single-market/en/scoreboard/lithuania>

²⁰⁹ <https://ec.europa.eu/digital-single-market/country-information-lithuania>

²¹⁰ <https://ec.europa.eu/digital-single-market/country-information-lithuania>

benefit from the most affordable broadband in Europe (see **Figure 27**), the broadband take-up is relatively low, compared to other EU countries (see **Figure 28**).²¹¹

Figure 27. Affordability of fixed broadband in the EU (prices as a percentage of the average individual income)

Source: EC²¹²

Figure 28. Take-up of fixed broadband across the EU

Source: EC²¹³

The main aim of State aid measure. The main aim is to develop an ICT infrastructure offering wholesale broadband services in rural areas of Lithuania which are not being served, and where there are no plans for coverage in the near future. The ultimate goal of the project was to provide opportunities for residents, public institutions and businesses to use broadband in the country’s rural areas. In addition, three socio-economic goals were identified:

- Reducing of Lithuania’s digital divide by creating favorable broadband infrastructure conditions throughout the country.
- Promoting competition in the broadband sector through an open-access policy of the subsidized network
- Accelerating the development of an information society in Lithuania and contributing to State’s economic growth.

The country has chosen to tackle the lack of necessary backhaul broadband infrastructure and not to invest into the last-mile infrastructure, hoping to create the right stimulus for private sector to engage into the last-mile provision.

Table 13. Features of approved State aid measure, Lithuania

1	Target area	Country-wide white areas and white NGA areas
2	Technology	Backhaul fibre lines only to be placed as a result of the notified measure where no such infrastructure is available of other private operators.
3	Part of network	Only backhaul and core networks are covered
4	Market failure	As in many countries in the EU, broadband services are available in more densely populated locations (in particular in Vilnius), whereas the rollout

²¹¹ <https://ec.europa.eu/digital-single-market/en/scoreboard/lithuania>

²¹² http://ec.europa.eu/newsroom/dae/document.cfm?action=display&doc_id=14212

²¹³ http://ec.europa.eu/newsroom/dae/document.cfm?action=display&doc_id=14212

		<p>of basic broadband connections is lagging behind in rural and remote areas. In 2008 rural areas in Lithuania (32% penetration) were far behind urban areas (99% penetration) in network connectivity. The rural areas have received little private investment in previous years due to their commercial unattractiveness (low subscriber density), creating a digital divide. Although it is important to have wide-spread broadband networks across the whole country, including rural areas, in order to gain potential benefits that broadband could bring.</p> <p>The Lithuanian authorities have identified that the necessary core/backhaul network infrastructure and capacity were missing across Lithuania.</p>
5	State involvement	<p>Public DBO.</p> <p>Placiajuostis Internetas – a non-profit entity owned by the Ministry of Transport and Communications was responsible for the implementation of the project. The entity is deploying and operating a public backhaul network which connects various public and private institutions, including municipalities, schools, libraries, hospitals, masts of mobile operators. It provides open access services to interested third party Internet providers and cable companies.</p>
6	State aid measure's scope	<p>A financing scheme.</p> <p>However it is mainly RAIN-2 (and its extension PRIP²¹⁴)²¹⁵ that was financed through the scheme.</p>
7	Financing option	Direct grant
8	Budget (initial)	<p>The notified initial amount of the RAIN Project was approximately approximately EUR 60.5 million, EUR 51.4 million coming from the resources of the European Regional Development Fund (ERDF) and EUR 9.1 million from resources of Lithuania.</p>

Source: Authors, based on EC decision.

Compliance with Broadband Guidelines. The measure was notified to the EC in 2009 and had to comply with the older version of Broadband Guidelines.

Table 14. Compliance with Broadband Guidelines of the approved State aid measure, Lithuania

Requirement	Compliance
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²¹⁴ A supplementing project, with the same objectives as RAIN-2.

²¹⁵ Additionally, a project of broadband infrastructure deployment in Lazdijai and Alytus was covered by the scheme, however this was a relatively small project (in terms of geography and funds) compared to RAIN and its extensions

