

BEREC Report on Member States' best practices to support the defining of adequate broadband internet access service

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1. Executive Summary

1. This report is a requirement under Article 84(3) of the Directive (EU) 2018/1972 (hereinafter referred to as “the EECC”),¹ which states that:

“BEREC shall, in order to contribute towards a consistent application of this Article, after consulting stakeholders and in close cooperation with the Commission, taking into account available Commission (Eurostat) data, draw up a report on Member States’ best practices to support the defining of adequate broadband internet access service [...]”

2. Upon the transposition of Article 84 of the EECC (“Affordable universal service”), **Member States (MS) shall**, in light of national conditions and the minimum bandwidth enjoyed by the majority of consumers within the territory of that MS, and taking into account the BEREC report on best practices, **define the adequate broadband internet access service** for their territories with a view to ensuring the bandwidth necessary for social and economic participation in society. The adequate broadband internet access service shall be capable of delivering the bandwidth necessary for supporting at least the minimum set of services set out in Annex V of the EECC. It should also be noted that Article 86 of the EECC on the availability of universal service refers to the adequate broadband internet access service, as defined in accordance with Article 84(3) of the EECC.
3. As such, this report examines how MS that have introduced a broadband Universal Service Obligation (“USO”), under the legislative framework provided for in Directive 2002/22/EC (as amended by Directive 2009/136/EC) hereinafter referred to as the ‘current legislative framework’ which includes “*functional internet access*” under universal service, is to be determined by MS “*taking into account prevailing technologies used by the majority of subscribers and technological feasibility.*”² This report offers insight into the practices of nine MS (Belgium, Croatia, Finland, Latvia, Malta, Slovenia, Spain, Sweden and the United Kingdom³) that have to date introduced broadband under a USO. It is worth pointing out that these nine MS did so under the ‘current legislative framework’ and not under the EECC as the measures for the transposition of the EECC will become applicable on 21 December 2020 in MS.
4. The key areas addressed in this best practices report are:
 - the policy principle - Article 84 of the EECC;
 - relevant experience that BEREC can draw on;
 - common principles with respect to bandwidth, evaluation, eligibility designation mechanism, quality of service (QoS), monitoring of compliance and affordability measures, universal service providers (USPs), and the nature of funding across MS that have introduced a broadband USO; and

¹ Directive (EU) 2018/1972 of the European Parliament and of the Council of 11 December 2018 establishing the European Electronic Communications Code.

² Article 4(2) of Directive 2009/136/EC and Directive 2002/22/EC.

³ The United Kingdom left the European Union on 31 January 2020. In accordance with the Agreement on the Withdrawal of the United Kingdom from the EU, the UK is a third country to the EU. During the transition period (until 31 December 2020, subject to extension) EU law continues to apply to the UK. At the time of the data collection and drafting of this best practices report (2019) the UK was a Member State of the EU and its data is included and referred to in this report.

- recommendations for future reports.

This report contains the following Annexes:

- ANNEX 1 – ‘Glossary of terms’ sets out the relevant terms used in Article 84 of the EECC (where provided in EECC, or European Commission, COCOM and BEREC documents), where they are associated with any broadband USO to date;
 - ANNEX 2 – ‘Relevant experience that BEREC may draw on’ sets out the specific documents and data references;
 - ANNEX 3 – Broadband universal service – nine MS;
 - ANNEX 4 – Common principles across MS that have introduced a Broadband USO – additional information and references; and
 - ANNEX 5 – Consultation Questions BoR (19) 260.
5. The report has been drafted in close cooperation with the European Commission, in particular, with regard to the data sources referenced in the report.
 6. In the development of this report, research was conducted on the nine MS which have introduced a broadband USO, in cooperation with the National Regulatory Authorities (NRAs) of these MS. The report outlines a set of common principles which have been identified based on information provided by the NRAs of the nine MS with a broadband USO. No MS has implemented an adequate broadband internet access service USO under the EECC, and accordingly, adequate broadband internet access service best practices are not yet defined. In identifying common principles and detailing how the nine MS⁴ have to date (‘current legislative framework’) introduced a broadband USO, this report aims to contribute towards the consistent application of Article 84 of the EECC by MS in the introduction of adequate broadband internet access service under universal service.
 7. In accordance with Article 84(3) of the EECC, this report will be updated regularly, in order to reflect technological advances and changes in consumer usage patterns. The update should also reflect new MS practices in accordance with the forthcoming implementation of the EECC. Additionally, and as outlined later in this report, there are a number of other BEREC reports and work streams which are related to this report, and future updates may therefore be planned accordingly⁵.
 8. This report, subject to public consultation in December 2019, has been adopted at the BEREC Plenary 2 (June 2020) prior to publication, and taking into account the public feedback.
 9. This report is a best practices report and as such, it does not aim to interpret or provide formal implementation guidance as regards the universal service rules that are included in the EECC. According to Article 84 of the EECC, it is for the MS, taking into account this BEREC report on best practices, to define adequate broadband internet access in light of national conditions and the minimum bandwidth enjoyed by the majority of consumers within a MS territory to ensure an adequate level of social inclusion and participation in the digital economy and society in the MS territory. The adequate broadband internet access should have bandwidth

⁴ Belgium, Croatia, Finland, Latvia, Malta, Slovenia, Spain, Sweden and the United Kingdom

⁵ See Section 5 of this Report

to support at least the minimum set of services defined in Annex V of the EECC, which thus sets a common (minimum) EU level for the universal service internet access.

2. What is the Policy Principle?

10. The policy principle underpinning this report is to contribute towards a consistent application of the provisions contained in Article 84 (paragraphs 1 and 3) of the EECC.

11. Article 84(1),⁶ MS:

“...shall ensure that all consumers in their territories have access at an affordable price, in light of specific national conditions, to an available adequate broadband internet access service and to voice communications services at the quality specified in their territories, including the underlying connection, at a fixed location.”

12. Article 84(3) requires that that by 21 June 2020, BEREC shall:

“...after consulting stakeholders and in close cooperation with the Commission, taking into account available Commission (Eurostat) data, draw up a report on Member States’ best practices to support the defining of adequate broadband internet access service pursuant to the first subparagraph. That report shall be updated regularly to reflect technological advances and changes in consumer usage patterns.”

13. The objective of paragraph 3 of Article 84 of the EECC is therefore to contribute towards consistent application of Article 84 of the EECC by supporting the defining of the “adequate broadband” IAS, defined by each MS in light of its national conditions, for consumers across all MS. Annex V of the EECC sets out the minimum set of services which the adequate broadband USO must, **at least**, be capable of supporting:⁷

- 1) E-mail
- 2) search engines enabling search and finding of all types of information
- 3) basic training and education online tools
- 4) online newspapers or news
- 5) buying or ordering goods or services online
- 6) job searching and job searching tools
- 7) professional networking
- 8) internet banking

⁶ If not further specified, refers to the EECC.

⁷ Annex V of the EECC - Minimum set of services which the adequate broadband internet access service in accordance with Article 84(3) shall be capable of supporting.

- 9) eGovernment service use
 - 10) social media and instant messaging
 - 11) calls and video calls (standard quality)
14. At a MS level, the adequate broadband internet access service will be defined in the first instance [Article 84(3) of the EECC], taking into account the criteria listed and delivering the bandwidth necessary for supporting at least the minimum set of services set out in Annex V of the EECC. It should be noted that Article 86 of the EECC (“Availability of universal service”) refers to the adequate broadband internet access service, as defined in accordance with Article 84(3) of the EECC, therefore consideration of availability under Article 86 of the EECC takes into account the determined adequate broadband of Article 84 of the EECC. Similarly, Article 85 of the EECC on the “Provision of affordable universal service” refers to “*services referred to in Article 84(1),*” which mean the adequate broadband internet access service (and voice communications).
15. Section 5.5 of the BEREC 2019 Work Programme⁸ and section 5.3 of the BEREC 2020 Work Programme⁹ sets out the purpose of this report as gathering and analysing the relevant information, including:
- data available from the European Commission (Eurostat) regarding the availability and quality of broadband internet access service in MS;
 - how to determine the bandwidth necessary for supporting the minimum set of services set out in Annex V of the EECC.

3. Relevant experience that BEREC can draw on

16. The amendment of Directive 2002/22/EC (on universal service and users’ rights relating to electronic communications networks and services) by Directive 2009/136/EC included recitals 4 & 5 that introduced wider flexibility concerning data rates at a national level, which allowed for the inclusion of broadband speeds under USO. Related to this, a number of reports were carried out by European bodies which looked at the inclusion of internet access under USO, examined the future scope of universal service and the possible future inclusion of broadband under USO. These reports and working documents were conducted by various European bodies such as BEREC, the European Commission DG Communications, Networks and Technology (“DG CONNECT”) and the Communications Committee (COCOM).
17. The various directives, reports, and surveys which BEREC and MS can draw upon in relation to the defining of an adequate broadband internet access service are listed in Figure 1 below.

⁸ BoR (18) 240 “BEREC Work Programme 2019” page 30. It was initially proposed in the work programme that the report would also look into criteria that MS might use to deem that an available adequate broadband internet access service, not provided at a fixed location, should be made available at an affordable price in order to ensure consumers’ full social and economic participation in society. BEREC later confirmed that “*the criteria that MS might use to deem that an available adequate broadband IAS, not provided at a fixed location, should be made available at an affordable price in order to ensure consumers’ full social and economic participation in society*” is outside of the scope of the BEREC report on MS’ best practices to support the defining of adequate broadband IAS, and therefore this report will not reflect this element.

⁹ BoR (19) 253 “BEREC 2020 Work Programme,” p.32

They are based on the ‘current legislative framework’ (“*functional internet access*”), but they may inform the definition of the adequate broadband USO by MS according to the EECC wording “*adequate broadband internet access service*.”

Evolution of Universal Service - Functional Internet Access (FIA)	
Directive 2002/22/EC	Article 4 - data communications at data rates that are sufficient to permit functional internet access Recital 8 - data rates sufficient to permit functional internet access (56kbit/s is mentioned to describe the situation at the time)
Directive 2009/136/EC	Article 4 - data communications at data rates that are sufficient to permit functional internet access New Recitals 4 & 5 allow flexibility to introduce data rates sufficient for broadband speeds
Implementation of the revised Universal Service Directive: internet related aspects of Article 4 (COCOM10-31 Final)	Clarification of the revised Universal Service Directive (Directive 2009/136/EC) in relation to internet related aspects of Article 4
Report on the outcome of the public consultation and third periodic review of the scope of Universal Service (COM(2011) 795 Final)	Sets out some reflections on the measures to be taken by MS when implementing the USD <u>Assessment of functional internet access (FIA) could include broadband connections where the data rate in question is used at national level by:</u> <ul style="list-style-type: none"> (i) at least 50% of all households and (ii) at least 80% of all households with a broadband connection <u>Assessment to identify specific social and economic objectives and desired outcomes could include:</u> <ul style="list-style-type: none"> (i) the expected market availability of broadband without public intervention (ii) the social and economic disadvantages incurred by those without access to a broadband connection, including disabled users (iii) the cost of public intervention via USO and comparison of this cost against the use of other approaches (iv) the benefits of public intervention and its effects on competition, market distortions and broader policy objectives

Figure 1: Evolution of Universal Service - Functional Internet Access

Evolution of Universal Service - Functional Internet Access (FIA)	
BEREC update survey on the implementation and application of the universal service provisions – a synthesis of the results, BoR (17) 41	The report synthesises the responses from a total of 31 NRAs, including 4 non-EU members, to a survey conducted on the implementation and application of the universal service provisions.
Report on the fourth periodic review of the scope of universal service SMART 2014/0011	Identified: (i) the essential types of online services to participate in the digital economy and society (used by the majority of consumers; help to address social exclusion) - now reflected in Annex V of new Directive. (ii) methodology (that could be replicated) to assess the characteristics of broadband connections required for effective access to online services that enable inclusion in the digital economy and society.
Directive (EU) 2018/1972 establishing the EECC	Article 84(3) introduced adequate broadband under universal service and required BEREC to draw up this report. This Directive was accompanied by an impact assessment SWD(2016)303. Annex V - defines the minimum set of services which the adequate broadband internet access service in accordance with Article 84(3) shall be capable of supporting.

Figure 2: Evolution of Universal Service - Functional Internet Access (continued)

18. In 2011 the Communications Committee (COCOM) issued a Working Document *“Implementation of the revised Universal Service Directive: internet related aspects of Article 4,”*¹⁰ to clarify Article 4 of the ‘current legislative framework’ in relation to the internet related aspects of Article 4. The aim of that working document was to facilitate the correct transposition of Article 4 and the consistent implementation by MS following the inclusion of the requirement that *“Member States shall ensure that all reasonable requests for connection at a fixed location to a public communications network are met by at least one undertaking”* (Article 4(1)) and *“The connection provided shall be capable of supporting voice, facsimile and data communications at data rates that are sufficient to permit functional Internet access”* (Article 4(2)) within the scope of universal service.
19. In 2016 the European Commission published a study *“Review of the Scope of Universal Service”*¹¹ which examined the future of universal service and specifically looked at the inclusion of broadband under universal service. The Review developed a methodology involving four ‘baskets’ of online services, with the primary basket of services addressing social inclusion and services used by the majority of consumers. The primary basket developed for the purposes of this review is comparable to and closely matches Annex V of EECC.
20. In 2017, BEREC conducted a survey of BEREC members on the implementation and application of the universal service provisions. This was then summarised in a report titled *“The BEREC update survey on the implementation and application of the universal service*

¹⁰ European Commission Information Society and Media Directorate General, Communications Committee Working Document *“Implementation of the revised Universal Service Directive: internet related aspects of Article 4,”* COCOM10-31 Final, Brussels, 10 January 2011.

¹¹ Review of the Scope of Universal Service SMART number: 2014/0011.

<https://publications.europa.eu/en/publication-detail/-/publication/6eee3cb7-9adf-11e6-868c-01aa75ed71a1>

provisions – a synthesis of the results,”¹² which provides an update to the previous 2014¹³ report and presents an overview of the main findings of the survey carried out. The report synthesises the responses from a total of 31 NRAs, including four non-EU members. The report covers issues such as the designation of USPs, assessment of net costs, compensation mechanisms, assessment of unfair burden, assessment of the impact of universal service provisions upon competitive outcomes and measures NRAs have implemented on the affordability aspect of US obligations, such as retail price caps.

21. Databases and reports such as Eurostat and Digital Economy and Society Index (DESI) are currently available online and contain data that could be used to monitor the development in the use of the internet and to identify those online services used by a majority of end-users across the Union which are necessary for social and economic participation in society.
22. The European Commission has selected more than 100 indicators, divided into thematic groups, which illustrate some key dimensions of the European Information Society. These indicators allow a comparison of progress within and across European countries as well as over time.
23. BEREC, in close cooperation with the Commission, is of the view that the European Commission data set out at Figure 3 may prove useful. ANNEX 2 ‘Relevant experience that BEREC may draw on’ sets out the specific data references. This data may be supplemented by MS specific data.
24. In relation to the DESI data, MS should consider the “*use of the internet*” which is based on Eurostat data; “*digital public services*” (which is based on a separate report entitled “*e-Government and benchmarking, Digital Single Market*”);¹⁴ the telecoms chapter of the DESI report (which specifically references USO) where relevant; and any MS specific policy insights and/or national data.

¹² “*BEREC update survey on the implementation and application of the universal service provisions – a synthesis of the results*”, BoR (17) 41.

¹³ “*EC questionnaire on the implementation and application of the universal service provisions – a synthesis of the results*”, BoR (14) 95.

¹⁴ eGovernment benchmark 2018 Securing eGovernment for all” <https://ec.europa.eu/digital-single-market/en/news/egovernment-benchmark-2018-digital-efforts-european-countries-are-visibly-paying> “.

PROPOSED EUROPEAN COMMISSION DATA	
Digital Economy and Society Index (DESI) Data	The DESI is a composite index that summarises relevant indicators on EU MS' digital performance and tracks the progress in digital competitiveness. The five dimensions of the DESI are connectivity, human capital, use of the internet, integration of digital technology and digital public services (separate report e-Government and benchmarking, Digital Single Market).
At risk of poverty and social exclusion	People at risk of poverty or social exclusion by most frequent activity status (population aged 18 and over) Reasons for not having internet access at home - % of households with at least one member aged 16 to 74 and without internet access at home
Digital inclusion	Individuals Internet use E-commerce sales Internet purchases by individuals Consumers' behaviour related to online purchases Internet activities E-government activities of individuals via websites e-banking and e-commerce Financial activities over the internet Participation in social networking
Broadband connection	Household - type of connections to the internet ICT usage in enterprises - Internet access
European broadband mapping	European Broadband Mapping European broadband mapping (SMART2014/0016 and SMART2012/0022); Geographic surveys: QoS-1: Calculated availability of Service, network performance of existing infrastructure Geographic surveys: QoS-2: Measured provision of Service, excluding end user's environment. Geographic surveys: QoS-3: Measured experience of Service, including end user's environment.

Figure 3: Proposed European Commission Data (see ANNEX 2 for hyperlinks to data sources)

25. Article 122(2) of the EEC provides that,

“By 21 December 2025, and every five years thereafter, the Commission shall review the scope of universal service, in particular with a view to proposing to the European Parliament and to the Council that the scope be changed or redefined. That review shall be undertaken in light of social, economic and technological developments [...]”

26. Additionally, Article 116 of the EEC states that,

“The Commission is empowered to adopt delegated acts in accordance with Article 117 amending Annexes V, VI, IX, X and XI in order to take account of technological and social developments or changes in market demand.”

27. Recital 215 of the EEC also refers to the Commission for monitoring and updating the list of online services used by the majority of end-users across the Union and which are necessary for social and economic participation in society:

“The affordable adequate broadband internet access service should have sufficient bandwidth to support access to and use of at least a minimum set of basic services that reflect the services used by the majority of end-users. To that end, the Commission will monitor the development in the use of the internet to identify those online services

used by a majority of end-users across the Union and necessary for social and economic participation in society and update the list accordingly."