Measure aimed at well-defined objectives of common interests	√	By extending broadband coverage to unserved areas of Lithuania, the measure helped achieving greater social and regional cohesion and was therefore considered in line with the common interest of the EU.
<p>Measure designed to deliver the objectives if common interest and is:</p> <ul style="list-style-type: none"> - A appropriate instrument; - Have an incentive effect - Is proportional 	√	<p>Lithuanian authorities realized that efforts from alternative instruments (including <i>ex ante</i> regulation) are not sufficient to encourage the broadband expansion throughout the country. The demand-side measures– tax incentives, computer literacy courses, development of e-services – have been in place in Lithuania for several years, but this did not solve the problem on supply side.</p> <p>Existing <i>ex ante</i> regulation has facilitated broadband deployment in urban and more densely populated areas, but it was unlikely that it would lead to sufficient private investments in rural areas.</p> <p>The EC recognized, that the measures did not narrow the digital gap between urban and rural areas, therefore the suggested State aid measure was considered to be appropriate and proportional.</p> <p>It was expected that that the creation of a backhaul network in the unserved areas would reduce the entry barriers for commercial operators, thereby encouraging them to extend their broadband network coverage in rural areas.</p>
Has limited negative effects and distortions of competitions	√	<p>The Lithuanian authorities aimed to improve broadband availability in rural areas by tackling the lack of necessary backhaul broadband infrastructure. The network was expected to offer open wholesale access to third-party operators to deliver broadband services to end-users.</p> <p>The Lithuanian authorities conducted a detailed mapping and coverage analysis to identify the target areas. Operators provided information about the infrastructure they managed, to help planning of the fibre routes. In return, Placiajuostis internetas revealed planned fibre routes to any interested parties (to avoid duplications and to employ existing infrastructure).</p> <p>The built infrastructure may be employed by all operators as network topology ensures technological neutrality. The State aid measure is considered to promote development of a competitive environment, as end user is allowed to freely choose the service provider and services.</p> <p>Tarriffs of the wholesale service, determined by the Ministry of Transport and Communications, are set at a level that ensures that retail broadband services in the targeted areas are</p>

	provided at a price similar to urban areas.
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Source: Authors, based on EC decision

Results. Under the analyzed State aid measure the RAIN-2 project was the main receiver of allocated funds. However, as it is a continuation of the initial RAIN-1 project, the results are best to be evaluated jointly. See **Box 9** for the details of the results of each project.

Altogether, the infrastructure created during the projects gives operators the opportunity to provide broadband services in at least 97% of the country's rural areas. The infrastructure built during RAIN-1 and RAIN-2 projects is used by 51 operators.²¹⁶ It reached ~ 1 000 000 inhabitants – 1/3 of Lithuania's population, which was the initial intention of the project, i.e. objectives were achieved. Changes in broadband coverage during the implementation of projects are provided in **Figure 29**. The increased coverage resulted in increased penetration (see **Figure 30**). As fixed broadband take-up in Lithuania is still lagging behind the majority of EU countries, this indicates that even almost absolute coverage of broadband networks will not necessary mean that objectives of penetration (subscriptions) will be reached easily. This implies that demand stimulation measures shall be considered strongly.

²¹⁶ https://ec.europa.eu/digital-single-market/sites/digital-agenda/files/lithuania_rain_facts_briuselis2.pdf

Figure 29. Changes in fixed broadband coverage in Lithuania during the implementation of State aid measure

Source: RRT²¹⁷

Figure 30 Dynamics of fixed broadband penetration in Lithuania

Source: RRT²¹⁸

Additional lessons that could be learnt from the case of Lithuania are the ones, concerning project cost control. The RAIN project provides a good example of how to control infrastructure costs. First, the cables were laid only in the areas where no other cables exist. Second, to avoid any duplications, the information on the planned routes were shared with the market players. Third, the fibre connection points were installed in all the settlements that a route passes, ensuring future connections. Fourth, existing public infrastructure was used, e.g. protective zones under roads, to minimize the total distance of the cables.

As a result, in 2015 the EC awarded RAIN-2 project as the **Winner of European Broadband Award 2015** in the category on socio-economic impact and affordability²¹⁹

Box 9 Deployment of broadband networks in rural areas of Lithuania

There are several main phases that may be distinguished in the development of broadband networks in rural Lithuania:

- 1st phase (2005-2008): RAIN -1 project was initiated. The model of public DBO was chosen to implement the project. A non-profit public entity “Placiajuostis internetas” was established. During this phase it designed and constructed ~ 3400 km of fiber lines, 467 rural settlements connected to broadband infrastructure. Total value of the project ~ 21 million EUR.
- 2nd phase (2009-2015): RAIN-2 project. The project covered the design and construction of ~ 5800 km of fiber optical lines, 982 rural settlements connected to broadband infrastructure; Total value of the project ~60 million EUR.
- 3rd phase (2014-2015): “Development of broadband network infrastructure in rural areas” (PRIP) project. It aimed at designing and constructing additional 485 km of fiber lines, connecting rural 440 entities, like biggest farms, agricultural institutions and organizations, to the lines already constructed by RAIN project. Total value of the project ~ 6 million EUR,
- 4th phase (foreseen for 2016-2020): the continuation of PRIP project with the aim to construct additional 340 km fiber optical lines and connect additional 400 or more rural entities.