4. Common Principles across MS that have introduced a Broadband USO under the legislative framework provided for in Directive 2002/22/EC (amended by Directive 2009/136/EC)

28. A set of common principles has been identified based on information provided by the NRAs of the nine MS with a broadband USO under the 'current legislative framework'. These common principles may contribute to the consistent application of Article 84 of the EECC. These are now summarised, based on a benchmarking exercise undertaken of the nine MS who have already implemented a broadband USO.
29. Under the 'current legislative framework', common principles in defining the broadband internet access were identified in the nine MS with respect to the following aspects:
 - Definition of bandwidth;
 - Evaluation criteria;
 - Eligibility criteria;
 - Designation – procedures and scope;
 - Quality of Service;
 - Monitoring;
 - Affordability Measures; and
 - Funding.

Definition of bandwidth

30. A broadband USO was introduced in nine MS between 2010 and 2018 (either by the relevant Ministry or the NRA).
31. There is some variability in the current definition of minimum bandwidth amongst the MS analysed: three MS selected a minimum download speed of 1 Mbit/s, one MS selected 2 Mbit/s, two MS selected 4 Mbit/s and two MS selected 10 Mbit/s. Latvia is the only MS that has not introduced a minimum bandwidth broadband USO and it has limited the scope of the broadband USO to disabled end-users and associated affordability measures only.
32. Some MS have set a minimum upload speed (Slovenia, United Kingdom) but the majority of MS have not.

33. Figure 4 below shows the year in which a broadband USO was first introduced in the 9 MS and the speed at the time of introduction.

	Broadband USO - first introduced	Broadband USO speed - at time of introduction
BELGIUM	BIPT Proposal 13 January 2014 Royal Decree 2 April 2014	1 Mbit/s
CROATIA	December 2012	144 Kbit/s (download) early 2013
FINLAND	Ministry - In 2008 the Communications Market Act to be amended by 2010 (at the latest) to include a broadband USO	At least 1 Mbit/s 2010
LATVIA	December 2010	unknown
MALTA	2011	At least 4 Mbit/s
SLOVENIA	2018	4 Mbit/s download and 512 kbit/s upload
SPAIN	May 2011 - implementation by January 2012	1 Mbit/s download
SWEDEN	Ministry February 2011	1 Mbit/s - 2011
UNITED KINGDOM	2018 - implementation by 2020	(i) Download sync speed of 10Mbit/s (ii) Upload sync speed of 1Mbit/s (iii) A contention ratio of no higher than 50:1 (iv) A latency which is capable of allowing the end-user to make and receive voice calls over the connection (v) The capability to allow data usage of at least 100 GB per month

Figure 4: Broadband USO – first introduced

34. Figure 5 below summaries the current speeds and the most recent year in which these speeds came or will come into effect.

	CURRENT USO INTRODUCED	DOWNLOAD SPEED (min) - at introduction	CURRENT USO DESIGNATION PERIOD	CURRENT DOWNLOAD SPEED (min)	CURRENT UPLOAD SPEED (October 2019)
BELGIUM	2014	1Mbit/s	N/A Market is commercially providing it	1Mbit/s	not specified
CROATIA	2015	1Mbit/s	2015-2019	1Mbit/s	not specified
FINLAND	2015	2Mbit/s	2015 - not defined	2Mbit/s	not specified
LATVIA	2010		not defined	not specified	not specified
MALTA	2011	4Mbit/s	2015-2019	4Mbit/s	not specified
SLOVENIA	2018	4Mbit/s	2019-2024	4Mbit/s	512kbit/s
SPAIN	2012	1Mbit/s	2020-2022	1Mbit/s	not specified
SWEDEN	2018	10Mbit/s	Yet to be decided	10Mbit/s	not specified
UNITED KINGDOM	2018	10Mbit/s	2020 - not defined	10Mbit/s	1 Mbit/s

Figure 5: Current Broadband USO and or USP and designation period

Evaluation criteria

35. In setting a broadband USO data rate, four countries (Belgium, Croatia, Malta and Slovenia) have, amongst other criteria, based their assessment where the data rate in question is used at national level by:

- i) at least 50% of all households; and
 - ii) at least 80% of all households with a broadband connection.
36. These criteria were guided by the practical application of Article 4 of the 'current legislative framework' ("*majority of subscribers*") and further outlined in a Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions (COM (2011) 795)¹⁵ and in the COCOM working document of 2011.¹⁶
37. Belgium and Slovenia have also considered other criteria,¹⁷ such as preventing significant market distortions and/or significant implementation costs, in determining the broadband USO. For instance, in Belgium, the application of the above-mentioned criteria i) and ii) resulted in a maximum speed of 8.5 Mbit/s. However, BIPT (the Belgian NRA)¹⁸ was of the opinion that a nominal bit rate for functional internet access of 1 Mbit/s should be included. During its analysis, BIPT took into account, amongst other elements, the fact that setting a minimal speed that was higher than 1 Mbit/s might entail high costs.¹⁹
38. Below are the other criteria considered by MS, shown in order of prevalence:²⁰
- i) **expected availability of broadband without public intervention** (Belgium, Croatia, Finland, Malta, Slovenia, Sweden, the United Kingdom);
 - ii) **estimation of the cost of implementing a broadband USO** (Belgium, Croatia, Malta, Slovenia, Sweden, the United Kingdom);
 - iii) **geographic survey** (Belgium, Croatia, Finland, Slovenia, Sweden);
 - iv) **market distortion**²¹ (Belgium, Croatia, Slovenia, Sweden, the United Kingdom);
 - v) **estimation of the potential demand for a broadband USO** (Croatia, Slovenia, Sweden, the United Kingdom);
 - vi) **comparison with other EU countries** (Belgium, Croatia, Slovenia, the United Kingdom);

¹⁵ "Universal service in e-communications: report on the outcome of the public consultation and the third periodic review of the scope in accordance with Article 15 of Directive 2002/22/EC"; COM(2011)795; <https://ec.europa.eu/transparency/regdoc/?fuseaction=list&coteld=1&year=2011&number=795&language=en>:

The document outlines a set of criteria that MS could be asked to consider when making their decision.

¹⁶ COCOM Working Document "Implementation of the revised Universal Service Directive: Internet-related aspects of Article 4"(COCOM10-31 FINAL)

¹⁷ See ANNEX 3.

¹⁸ The NRAs of the nine MS with a broadband USO are: BIPT (Belgium); HAKOM (Croatia); TRAFICOM (Finland); SPRK (Latvia); MCA (Malta); AKOS (Slovenia); CNMC (Spain); PTS (Sweden); Ofcom (United Kingdom).

¹⁹ However the main element of BIPT's analysis was the fact that setting a speed of 1 Mbit/s makes a large set of services possible (surfing the internet, e-mailing, social networks, e-commerce, e-government, looking for a job on the internet, etc.) and does not pose a risk of social exclusion.

²⁰ No information available in relation to the evaluation criteria employed by Spain. See ANNEX 3 for further clarification.

²¹ The costs of extending the broadband USO speed up to a higher speed (possibly enjoyed by a greater number of the households with a broadband connection) would significantly alter market conditions.

- vii) **benefits of public intervention and effects on competition** (Belgium, Sweden, the United Kingdom);
- viii) **timeframe to make available broadband under USO** (Croatia, Slovenia, the United Kingdom);
- ix) **social and economic disadvantages incurred by those without access to a broadband connection, including disabled end-users** (Belgium, Croatia); and an
- x) **estimation of the costs of intervention through USO versus other approaches** (Belgium).

39. These criteria reflect many of the criteria outlined in the Communication from the Commission 2011 and the COCOM working document of 2011 to help MS to identify specific social and economic objectives and desired outcomes (see Figure 6, which outlines the evaluation criteria used by the MS which have introduced a broadband USO).

EVALUATION CRITERIA	BELGIUM	CROATIA	FINLAND	LATVIA	MALTA	SLOVENIA	SPAIN	SWEDEN	UNITED KINGDOM	TOTAL
Expected availability of broadband without public intervention	x	x	x		x	x		x	x	7
Estimation of the costs of implementing a broadband USO	x	x			x	x		x	x	6
Geographic survey	x	x	x			x		x		5
Market distortion	x	x				x		x	x	5
Estimation of the potential demand for a broadband universal service in terms of both data transmission rates and number of people reliant on the USO		x				x		x	x	4
National broadband take-up rate is a minimum of 50% of households	x	x		Evaluation criteria unknown	x	x	Evaluation criteria unknown			4
Speed is equal or above the data rate used by 80% of the households with a broadband connection	x	x			x	x				4
Comparison with other EU countries	x	x				x			x	4
Social and economic disadvantages for those excluded, including disabled end-users	x	x			x				x	4
Timeframe to make available broadband in USO		x			x	x			x	4
Benefits of public intervention and effect on competition	x							x	x	3
Estimation of the costs of intervention through US versus other approaches	x									1

Figure 6: Evaluation criteria - 9 MS

Eligibility

- 40. Only one MS (Latvia) has limited the scope of the broadband USO to disabled end-users and associated affordability measures.
- 41. In general, MS do not place restrictions on qualifying end-users. Some MS have specific eligibility criteria for the broadband USO. In Malta, the USP will only satisfy requests where market failure occurs (i.e. where no service provider is willing to provide functional internet access to the end-user requesting the service). Similarly, in Slovenia the broadband USO only

becomes relevant where no broadband service is available at a reasonable price. In Sweden, it is possible for an end-user to apply to the Swedish NRA, PTS, for support to obtain a broadband connection where no internet access is offered by the market at a permanent residence or a workplace, and where the cost of such a connection exceeds 5,000 SEK (€468).²²

42. The United Kingdom's legislation specifies the eligibility criteria (e.g. a cost threshold of £3,400 (€3,700)²³ taking into account the extent to which costs can be shared with other locations) that have to be met by homes and businesses in order to request the USO service. The USO is available to end-users who have (1) no access to existing, decent, affordable broadband, (2) will not be covered by a public scheme in the next 12 months, and (3) people who only have access to a service priced over £45 per month will also have the right to request a USO connection.
43. In most MS the broadband USO applies to residential premises (Belgium, Croatia, Finland, Latvia and Slovenia). However, in some MS (Belgium, Croatia Latvia and Slovenia) the broadband USO applies only to primary residential premises. In Finland and Sweden it applies to primary residential and permanent business premises. In the United Kingdom it applies to residential and small business premises with a capped cost per premises (where eligibility criteria apply). In Malta and Spain there are no restrictions and the broadband USO is available upon request to all types of premises. In Spain the request must be considered reasonable.²⁴ In seven MS (Belgium, Croatia, Finland, Latvia, Malta, Slovenia and Spain) there is no capped cost per premises.

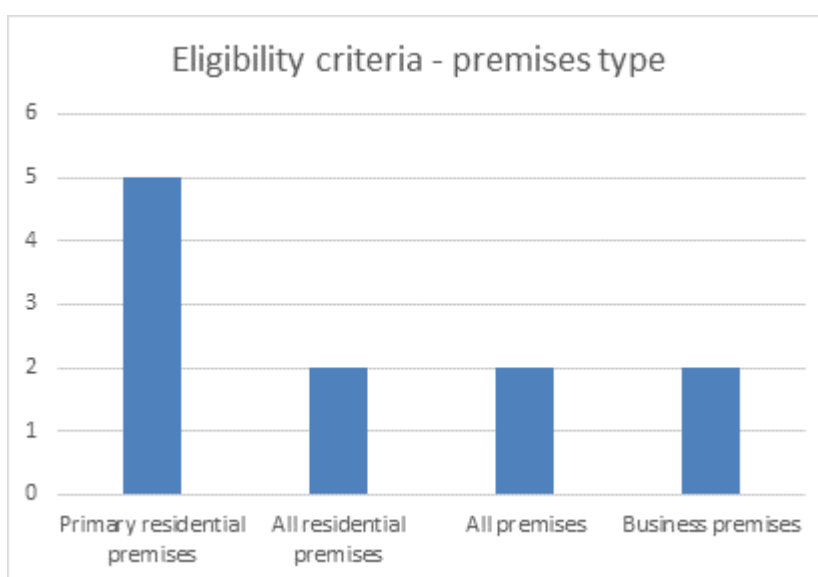


Figure 7: Broadband USO – Eligibility criteria – premises type

²² 5,000 SEK = 468 Euro (exchange rate 1 EUR = 10.6743 SEK on 13.08.2019).

²³ £3,400 = €3,700 (exchange rate 1 EUR = £0.92 on 15.08.19).

²⁴ In Spain, Article 29.2 of Royal Decree 424/2005 states that requests for connection to the network in the frame of the Universal Service are always to be considered reasonable if the connection is made for premises located on urban land and for premises that, despite not being located on urban land, are used as the primary residence by the requester.

ELIGIBILITY	
BELGIUM	Primary residential premises No cap on the cost per premises
CROATIA	All residential premises No cap on the cost per premises
FINLAND	Primary residential and permanent business premises No cap on the cost per premises
LATVIA	Primary residential premises Disabled end users only Obligation relates to affordability measure only
MALTA	All end-users and all premises, only when market failure occurs (i.e. where no other service provider is willing to provide functional internet access to the end-user requesting the service) No cap on the cost per premises
SLOVENIA	Primary residential premise No cap on the cost per premises Available in areas where no other broadband service is available at a reasonable price
SPAIN	Available to all (no restrictions) No cap on the cost per premises
SWEDEN	Primary residential and permanent business premises When an end-user notifies PTS of their inability to secure a broadband connection and meets certain requirements (where the cost of connection exceeds 5,000 SEK (€468)), PTS will secure an appropriate solution (not exceeding 400,000 SEK (€37,164)) which provides the end-user with functional internet access (specified in a Governmental regulation at a minimum speed of 10 Mbit/s). Where there is an indication of a lack of fixed infrastructure coverage, PTS investigates the availability of internet subscriptions via wireless infrastructure at these locations.
UNITED KINGDOM	Residential and small business premises with a capped cost per premises Eligibility criteria apply (i) Cost threshold of £3,400 GBP (3,700 euros: 1 eur =0.92 GBP 15/8/19) (ii)Homes and small business who: (a) have no access to existing decent, affordable broadband; (b) will not be covered by a public scheme in the next 12 months; (c) will not cost more than £3,400 (3,700 euros: 1 eur = 0.92 GBP 15/8/19) to connect. Where the cost is more than £3,400, people will have the choice to pay the excess costs of installing a USO connection or use an alternative technology, such as satellite, outside the USO scheme and (d) people who only have access to a service priced over £45 per month will also have the right to request a USO connection.

Figure 8: Broadband USO eligibility criteria employed

Designation - procedures and scope

44. Two MS have not designated a broadband USP (Belgium and Sweden). No USP was designated in Belgium because the 1 Mbit/s connection is already provided by the market. In the case of complaints regarding the absence of 1 Mbit/s connection at the primary residential premises, the Belgian NRA, BIPT, will evaluate whether it is necessary to designate a USP. At the moment, BIPT has only received complaints regarding high speed internet and digital TV, which are outside of the scope of the USO. In Sweden, when an end-user notifies PTS of their inability to secure a broadband connection and meets certain requirements, PTS will secure an appropriate solution by means of public procurement which provides the end-user with functional internet access.
45. In five MS (Croatia, Latvia, Malta,²⁵ Slovenia and Spain), USPs have been designated to provide a broadband USO at national level. In two MS (Finland and United Kingdom) the USPs were designated on a regional basis. There are two USPs in the United Kingdom and three in Finland.
46. In the United Kingdom, operators were asked to define the area²⁶ in which they sought to serve as the USP, as opposed to the United Kingdom's NRA, Ofcom, defining the regional areas itself. There was, however, a stipulation that the smallest area that could be designated was at a 'local authority' level which should have at least 5,000 USO eligible premises within it.
47. Of those MS that have a broadband USO, three used a public tender mechanism (Croatia, Slovenia and Spain). However, in all these MS the process ended unsuccessfully. Following these unsuccessful public tender mechanisms, an operator was then designated as the USP either by the Government (Spain) or by the NRA (Croatia and Slovenia).
48. In two MS (Malta and the United Kingdom) the procedure for choosing the USP(s) was a public call for expressions of interest. In Malta, where no expressions of interest were received from undertakings, the USP was re-designated. In the United Kingdom two operators were designated.²⁷
49. Figure 9 below provides an overview of the operators that were designated in each MS for the provision of the broadband USO, along with the duration and the geographic scope.

²⁵ In Malta a broadband USO refers to a connection capable of supporting functional internet access at a specified minimum broadband data rate.

²⁶ See ANNEX 3 for further details.

²⁷ In the United Kingdom 8 providers expressed an interest in being a USP.

MEMBER STATE	PROCEDURE	PROVIDER	GEOGRAPHIC SCOPE	PERIOD
BELGIUM	N/A market already providing the service			
CROATIA	Public tender (no applications)	HT d.d	National	4 years – end at November 2019
FINLAND	NA/Indeterminate	Telia	Regional	NA/Indeterminate
		Elisa		
		DNA		
LATVIA	NA/Indeterminate	Lattelecom (tet).	National	NA/Indeterminate
MALTA	Call for expressions of interest	GO Plc	National	4 years
SLOVENIA	Public tender (no applications)	Telekom Slovenija	National	5 years
SPAIN	Public tender (no valid applications)	Telefonica	National	2020-2022
SWEDEN	Public procurement	Yet to be decided		
UK	Call for expressions of interest	BT	Regional	Indefinitely
		KCOM		
N/A/ indeterminate - no information available				

Figure 9: Summary of procedures, USPs designated, geographic scope and duration

Quality of Service

50. Five out of the nine MS (Belgium, Finland, Slovenia, Spain and the United Kingdom) have introduced broadband quality of service (QoS) measures specifically related to a USO.
51. In Belgium, the USP must guarantee a download speed of at least 1 Mbit/s every day of the year, at all hours of the day, except during a maximum period of one hour a day.
52. In Finland, the USP must be able to verify that the services provided meet special requirements concerning service quality on the minimum rate of a functional internet access.
53. In 2018 the Slovenian NRA, AKOS, introduced regulations specifying the quality of service parameters for functional internet access under the USO.
54. In the United Kingdom, there is an obligation that broadband USPs must offer the same QoS to universal service customers as they provide to customers connected on a commercial basis.
55. In Spain, the following aggregated QoS parameters apply: *i)* delivery time for the initial connection less than 60 days for 99% of orders; *ii)* fault ratio per line less than 4% per quarter; *iii)* fault repair time less than 48 hours for 95% of cases; *iv)* billing claims rate less than 5 per thousand per quarter; *v)* download speed in any 24 hour period is not less than 1 Mbit/s; *vi)* outage time: less than 24 hours per month. Furthermore, all service providers must comply with the following QoS parameters for each subscriber: *i)* minimum connection time in less than 60 days; *ii)* minimum download connection speed not less than 1 Mbit/s in a 24 hour time period; *iii)* service breakdown/interruption time of less than 24 hours per month.