²¹⁷ http://www.rrt.lt/lt/pranesimai_296/2016.html

²¹⁸ http://www.rrt.lt/lt/pranesimai_296/2016.html

²¹⁹ <http://www.fibre-systems.com/news/story/european-broadband-awards-showcase-best-practice>

Source: *Placajuostis internetas*

6.6. Case study: Romania

Romania at a glance	
Area (sq km):	237,000
Population 2015 (million):	19.9
Households 2015 (million):	8.7
GDP per capita 2015 (USD thousand):	8.9
Broadband indicators, 2015	
Fixed BB coverage (% of HH)	89
NGA coverage (% of HH)	72
Fixed BB take-up (% of HH)	60
Share of >30 Mbps subscriptions (% of fixed BB subsc.)	63
HSPA mobile BB coverage (% of HH) *	100
LTE mobile BB coverage (% of HH) *	56
Mobile BB penetration (per 100 inhab.)	59

Note * - year 2014; Source: World Bank database, EC

Romania is at the bottom of the list of EU countries in terms of digital performance, according to the Digital Economy and Society Index (DESI) – a composite index that summarizes relevant EU indicators and tracks the evolution of EU Member States in digital competitiveness.²²⁰ Connectivity is the DESI dimension where Romania performs best and ranks 23rd among EU countries (other dimensions like the use of Internet, human capital brings the country at the end of the total rank). This indicates that the country puts a lot of emphasis on connectivity issues, compared to others.

The country's second lowest GDP per capita in the EU, a relatively high proportion of rural population (~47%), and particular landscape (mountains, plains, hills) are making broadband infrastructure roll-out more complex and costly. Nevertheless, Romania belongs to the **catching-up** group of countries in terms of broadband penetration because, although it still performs worse than the EU as a whole, it has developed fast over the last year and got closer to the EU average.²²¹ The case of Romania is even more pertinent to this report, as it has one of the lowest incumbent's broadband market shares in the EU (26% vs 40 % in the EU on average, as of 2015) and a dynamic competitive environment. As a result, Government of Romania even decided to deregulate fixed wholesale product markets (local and central access). This means that market and regulatory potential is almost fully exploited. Therefore, the country was chosen to see how State's intervention through State aid is helping to get closer to the EU average. In 2014, the EC approved a State aid measure called "Ro-Net project", which mainly aimed at deploying broadband backhaul networks in 783 localities of Romania with no existing or potential broadband infrastructure.

²²⁰ <https://ec.europa.eu/digital-single-market/en/scoreboard/romania>

²²¹ <https://ec.europa.eu/digital-single-market/en/scoreboard/romania>

National targets. With regards to the broadband targets, the Romanian Strategy (National Strategy for Romanian Digital Agenda 2020²²²) aims at achieving:

- 100% households with fixed broadband coverage by 2020;
- 80% households with over 30 Mbps broadband coverage; and
- 45% households being connected with subscriptions over 100 Mbps.²²³

According to the Strategy, NGN infrastructure (backbone, backhaul and access network) development costs, accomplishing those targets, are estimated to reach the level between 3.1 and 5.5 billion EUR, out of which 0.7 to 1.7 billion EUR is expected to come from public funding.²²⁴ A special attention is given to rural and disadvantaged areas, stimulation of competition, and promotion of the development of mobile broadband, which is seen as one of the solution for addressing Romania's broadband development issues.

Broadband market. Romania lags behind the EU average in terms of overall fixed broadband coverage on a national and rural level, but performs better than the average with regards to the availability of NGA technologies. According to the latest EC report, fixed broadband is available to 89% of households in Romania, compared to the EU average of 97%.²²⁵ In rural areas, fixed broadband coverage services were available to 81% of rural households, compared to 91% rural homes passed on European level.²²⁶ Meanwhile, NGA connections are available to 72% of Romanian households (71% of European households), connections based on FTTx technologies make up the biggest part (53.8% of homes were covered by FTTx networks in 2015).²²⁷

Having one of the highest subscription prices²²⁸ (an individual seeking to subscribe to a broadband connection must spend on average 2.7% of his/her gross income, compared to the EU average of 1.3%, see **Figure 27**), Romania is one of the leaders of fast (> 30 Mbps) broadband take-up (63 % of fixed broadband subscriptions are fast broadband subscriptions), as well as ultrafast (>100 Mbps) broadband penetration (see **Figure 31**).

Figure 31. Percentage of EU households with an ultrafast broadband (at least 100Mbps) subscription, July 2015

Source: EC

²²² <http://www.mcsi.ro/CMSPages/GetFile.aspx?nodeguid=35df52c5-e1bd-4507-af0f-7c3c67333484>

²²³ <https://ec.europa.eu/digital-single-market/country-information-romania>

²²⁴ http://ec.europa.eu/newsroom/dae/document.cfm?action=display&doc_id=15727

²²⁵ <https://ec.europa.eu/digital-single-market/en/scoreboard/romania>

²²⁶ <https://ec.europa.eu/digital-single-market/en/scoreboard/romania>

²²⁷ <https://ec.europa.eu/digital-single-market/en/news/broadband-coverage-country-end-2014>

²²⁸ Calculations performed taking into account the price of the least expensive standalone (Internet only) fixed broadband connection offering speeds between 12 Mbps and 30 Mbps.

The main aim of State aid measure. The objective of the State aid measure is to support the construction of backhaul networks for the use of operators in the areas where broadband services are not available and there are no investment plans in the near future.

Romania conducted a detailed mapping and coverage analysis to identify the target areas where State intervention is necessary. It identified areas where no operators offer broadband connectivity at a speed of above 4 Mbit/s for business users and 1 Mbit/s for residential users. Out of the initially identified 2,287 rural localities without any broadband infrastructure at all, 783 were selected where the provision of backhaul may result in the development of last-mile broadband investments. Localities were grouped into 7 regions, and a tender was organized for 7 lots (each per region).

Table 15. Features of approved State aid measure, Romania

1	Target area	Country-wide white (basic broadband) areas
2	Technology	Technology neutral
3	Part of network	Only backhaul networks are covered
4	Market failure	In Romania, around 47 % of the population lives in rural areas, where the population density is low. Together with economic factors (such as low GDP per capita, low ARPU), it makes these regions very unattractive for private investors. Furthermore, the variety of landscape and complex topology is not favorable to civil works (digging trenches, erecting towers) and makes networks' deployment costs even higher. Low PC penetration rate and digital literacy reduced even more the attractiveness for investment, creating a significant infrastructure gap between urban and rural areas of Romania.
5	State involvement	Public outsourcing: An open tender, divided into 7 lots corresponding to the grouped regions was organized to select operators to design, build and operate infrastructure. The infrastructure, however, shall remain in public ownership. The infrastructure operators (concessionaires) shall pay a concession fee for the subsidized infrastructure and have the right to retain revenues from managing and operating the networks.
6	State aid measure's scope	A financing scheme. Although only Ro-NET project is financed.
7	Financing option	Direct grant
8	Budget	The overall amount of the measure was approximately EUR 84 million. A significant part (approximately 82%) of the budget comes from European Regional Development Fund (ERDF) (EUR 68.5 million) and the remainder from the State budget (EUR 15.5 million). Aid intensity – 100%, meaning that all costs of network deployment are covered.

Source: authors, based on EC decision.

Compliance with Broadband Guidelines. The notification of Romania’s State aid measure, called Ro-NET, took place in 2013, meaning that the measure in question had to follow the requirements of the renewed version of Broadband Guidelines (see **Table 16**). As Romania intends to support backhaul networks construction for the delivery of primarily basic broadband services, the designed State aid measure had to comply with requirements of Part I and Part II of the Guidelines (see

Table 5).

Table 16. Compliance with Broadband Guidelines of the approved State aid measure, Romania

Requirement		Compliance
Contribution to common interest	√	By extending broadband coverage to unserved areas of Romania the measure contributes to the achievement of greater cohesion and economic development objectives, in line with the Digital Agenda.
Absence of market delivery due to market failures	√	Lack of commercial investments into broadband networks in rural areas: 783 localities were selected with no broadband coverage and no investment plans in the near future (3 years' time horizon).
Appropriateness of State aid as a policy instrument	√	<p>Romania demonstrated that without further public intervention, it would seem impossible to national objectives:</p> <ul style="list-style-type: none"> • Demand –side measures are insufficient to solve the systemic problems illustrated on the supply side in Romania's rural areas. • Regulatory measures did not solve the problems related to the lack of broadband infrastructure and services in the targeted areas.
Incentive effect	√	During public consultations operators indicated having no investment plan in the targeted areas without public support, hence the aid produces a change in the investment decisions of the operators. Moreover, open access to subsidized infrastructure to third party operators is expected to encourage investments in last mile networks.
Aid limited to minimum necessity	√	<p>Romania has designed the measure in such a way as to minimize the State aid involved and potential distortions of competition.</p> <p>The Romanian authorities carried out a mapping exercise as part of a broader Feasibility Study. Following several rounds, the country identified 783 localities with no existing or potential backhaul network. At least three public consultation rounds were undertaken along with mapping exercise.</p> <p>Open and technology-neutral tender, in line with national and EU procurement rules, was foreseen for 7 lots (regions). The contracts intended to be awarded to the applicants presenting the most economically advantageous offer (for each lot), where the most important award criteria was - the lowest amount of public aid requested.</p> <p>Although the measure supports only white areas where no broadband infrastructure is available, it encourages the use of</p>