QUALITY OF SERVICE	
BELGIUM	Download speed of at least 1 Mbit/s (every day of the year, all hours of the day; except during a maximum period of one hour a day)
FINLAND	QoS targets Minimum speed of 1.5 Mbit/s during 24 hour period; and Minimum speed of 1 Mbit/s during 4 hour period.
SLOVENIA	USO QoS parameters - not specified numerically (i) delivery time for the initial connection less than 30 days for 100 % offers (ii) Generally available rate of data transmission (iii) Minimum data rate (iv) Latency (round trip delay) (v) Data transmission packet loss (vi) Minimum monthly end-user data quantity Aforementioned must be at least equal to those provided by operators of similar services commercially under normal market conditions
SPAIN	<u>USO QoS parameters (aggregate level)</u> (i) Delivery time for the initial connection : less than 60 days for 99% of orders (ii) Fault ratio per line : less and 4% per quarter (iii) Fault repair time: less than 48 hours for 95% of cases (iv) Billing claims rate: less than 5% per thousand per quarter (v) Where the USP providing the connection offers a data transmission service including internet access, the bitrate achieved must be equal to or above 1 Mbps in 95% of cases (taking into account the specific access technology used) <u>USO QoS parameters (end-user level)</u> (i) minimum connection time in less than 60 days (ii) minimum download connection speed in any 24 hour period of not less than 1Mbit/s (iii) interruption and or breakdown of service of less than 24 hours per month
UK	USO QoS parameters Designated USPs will offer the same quality of service to customers connected on a commercial basis to those customers connected via the USO

Figure 10: Quality of service

Monitoring

56. Belgium stated that broadband USO compliance is monitored exclusively on a constant basis, and two MS monitor compliance based on occurring complaints (Croatia and Latvia).
57. Finland, Slovenia, Spain, Sweden and the United Kingdom adopt a mixed approach. In Finland, TRAFICOM may launch assessment procedures and take supervisory measures based on customer complaints or on its own initiative. The mechanism has not yet been activated in the United Kingdom.²⁸ In Slovenia, the designated operator has an obligation to provide a yearly report with the possibility, in case of end-user complaints, for AKOS to introduce *ad hoc* monitoring or additional monitoring, if deemed necessary. In Malta, the designated operator is required to report on a quarterly basis the performance of its USO broadband connection and provide details of locations not capable of supporting the minimum connection data rate and the work programme in place to reach the minimum data rate, if applicable.
58. In Spain, the Secretary of State for the Digital Advancement of the Ministry of Economy and Enterprise, oversees the compliance of the broadband USO through the reporting obligation of the USP and through on-site inspections of the Provincial Headquarters for

²⁸ Broadband USO is available in the United Kingdom from 01/02/2020.

Telecommunication Inspections. The Annual Plan for the Inspection of Telecommunications details the activity of these units.²⁹ In Sweden, PTS monitors compliance with USP's obligations and the ability of end-users to obtain service. In the United Kingdom, Ofcom will monitor broadband USO compliance through performance reporting and record keeping requirements imposed on the USPs and have indicated that it will use formal information gathering powers to monitor USPs performance against its obligations if they identify any areas of concern.

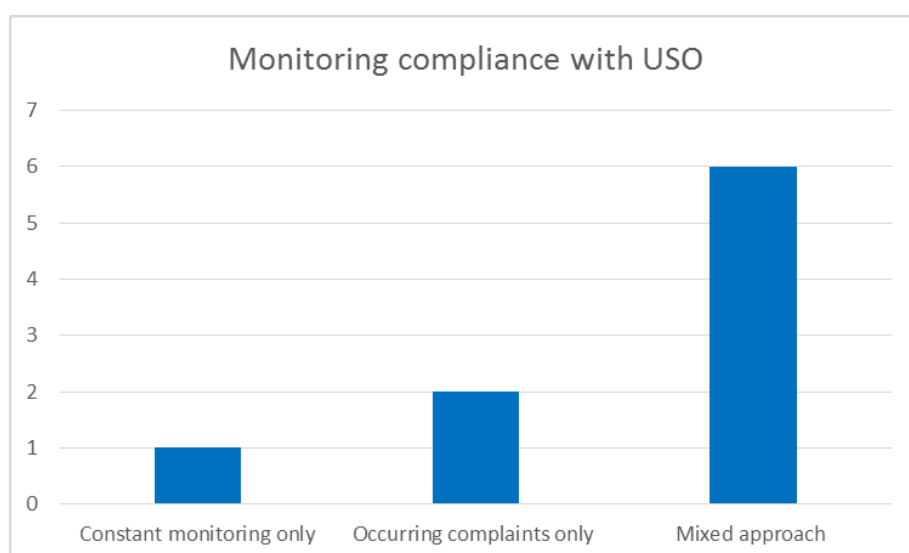


Figure 11: Monitoring compliance with broadband USO

²⁹ Available in Spanish at: <https://avancedigital.gob.es/inspeccion-telecomunicaciones/Paginas/PAIT.aspx>

MONITORING	
BELGIUM	Constant monitoring via: Availability - coverage map Quality - service barometer Affordability - tariff comparisons
CROATIA	Number of complaints received by HAKOM (NRA)
FINLAND	Constant monitoring: Compliance with USP's obligations Availability
LATVIA	Number of complaints received by SPRK (NRA)
MALTA	Constant monitoring: Compliance with USP's obligations USP Quarterly report: (i) total number of USP broadband connections (ii) percentage of total broadband connections capable of achieving the minimum speed (iii) Total number of new broadband connections installed during the period (iv) Total number of new broadband connections installed during the period capable of achieving less than the minimum speed (v) Number of new broadband connection capability related complaints during the period (vi) Total number of broadband access connection related complaints during the period (vii) Total number of broadband connections not capable of supporting the defined minimum speed
SLOVENIA	Compliance with USP's obligations USP reporting: (i) total number of USP requests for broadband connections (ii) total number of USP requests for broadband connections rejected by the USP and the associated rationale (iii) total number of USP requests for broadband connection complaints received by the USP (iv) total number of USP requests for broadband connections rejected by the USP and the measures taken by the USP

Figure 12: Monitoring - 9 MS

MONITORING	
SPAIN	<p>USP reporting on each of the QoS parameters</p> <p>Data is provided to the Secretary of State for the Digital Advancement within 45 calendar days of the end of each quarter</p> <p>The Ministry also conducts on-site inspections through the provincial headquarters for telecommunication inspections</p>
SWEDEN	NRA monitors compliance with USP's obligations
UNITED KINGDOM	<p>Compliance with USP's obligations</p> <p>(i) Continuous evaluation</p> <p>(ii) Number of complaints occurring:</p> <ul style="list-style-type: none"> a) relevant to a consumer's request for a USO connection and confirming the outcome of the request (e.g. number of USO requests in each month, number of accepted and rejected requests and number of orders where a customer agrees to pay costs in excess of £3,400) ; b) that connection supply times are being met, along with fault rates and repair times; and c) on performance in relation to complaints handling and dispute resolution. <p>In addition to this there is an annual reporting requirement by the USPs to Ofcom to demonstrate compliance with specific timeframes within the obligations in respect of eligibility checking and delivery timeframes</p>

Figure 13: Monitoring - 9 MS (continued)

Affordability Measures

59. Six MS have introduced broadband USO affordability measures (Belgium, Croatia, Finland, Latvia, Slovenia, and the United Kingdom). In Spain, affordability measures apply to universal service in general and therefore include measures on broadband affordability. In four MS, the affordability schemes apply to disabled end-users including hearing and/or visually impaired, or the visually impaired and persons with a low income (Belgium, Croatia, Slovenia, and Spain). In Spain, the social allowance for end-users with a low income only applies for the elderly and retired people. In Latvia, the affordability measures for broadband apply only to disabled end-users. In the United Kingdom, consumers who do not have access to a service below £45 GBP (€ 48.58)³⁰ can apply for universal service. The Swedish regulation does not specify affordability measures for the broadband service. However, it sets a maximum cost of 5,000 SEK (€468)³¹ for any home or business to obtain internet access that would be adequate for social inclusion.
60. In Finland, TRAFICOM can issue an opinion of non-compliance if end-users complain about the price of the USO. In Malta, no affordability mechanisms were identified for the broadband service, but the USP is required to provide special tariff options or packages to persons with

³⁰ £45 = €48.58 in value (1 EUR = 0.926294 GBP on 13.08.2019).

³¹ 5,000 SEK = €486 in value (1 EUR = 10.6743 SEK on 13.08.2019).

a low income or special social needs in the case of *i)* fixed line rental and *ii)* allowing access to emergency services (Telecare type of service). Broadband is being considered for inclusion as part of the social benefits in the next USO review in Finland.