		<p>existing infrastructure wherever possible. For this purpose, existing infrastructure and its availability was identified (e.g. towers, overhead optic fibre, roads, ducts, roofs of existing buildings, other infrastructure, etc.). The inventory shall be made public on national regulator (ANCOM) website. A third of the network planned for the initiative will be built on the basis of support infrastructure that already exists.</p> <p>Wholesale services are an essential requirement of the project.</p> <p>The selected operators will offer wholesale services, i.e. access to the subsidized networks to other operators in an open, transparent and non-discriminatory manner for entire concession period (18 years). The price for wholesale access shall be based on the prices already set by ANCOM for similar regulated (i.e. benchmarked prices)</p> <p>The monitoring and claw-back mechanisms are foreseen.</p> <p>All relevant documentation concerning the State aid measure shall be published to ensure transparency. Periodical reporting to the EC services foreseen.</p>
Limited negative effects	√	Given the design of the project, it is unlikely to have a crowding out effect on potential future investments of private operators.
Transparency	√	It shall be ensured that the public authorities, economic operators, the interested public and the EC have easy access to all relevant acts and pertinent information about the aid.

Source: authors, based on EC decision.

Results. Fixed line incumbent RomTelecom (an incumbent, in 2014 renamed as Telekom Romania Communications) and sister mobile operator Cosmote Romania (in 2014 renamed as Telekom Romania Mobile Communications)²²⁹ **were selected as the winners of the tender organized by the Ministry for Information Society.** RomTelecom was designated winner for 4 of the lots, and Cosmote Romania for 3 lots. For the 4 lots, RomTelecom will be financed with up to approximately 37.2 million EUR, while Cosmote Romania, with up to 27.9 million EUR.

The Ministry gave concession for a period of 18 years to the winning companies. For this period, two companies will have to ensure the operation and maintenance of the subsidized infrastructure. It is estimated that the 783 localities covered by the project would ultimately result in some 400 000 residents, 8,500 businesses, and 2,800 public institutions covered by

²²⁹ Both companies belong to the Deutsche Telekom Group.

broadband network. All in all, it is estimated that 480 jobs are to be created upon completion of the project.²³⁰

By end-2015, the investments were completed in 99 localities, absorbing EUR 15 million out of the total budget of EUR 69 million.²³¹ The rest is expected to be completed by the end of 2016 (with at least one year delay).

As the Ro-Net project covers 783 out of over 2000 initially identified localities with no broadband access, the Romanian authorities are already thinking, how other “white” areas will be reached in order to achieve national broadband targets by 2020.²³²

²³⁰ http://ec.europa.eu/regional_policy/en/projects/romania/ro-net-building-broadband-internet-access-to-boost-the-economy

²³¹ <http://www.nineoclock.ro/ro-net-project-to-bring-broadband-internet-to-783-localities-infrastructure-finalized-in-99-localities-remainder-to-be-completed-by-end-of-the-year/>

²³² <http://www.nineoclock.ro/head-of-communications-authority-ro-net-project-to-be-completed-by-year-end-solutions-required-for-other-communities-too/>

6.7. Case study: Appingedam, Netherlands

The case was chosen for the analysis, as this is the only one negative EC decision on notified aid so far.

In 2004, the EC received a complaint from one Dutch cable operator. The complaint concerned the public funding of a fibre access network in Appingedam, a town in the north of the Netherlands. At the same time the operator also lodged an appeal in a Dutch court, which later ordered the municipality to notify to the EC its plans of building network and granting aid. The Dutch authorities notified the measure to the EC in 2005. The EC initiated an in-depth, which the aim to analyze whether there could be an objective justification for the public funding.

The main aim of State aid measure. The municipality of Appingedam intended to part fund the deployment of a fibre access network.

Table 17. Features of notified State aid measure, Appingedam

1	Target area	Municipality of Appingedam Black area (with two operators)
2	Technology	FTTH
3	Part of network	Access network Passive and active infrastructure
4	Market failure	The municipality of Appingedam considered that public intervention is needed to address the insufficient supply of advanced broadband services by supporting the deployment of a fibre access network in Appingedam. According to the municipality, two operators provide broadband access in Appingedam, but they do not provide “advanced broadband services”. The municipality decided to participate financially in the project.
5	State involvement	The passive layer of the planned fibre network (rights of way, ducts, fibres, etc.) would be owned by a public foundation set up and controlled by the municipality. The concession for the active layer was expected to tender out.
6	State aid measure’s scope	Project only
7	Financing option	Loan or a guarantee for a loan
8	Budget	The investment in the passive layer was estimated at 4.9 million EUR

Source: Authors, based on EC decision.