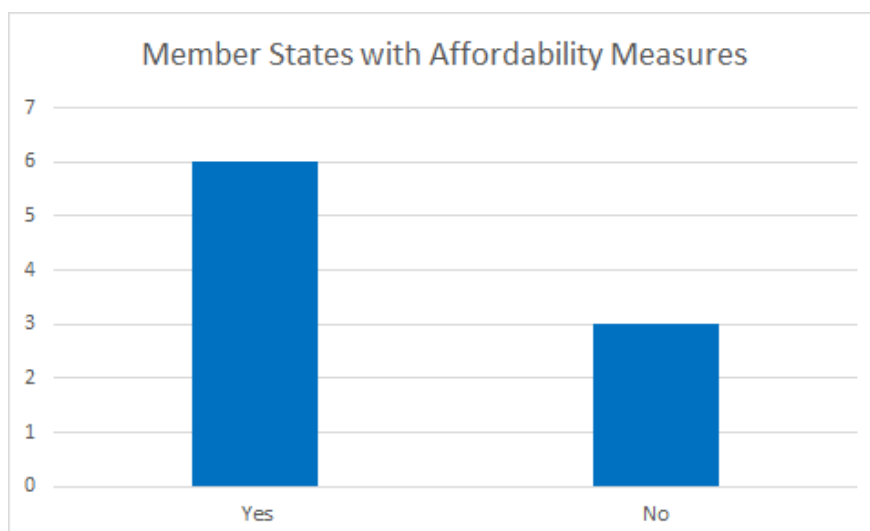


Figure 14: Affordability measures

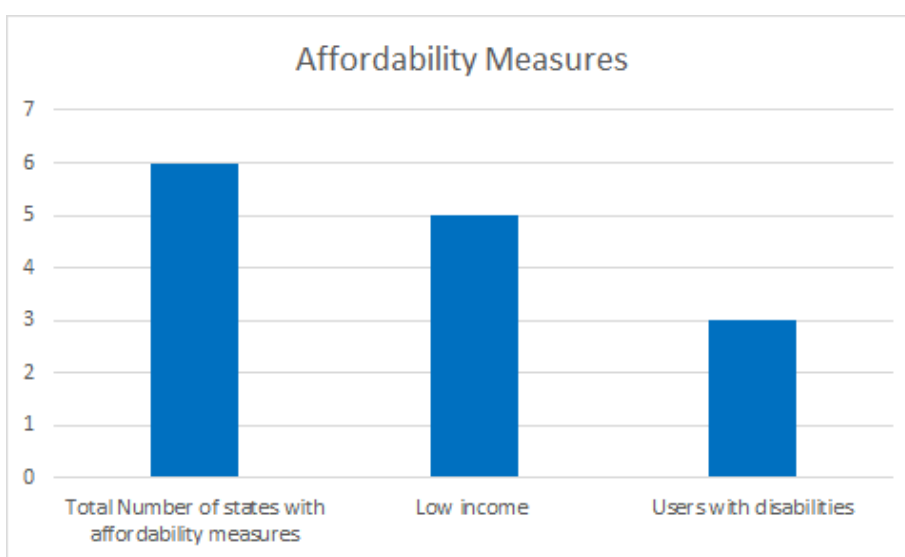


Figure 15: Types of affordability measures and beneficiaries

AFFORDABILITY MEASURES	
BELGIUM	Elderly people, disabled and or low income end-users are already eligible for social tariffs Operators with turnover over €50 Million legally obliged to offer social tariffs Geographically average pricing (GAP)
CROATIA	From 01/01/2020 the USP will be required to provide reduced tariff options to person with low income or special needs
FINLAND	Affordability - relative population income level and general tariffs Defined criteria to assess affordability
LATVIA	Disabled end-users 100% discount on fee connection for broadband internet access services €12.21 per month from a monthly subscription fee for broadband internet services Rental
MALTA	Broadband USO obligation is confined to availability of a connection only
SLOVENIA	Separately USP is required to provide reduced tariff options to persons with low income or special social needs For disabled end-users only (i) equipment at the cost price (ii) 50% discount on connection fees (iii) 50% discount on recurring rental fees For disabled end-users and low income end-users: Separately NRA has the capability to intervene where price of USO rises by more than 5% of CPI, where the increase in income level is below this level/threshold
SPAIN	For connections - three different price plans (i) social allowance: retirees and pensioners whose income is below the public indicator of multiple effect income (i.e. IPREM) 70% discount on connection fees 95% discount on recurring rental fees (ii) Price plan for visually impaired (10 free calls per month to DQ; free bills and advertising in Braille or larger font- Note that price plans (i) and (ii) are cumulative) (iii) Price plan for hearing impaired: calls to text phones rated in seconds (call set up fee is optional)
SWEDEN	N/A
UK	Affordability threshold (i) consumers who do not have access to service at a price below £45 (€48.58) can apply for the USO (1 eur = 0.92 GBP on 13/08/19) BT has provided Ofcom with a pricing commitment where they are the only provider. To ensure the affordability of the USO, USPs must offer uniform pricing so customers in USO areas pay no more than customers in other areas for an equivalent service. BT has also committed to offering at least one broadband connection and service that meets the USO specification at no more than £45 per month.

Figure 16: Affordability measures - 9 MS

Funding

In three MS, the cost of broadband USO is currently funded through industry (Slovenia, Spain, and United Kingdom). A public funding mechanism is in place in three MS (Finland, Latvia, and Sweden). Belgium has not designed a USP and in Croatia no fund has yet been established. In Malta, the USP is compensated from public funds; however, to date no funding applications for the broadband USO have not yet been received by MCA.

61. The funding mechanism to support the broadband USO has only been activated in Spain and Latvia. The Latvian USP has previously received public funds to finance the affordable universal service for disabled end-users.

62. In Spain, service providers with a gross annual operating income of more than €100 million must contribute to an industry fund. In Croatia providers with a share of more than 2% of the retail market are obliged to make contributions to the fund. In Croatia, the reimbursement of the net costs may not be required by the USP if its share in the total revenue generated in the market of USO services is more than 70%. Since the incumbent's share exceeds 70% such a fund has not yet been established.
63. In Finland, the USP is compensated by state funds if the financial burden is found to be unfair. However, compensation has not been requested to date by the USP.

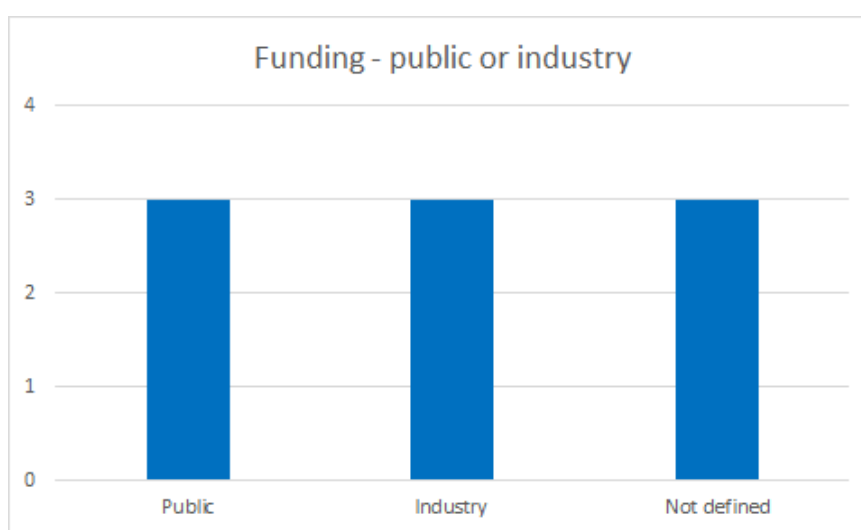


Figure 17: Funding - public or industry

5. Recommendations for future best practices reports

64. Work is currently underway in a number of other BEREC Working Groups which may be relevant in the future to the delivery of a revised adequate broadband report on best practices, these include:
- Work Programme 2020³² Ref 1.6 Carry-over work on Guidelines for geographical surveys of network;
 - Work Programme 2020 Ref 4.3 BEREC Net Neutrality measurement tool; *and*
 - Work Programme 2020 Ref 5.2 Carry-over work on Guidelines detailing quality of service parameters.
65. Figures 18 & 19 provide an overview of these work streams, deliverables and the linkages with the report on best practices. This BEREC work and associated outputs may need to be

³² BEREC Work Programme 2020:
https://berec.europa.eu/eng/document_register/subject_matter/berec/annual_work_programmes/8918-berec-2020-work-programme

taken into consideration in the next iteration of this report in order to ensure a consistent approach to the definition and application of BEREC Guidelines and at BEREC level.

66. In accordance with Article 84(3) of the EEC, this report will be updated regularly in order to reflect technological advances and changes in consumer usage patterns. The update should also reflect new MS practices in accordance with the forthcoming implementation of the EEC. Additionally, as already outlined in this section, there are a number of other BEREC reports and work streams which are related to this report, and future updates may therefore be planned accordingly..
67. Future reports may incorporate a wider range of topics following the transposition of the EEC and following the defining of adequate broadband IAS by MS. Future reports may therefore draw from and include a wider range of examples and practices.

BEREC WORKSTREAM	SCOPE AND TIMELINES	LINKAGE WITH ADEQUATE BROADBAND IAS BEST PRACTICE REPORT																					
1. 6 Carry-over work on BEREC Guidelines on Geographical Survey of network deployments	<table><tr><td rowspan="2">QoS-1: Calculated availability of service</td><td>What</td><td colspan="2">Theoretical network performance of existing infrastructure (coverage, no pure infrastructure data)</td></tr><tr><td>How</td><td>Wired Assessment / calculation / marketed speeds by provider / geodata-based simulation models / prediction tools</td><td>Wireless Assessment / calculation via geodata-based simulation models / prediction tools / radio field planning</td></tr><tr><td rowspan="2">QoS-2: Measured provision of service</td><td>What</td><td colspan="2">Provision of service measured at the Customer Premises Equipment (CPE), e.g. routers, mobile devices <u>excluding</u> end user's environment</td></tr><tr><td>How</td><td>Wired Measurement through panel probes</td><td>Wireless Measurement through drive tests or speed tests</td></tr><tr><td rowspan="2">QoS-3: Measured experience of service</td><td>What</td><td colspan="2">Actual user's experience when using Internet Access Service (IAS) tests <u>including</u> end user's environment</td></tr><tr><td>How</td><td>Wired Measurement via online speed</td><td>Wireless Measurement via online speed tests</td></tr></table>	QoS-1: Calculated availability of service	What	Theoretical network performance of existing infrastructure (coverage, no pure infrastructure data)		How	Wired Assessment / calculation / marketed speeds by provider / geodata-based simulation models / prediction tools	Wireless Assessment / calculation via geodata-based simulation models / prediction tools / radio field planning	QoS-2: Measured provision of service	What	Provision of service measured at the Customer Premises Equipment (CPE), e.g. routers, mobile devices <u>excluding</u> end user's environment		How	Wired Measurement through panel probes	Wireless Measurement through drive tests or speed tests	QoS-3: Measured experience of service	What	Actual user's experience when using Internet Access Service (IAS) tests <u>including</u> end user's environment		How	Wired Measurement via online speed	Wireless Measurement via online speed tests	<p>Article 22(5) - for verifying the availability of services falling within the universal service obligations</p> <p>Article 86(1) to impose appropriate universal service obligations</p>
	QoS-1: Calculated availability of service		What	Theoretical network performance of existing infrastructure (coverage, no pure infrastructure data)																			
		How	Wired Assessment / calculation / marketed speeds by provider / geodata-based simulation models / prediction tools	Wireless Assessment / calculation via geodata-based simulation models / prediction tools / radio field planning																			
	QoS-2: Measured provision of service	What	Provision of service measured at the Customer Premises Equipment (CPE), e.g. routers, mobile devices <u>excluding</u> end user's environment																				
		How	Wired Measurement through panel probes	Wireless Measurement through drive tests or speed tests																			
QoS-3: Measured experience of service	What	Actual user's experience when using Internet Access Service (IAS) tests <u>including</u> end user's environment																					
	How	Wired Measurement via online speed	Wireless Measurement via online speed tests																				
	<p>According to the BoR decision taken in the second Plenary meeting of 2019, BEREC will issue these Guidelines in two phases.</p> <p><u>Phase one (foreseen approval in March 2020).</u></p> <p>Guidelines on the consistent application of geographical surveys and forecasts, regarding QoS-1 information.</p> <p><u>Phase two (foreseen approval in December 2020).</u></p> <p>Guidelines on the consistent application of geographical surveys and forecasts, regarding QoS-2 and QoS-3 information and the procedures to invite undertakings and public authorities to declare their intention to deploy VHCN over the duration of the relevant forecast period for Art 22 (3).</p>																						

Figure 18: Other BEREC WG work streams relevant to this report

BEREC WORKSTREAM	SCOPE AND TIMELINES	LINKAGE WITH ADEQUATE BROADBAND IAS BEST PRACTICE REPORT
5.2 Carry-over work on BEREC Guidelines on quality of service parameters	<p>Article 104 contains a specific reference to Regulation (EU) 2015/2120: “the measures to ensure quality of service shall comply with Regulation (EU) 2015/2120”. As a consequence, a close interdependency between the Open Internet and End Users Working Groups has been acknowledged and, in order to ensure the consistency of BEREC reports, the Guidelines do not focus on defining internet access services quality of service parameters and measurement methods that are analysed within the Open Internet Working Group – and in that context make an explicit reference to BEREC reports</p> <p>Annex X - QoS parameters, definitions and measurement methods referred to in Article 104 IAS QoS parameters (definition and measurement ITU-T Y.2617)</p> <p>Latency (delay)</p> <p>Jitter</p> <p>Packet loss</p> <p>It should be noted that with respect to QoS parameters for IAS the guidelines refer to the methodology developed by OI WG for the BEREC measurement tool (see below).</p>	Article 104 (2) Quality of service related to internet access services and publicly available interpersonal communications services
4.3 Carry over work on BEREC Net Neutrality work	<p>BEREC Office (with the assistance of a BEREC Advisory Committee) is engaging with an external software development house to create a measurement platform which will allow end users to measure various aspects of the IAS service being provided to them.</p> <p>The QoS Metrics being measured will include upload/download speed, latency, jitter and packet loss (and a number of other metrics which I don't think are relevant to your task). The methodology used for these measurements is documented in BoR (17) 178, rather than the ITU standards included in Annex X of the code.</p> <p>Please note that the current project is simply to develop the code base (open source) and create a reference system for NRAs to use when evaluating it. Each NRA that wishes to implement this platform will need to initiate a local deployment project.</p>	upload/download speed, latency, jitter and packet loss

Figure 19: Other BEREC WG work streams relevant to this report (continued)

6. Public consultation BoR (19) 260

68. BEREC organised a public consultation on the draft Report on MS best practices to support the defining of adequate broadband IAS, which ran from 11th December 2019 until 27th January 2020, with the objective of gathering stakeholders' comments and observations on the content of the draft BEREC Report on MS best practices to support the defining of adequate broadband IAS (BoR (19) 260).
69. The questions posed in the public consultation (BoR (19) 260) are listed in Annex 5 of this report. To summarise, Question 1 of the consultation asked respondents to rate the importance of the evaluation criteria used by the 9 MS with a broadband USO, Question 2 allowed for respondents to suggest additional evaluation criteria, Question 3 asked for respondents' views on bandwidth requirements, Question 4 allowed for comments on eligibility, quality of service and affordability, and Question 5 invited general comments from respondents. BEREC received 8 responses to the public consultation (BoR (19) 260).
70. Information on the submissions to this consultation can be found in BoR (20) 98 document, which summaries the submissions to consultation received and provides BEREC responses. The full, non-confidential submissions to this consultation are also published on the BEREC website.

ANNEX 1 – Glossary of Terms

DEFINITIONS REFERENCED IN THE NEW DIRECTIVE			
ARTICLE	TERM	DEFINITION	SOURCE
2(15)	Consumer	Any natural person who uses or requests a publicly available electronic communications service for purposes which are outside his or her trade, business, craft or profession	EECC Article 2 (15)
	Access	The making available of facilities or services to another undertaking, under defined conditions, either on an exclusive or a non-exclusive basis, for the purpose of providing electronic communications services, including when they are used for the delivery of information society services or broadcast content services; it covers, inter alia: access to network elements and associated facilities, which may involve the connection of equipment, by fixed or nonfixed means (in particular this includes access to the local loop and to facilities and services necessary to provide services over the local loop); access to physical infrastructure including buildings, ducts and masts; access to relevant software systems including operational support systems; access to information systems or databases for pre-ordering, provisioning, ordering, maintaining and repair requests, and billing; access to number translation or systems offering equivalent functionality; access to fixed and mobile networks, in particular for roaming; access to conditional access systems for digital television services and access to virtual network services	EECC Article 2 (27)
	Voice Communications Service	A publicly available electronic communications service for originating and receiving, directly or indirectly, national or international calls through a number or numbers in a national or international numbering plan	EECC Article 2 (32)
84(5)	End-User	A user not providing public electronic communications networks or publicly available electronic communications services	EECC Article 2 (14)
2 (8)	Public electronic communications network	public electronic communications network means an electronic communications network used wholly or mainly for the provision of publicly available electronic communications services which support the transfer of information between network termination points	EECC Article 2(8)

Figure 20: Glossary of terms

DEFINITIONS REFERENCED IN OTHER EC DOCUMENTS (WHERE OUTWARD REFERENCE IS PROVIDED IN NEW DIRECTIVE)			
ARTICLE	TERM	DEFINITION	SOURCE
84(1)	Internet Access Service	A publicly available electronic communications service that provides access to the internet, and thereby connectivity to virtually all end points of the internet, irrespective of the network technology and terminal equipment used.	Article 2 of Regulation (EU) 2015/2120 (as stated in EECC)
84(5)	Microenterprise	An enterprise which employs fewer than 10 persons and whose annual turnover and/or annual balance sheet total does not exceed EUR 2 million	Article 2 Commission Recommendation 2003/361/EC (as stated in EECC)
	Small and Medium-Sized Enterprises	An enterprise is considered to be any entity engaged in an economic activity, irrespective of its legal form. This includes, in particular, self-employed persons and family businesses engaged in craft or other activities, and partnerships or associations regularly engaged in an economic activity. The category of micro, small and medium-sized enterprises (SMEs) is made up of enterprises which employ fewer than 250 persons and which have an annual turnover not exceeding EUR 50 million, and/or an annual balance sheet total not exceeding EUR 43 million. A small enterprise is defined as an enterprise which employs fewer than 50 persons and whose annual turnover and/or annual balance sheet total does not exceed EUR 10 million.	Article 2 Commission Recommendation 2003/361/EC (as stated in EECC)