Compliance with State aid rules. The EC considered the Dutch broadband market at that time as being one of the most advanced in Europe in terms of service coverage, innovation and competition. In Appingedam, broadband offers are already provided over two existing networks (KPN and cable), at prices similar to those of other regions of the Netherlands. Consequently, the construction of an additional network with state funding would address neither a market failure nor a cohesion problem. The EC considered that the planned aid would distort competition and harm private investment to an extent which would outweigh the positive effects of the project. The measure was considered as not fulfilling the criteria for granting aid to the development of certain economic activities or regions (Article 107 (3) (c) EC Treaty).

Results. The EC has decided to prohibit public funding for the planned construction of a fibre access network in Appingedam. As the construction of the network has not yet started, no aid will have to be recovered. This was the first time that the EC has declared a subsidy for a broadband network incompatible with the state aid rules.²³³

²³³ http://europa.eu/rapid/press-release_IP-06-1013_en.htm

VII. Conclusions and Recommendations

The evaluation of SDIS 2012-2016 objectives reveals that broadband coverage goals were only partially achieved (as of March 2016): 79% of population is estimated to have access to up to 10 Mbps against the target of 100% of population²³⁴ and 17% of population is estimated to have access to at least 30 Mbps against the target of 50 % of population. As Montenegrin authorities are in the process of setting up the targets for the next planning period, it is recommended that they first identify the reasons of this moderate performance.

The results of the analysis performed imply that one of the reasons is may likely be explained by a presence of market failure in providing high-speed broadband access, especially in rural and sparsely populated areas of Montenegro. The potential market failure was not explicitly identified in the current strategic documents and therefore was not addressed, i.e. usually it is expected that the market failure be tackled through the focused State intervention.

So far, the state efforts have been dedicated to strengthening of the competitive and enabling environment, which is important for acceleration of broadband infrastructure investments. Among positive developments one could mention the operationalization of the infrastructure sharing and ongoing infrastructure mapping activities. Montenegro was also tackling the issues of availability of basic (functional) Internet access through establishment of USO and selecting Universal Service provider. Those efforts have allowed to accelerate broadband availability and adoption in the areas of commercial viability and increase overall availability of the Internet.

Modest funds, i.e. EUR 1.79 million, were dedicated to the ICT sector development from the State budget (one of the smallest dotation per sector); sector was supported neither from EU funds nor from the loans. At the moment, however, broadband penetration is reaching its saturation point and its growth is slowing down considerably. Addition of new fixed broadband connections is low. Those are the indications that limits of commercial viability for broadband investments are likely to be approached, and that state support may be required to provide high-speed connectivity to the households outside of economically attractive areas.

Taking into account the above mentioned, the following is recommended:

- In-depth analysis of broadband market and existing regulatory framework to evaluate the potential of the market to close existing infrastructure gaps. In particular, it is recommended to consider the transposition of the EU Directive 2014/61/EU of the European Parliament and of the Council on “measures to reduce the cost of deploying high-speed electronic communications networks”²³⁵, which aims at facilitating and encouraging the roll-out of high-speed networks by reducing their cost. The Directive

²³⁴ SDIS goals require a broadband connection to be symmetrical and guaranteed; ADSL technology does not provide a symmetrical connection; at the same time connection speed of up to 10 Mbps cannot be guaranteed for all the subscriber lines (it will depend of the quality of each particular line and its length); therefore the achievement against this goal shall be validated with caution.

²³⁵ (COM/2013/0147 final - 2013/0080 (COD))

- includes the measures such as the sharing and re-use of existing physical infrastructure, which are expected to create conditions for a more cost efficient network deployment.²³⁶ Moreover, it significantly facilitates access to information: it foresees the right for market players to access information on the location and routes of the existing physical infrastructure of any network operator as well as on the type and use of infrastructure and to an appropriate contact point before 1 January 2017.
- It is also recommended to conduct a detailed mapping and coverage analysis to identify the target geographic areas, existing and required resources. The Government may consider the development and implementation of an interactive map allowing the analysis of investment opportunities in infrastructure networks. Such a map could be used as a policy instrument that would help, on one hand, to establish right objectives for any interventions, and to reduce the cost for operators – on the other. Montenegro could consider the experiences already implemented in a number of EU countries. Germany, Portugal and Slovenia have well established infrastructure mapping tools, while new mapping projects are being carried out in several Member States, namely, Poland, Croatia, Cyprus, the Czech Republic, Estonia, Greece, Hungary, Italy, Latvia, Lithuania, Portugal and Sweden. Public consultations with market players are recommended in order to confirm the presence of a potential market failure (if any) and to reveal specific investments plans in the nearest future (3 years ahead) per geographic area where the high-speed broadband is not available so far (white NGA and or backhaul areas). This exercise will help to understand how ambitious new strategic objectives may be (in line with *Digital Agenda for Europe* as in many EU countries²³⁷ or deviating from it, as in some countries of the Balkan region), and what (if any) State intervention will be required to achieve the newly identified objectives.
 - If public consultations confirm the presence of the market failure, a state intervention to address it should be considered. State aid measures would be more effective when they are part of a more comprehensive strategy, containing not only a vision / targets, but also a clear action plan. Actual success of the new Strategy will depend not so much on targets set, but more on the choice of appropriate means, including legal, regulatory, administrative measures, and financial resources. Therefore, it is important to have both the necessary resources and tools in place to facilitate the rollout of broadband infrastructure.
 - To make an estimate of the funds required in order to close the infrastructure gap and to consider scale and scope of potential State intervention. The approximate amount of State aid resources will give an

²³⁶ <https://ec.europa.eu/digital-single-market/en/cost-reduction-measures>

²³⁷ 17 Member States are fully aligned to the Digital Agenda for Europe 2020 targets (Bulgaria, Croatia, Cyprus, Czech Republic, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Malta, Netherlands, Poland, Portugal, Romania, Slovakia and Spain);

indication which regulation of EU State aid framework shall be followed. It is advisable first to see if the State aid within the GBER or *de minimis*²³⁸ regulation may be considered. It is unlikely that the issue of high-speed broadband could be efficiently tackled through SGEI. This would require the definition of high-speed broadband as a universal service and the inclusion of delivery of broadband of target speeds into USO. EKIP has designated nation-wide USO relatively recently, i.e. in 2015, following a public tender procedure. Crnogorski Telekom A.D. Podgorica was designated to offer connections and access to publicly available telephony services, including functional internet access at a fixed location. The current speeds that are being provided by the universal service provider are not close to those foreseen in the SDIS as goals. This means that USO, as it is defined today, will not substantially contribute to the objectives of the SDIS. The increase of a minimum guaranteed speed would require a new tender and substantially greater compensations for the provision of such services. This may put potentially inadequate financial burden on market players;

- To evaluate the availability of public funds. As State resources are scarce, the use of complimentary funds (direct financial incentives: grants, low interest loans) may be considered, together with indirect financial incentives (e.g. guarantees, tax incentives) and non-financial remedies (e.g. infrastructure sharing obligations for public utilities). However, the EU experience accumulated so far²³⁹ suggests that the most prevailing form of State aid support for broadband is direct grant;
- In designing State aid measures, Montenegrin authorities are encouraged to make use of EU Member States examples. The recently approved State aid scheme for Croatia may serve as one of such examples of a broad scheme, allowing a different level and forms of State intervention. The example of Finland shows that a State aid measure may be directed to very specific areas and only for NGA technologies. Sweden's State aid measure resulted in broadband deployment based on a state-owned fibre backbone combined with municipal networks. Lithuania is a good example when deployment of a fibre network was dedicated to public entity, which now successfully operates the network. It is recommended that the Government discuss possible schemes with market players and other relevant stakeholders. This would help identify the most appropriate design for all of the parties involved in implementation. An *ex ante* assessment of benefits and drawbacks of potential State aid is strongly recommended.
- Capacity building and adequate legal expertise on state aid matters is essential in order to design and comply with complex state aid framework. Being an EU candidate country, Montenegro has recently (beginning

²³⁸ Though it is unlikely the possibility to use the *de minimis* regulation due to the small amount allowed

²³⁹ at least under notified State aid measures

2016) transposed the majority of EU State aid rules into the national legislation, yet it lacks experience in applying them. It is therefore advisable to get use of available EU technical experience, among others, through the requests for methodological and practical help, e.g. via TAIEX instrument.²⁴⁰ Successful implementation of State aid measures will strongly depend on competencies of staff dealing with the matter. Advance identification of such staff and preparation of training plans are strongly recommended as part of the actions foreseen under the updated SDIS.

²⁴⁰ http://ec.europa.eu/enlargement/tenders/taiox/index_en.htm

Annex 1 List of settlements without backhaul connection

Tables of settlements with the backhaul connection are provided in a separate file. The information provided is based on the Survey.

Annex 2 List of settlements without high-speed broadband

Tables of settlements with high-speed broadband connection are provided in a separate file. The information provided is based on the Survey.

Annex 3 Fiber leasing services provided by Electric Transmission System of Montenegro

Electric Transmission System of Montenegro (Crnogorskog elektroprenosnog sistema - CGES-a) owns the optical fiber network with the total length of optical cable is 656 km. By using optics, CGES is connected with electric companies of Serbia, Bosnia & Herzegovina and Albania. The company offers its infrastructure to other market players. See Figure below for architecture of a network, and Table for prices of renting one kilometer of fiber pair for one year.

Rental price depending on time of rent and distance (€/km/year/pair)	Up to 5 years	For 10 years	For 15 years
Up to 100 km	2000	1500	1000
100 to 300 km	1500	1125	750
Over 300 km	1000	750	431

Source: ETIK

Annex 4. EU State aid rules: main documents

The list of the documents is not definitive or exhaustive. The whole list may be found at: http://ec.europa.eu/competition/state_aid/legislation/legislation.html

Title	Main objective	Latest amendments
Main provisions of the Treaty concerning State aid		
Article 107, 108 and 109 of the Treaty	State aid's substance (general prohibition, possible exceptions) , procedure and implementation of State aids policy	2009
Procedural rules		
Council Regulation (EU) 2015/1589 of 13 July 2015 laying down detailed rules for the application of Article 108 of the Treaty on the Functioning of the European Union	Lays down State aid's verification procedures, procedures regarding unlawful aid, misuse of aid ant other.	2015
Implementation		
Commission Regulation (EC) No 794/2004 of 21 April 2004 implementing Council Regulation (EC) No 659/1999 laying down detailed rules for the application of Article 93 of the EC Treaty	Sets out detailed provisions concerning the form, content and other details of notifications and annual reports	2016
Commission Regulation (EU) 2015/2282 of 27 November 2015 amending Regulation (EC) No 794/2004 as regards the notification forms and information sheets	Provides updated notification forms and information sheets	2015
Commission Notice on a Simplified procedure for the treatment of certain types of State aid	Sets out a simplified procedure of State aid measures' verification	2009
Commission Notice on a Best Practices Code on the conduct of State aid control proceedings	Provides guidance on the day-to-day conduct of State aid procedures, thereby fostering a spirit of better co-operation and mutual understanding between the Commission services, Member State authorities and the legal and business community.	2009
Notice from the Commission — Towards an effective implementation of Commission decisions ordering Member States to recover unlawful and incompatible State aid	Explains the EC's policy towards the implementation of State aid's recovery decisions	2007
Commission notice on the enforcement of State aid law by national courts,	Informs national courts and third parties about the remedies available in the event of a breach of State aid rules and to provide them with	2009

	guidance as to the practical application of those rules.	
Enabling regulation, <i>de minimis</i>, GBER		
Council Regulation (EC) No 1588/2015 of 13 July 2015 on the application of Articles 107 and 108 of the Treaty on the Functioning of the European Union to certain categories of horizontal State aid	Enables the EC to adopt <i>de minimis</i> and GBER regulations	2015
Commission Regulation (EU) N°651/2014 of 17 June 2014 declaring certain categories of aid compatible with the internal market in application of Articles 107 and 108 of the Treaty	Lays down the detailed GBER	2014
Commission Regulation (EU) No 1407/2013 of 18 December 2013 on the application of Articles 107 and 108 of the Treaty on the Functioning of the European Union to <i>de minimis</i> aid	Lays down the detailed <i>de minimis</i> aid regulation	2014
Horizontal rules		
Guidelines on regional State aid for 2014-2020.	Lays down requirements for regional State aid	2014
Framework for State aid for research and development and innovation	Sets out rules on granting State aid for R&D&I	2014
Communication from the Commission - Criteria for the compatibility analysis of training state aid cases subject to individual notification,	Sets out rules on granting State aid for trainings	2009
Sector specific rules		
EU Guidelines for the application of state aid rules in relation to the rapid deployment of broadband networks	State aid rules on granting aid to broadband deployment	2013
Communication from the Commission on the application of State aid rules to public service broadcasting	State aid rules on granting aid to public broadcasting	2009
Specific aid instruments		
Commission Notice on the application of Articles 87 and 88 of the EC Treaty to State aid in the form of guarantees	Rules on granting State guarantees	2008
Commission notice on the application of the State aid rules to measures relating to direct business taxation	Rules on providing State aid in form of tax exemption	1998
Commission communication concerning aid elements in land sales by public authorities	Guidance on State aid elements in sales of land and buildings by public authorities	1997
Services of General Economic Interest (SGEI)		
Communication from the Commission on the application of the European Union State aid rules to compensation granted for the provision of services of general economic interest	Clarifies key concepts related to State aid for SGEIs	2012

Communication from the Commission, European Union framework for State aid in the form of public service compensation	Specifies the conditions under which State aid in the form of public service compensation is compatible with the Treaty	2012
Commission Regulation on the application of Articles 107 and 108 of the Treaty on the Functioning of the European Union to de minimis aid granted to undertakings providing services of general economic interest	Establishes a threshold below which compensation is deemed no aid	2012

Source: http://ec.europa.eu/competition/state_aid/legislation/legislation.html