Figure 21: Glossary of terms (continued)

DEFINITIONS REFERENCED IN RECITALS OF NEW DIRECTIVE			
ARTICLE	TERM	DEFINITION	SOURCE
84(1)	Affordable Price	An affordable price means a price defined by Member States at national level in light of specific national conditions.	RECITAL 219
	Available	For data communications at data rates that are sufficient to permit an adequate broadband internet access, fixed-line connections are nearly universally available and used by a majority of citizens of the Union. The standard fixed broadband coverage and availability in the Union stood at 97 % of homes in 2015, with an average take-up rate of 72 %, and services based on wireless technologies have even greater reach. However, there are differences between Member States as regards availability and affordability of fixed broadband across urban and rural areas.	RECITAL 228
		The market has a leading role to play in ensuring availability of broadband internet access with constantly growing capacity. In areas where the market would not deliver, other public policy tools to support availability of adequate broadband internet access connections appear, in principle, more cost-effective and less market-distortive than universal service obligations, for example recourse to financial instruments such as those available under the European Fund for Strategic Investments and Connecting Europe Facility, the use of public funding from the European structural and investment funds, attaching coverage obligations to rights of use for radio spectrum to support the deployment of broadband networks in less densely populated areas and public investment in accordance with Union State aid rules.	RECITAL 229
		The costs of ensuring the availability of a connection capable of delivering an adequate broadband internet access service as identified in accordance with this Directive and voice communications services at a fixed location at an affordable price within the universal service obligations should be estimated, in particular by assessing the expected financial burden for providers and users in the electronic communications sector.	RECITAL 232
84(5)	Not-for-Profit Organisations	Not-for-profit organisations are legal entities that do not earn a profit for their owners or members. Typically, not-for-profit organisations are charities or other types of public interest organisations. Hence, in light of the comparable situation, it is legitimate to treat such organisations in the same way as microenterprises or small enterprises under this Directive, insofar as end-user rights are concerned)	RECITAL 259

Figure 22: Glossary of terms (continued)

DEFINITIONS REFERENCED IN OTHER EU DOCUMENTS			
ARTICLE	TERM	DEFINITION	SOURCE
84(1)	Broadband access	For the purposes of art 22, broadband access is an access in which the connection(s) capabilities support download data rates of at least 2 Mbit/s. This broadband access refers to the European Commission Digital Single Market glossary definition which specifies that broadband is “a term applied to high speed telecommunications systems, i.e. those capable of simultaneously supporting multiple information formats such as voice, high-speed data services and video services on demand. The Digital Agenda defines three levels of broadband speeds: 2, 30, and 100 Megabit per Second”.	Draft BEREC Guidelines on geographical surveys of network deployments
84(2)	Social and Economic Participation in Society	Assessment to identify specific social and economic objectives and desired outcomes could include: (i) The expected market availability of broadband without public intervention (ii) The social and economic disadvantages incurred by those without access to a broadband connection, including disabled users (iii) The cost of public intervention via USO and comparison of this cost against the use of other approaches (iv) The benefits of public intervention and its effects on competition, market distortions and broader policy objectives	Report on the outcome of the public consultation and third periodic review of the scope of Universal Service (COM 2011 795 Final)
84(3)	Majority of Consumers	Could include broadband connections where the data rate in question is used at national level by: (i) At least 50% of all households (ii) At least 80% of all households with a broadband connection	Report on the outcome of the public consultation and third periodic review of the scope of Universal Service (COM 2011 795 Final)

Figure 23: Glossary of terms (continued)

ANNEX 2 – Relevant experience that BEREC may draw on

Directive 2002/22/EC of the European Parliament and Council of 7 March 2002

The 2002 Universal Service Directive allowed for data rates that would support functional internet access (56kbit/s is mentioned in Recital 8 to describe the situation at the time).

Directive 2009/136/EC of the European Parliament and Council of November 2009

The 2009 Telecom Package gave MS the flexibility to define, where necessary, the data rates at national level which may include broadband speeds.³³ MS thus had the possibility, but no obligation, to include access to broadband connections within the scope of USO.

Recital 5 of the 2009 Universal Service Directive states that:

“[...] The data rate that can be supported by a connection to the public communications network depends on the capabilities of the subscriber’s terminal equipment as well as the connection. For this reason, it is not appropriate to mandate a specific data or bit rate at Community level. Flexibility is required to allow Member States to take measures, where necessary, to ensure that a data connection is capable of supporting satisfactory data rates which are sufficient to permit functional Internet access, as defined by the Member States, taking due account of specific circumstances in national markets, for instance the prevailing bandwidth used by the majority of subscribers in that Member State, and technological feasibility, provided that these measures seek to minimise market distortion [...]”.

Annex V of the Universal Service Directive states that when reviewing the scope of universal service, the Commission should also take into consideration that the services should be “available to and used by the majority of consumers.”

Recital 25 of the Directive reflects the notion that that services covered should be available to a “substantial majority of the population”. Accordingly, certain thresholds could be applied to determine whether the required critical mass of broadband take-up is achieved (e.g. consider including broadband connections in USO where the data rate in question is used at national level (i) by at least half of all households and (ii) by at least 80% of all households with a broadband connection).

Work by the European Commission³⁴

The EU universal service concept is a dynamic one, meaning that the scope “*should evolve and keep pace with advances in technology, market development and changes in user demand*” (Recital 1 of the Universal Service Directive 2002/22/EC). This is ensured to date by the process for reviewing of the universal service scope set out in Article 15 in conjunction with Recital 25 and Annex V of the Universal Service Directive 2002/22/EC, which establish the criteria and methodology for reviews.

³³ Recital 5 of the Citizens’ Rights Directive (CRD).

³⁴ This section refers to the current legislative framework, not the EECC.

Article 15 of the Universal Service Directive of 2002 requires the European Commission to undertake periodic reviews of the scope of universal service, taking into account social, economic and technological developments among other conditions.

The Commission has undertaken four reviews of universal service and the pertinent data element relevant for this assessment is now outlined below.

Universal service e-communications: report on the outcome of the public consultation and third periodic review of the scope in accordance with Article 15 of Directive 2002/22/EC³⁵ from 2011

This document sets out some reflections on the measures that could be taken into account by MS when considering the scope of the USO relating to functional internet access at “*broadband speeds*.”

When MS consider whether to define the network connection permitting “*functional internet access*” at broadband speeds at national level, a set of coherent criteria, reflecting the criteria for changing the scope of universal service at EU level,³⁶ could help to ensure consistency and minimise market distortion, while meeting the objective of preventing social exclusion.

It considered that MS could make a prior assessment of the impact of such a decision, which could include assessing overall national broadband take-up in terms of the percentage of national households with broadband and the percentage of households with a broadband speed equal to or above the minimum speed envisaged.

Reflecting the notion in recital 25 Universal Service Directive 2009/136/EC that services covered should be available to a “*substantial majority of the population*”, certain thresholds could be applied to determine whether the required critical mass of broadband take-up is achieved. MS could be asked to consider including broadband connections in USO where the data rate in question is used at national level (i) by at least half of all households and (ii) by at least 80% of all households with a broadband connection.

MS could also identify their specific social and economic objectives and desired outcome which could include an assessment of:

- the expected market availability of broadband without public intervention;
- the social and economic disadvantages incurred by those without access to a broadband connection, including disabled end-users;
- the cost of public intervention via USO and comparison of this cost against the use of other approaches;
- the benefits of public intervention and its effects on competition, market distortions and broader policy objectives.

Accordingly, intervention would only occur where overall benefits outweigh overall costs.

³⁵ COM (2011) 795 final.

³⁶ Article 15, Annex V and recital 25 USD.

European Commission - 2014 review of the scope of universal service

In 2016 the Commission published a study for input for the fourth periodic “*Review of the scope of universal service*”³⁷ which examined the future of the universal service and specifically looked at the inclusion of broadband in the USO.

One of the major benefits of broadband is the ability which it provides for users to participate in the digital economy and society by using a number of essential online internet services. There is a risk of social exclusion from not being able to use these types of services through having no or insufficient broadband connection. The study identified the essential types of online services required for effective access to online services. This provided the foundation for the study to identify the characteristics of broadband³⁸ connections required for effective access to online services that enable inclusion in the digital economy and society.

In Chapter 6, the review outlines a detailed methodology to calculate the bandwidth and data requirements that would be required to provide the level of connectivity to meet the requirements of Annex V of the Universal Service Directive.

The report developed a methodology involving four “*baskets*” of online services, with the primary basket of services³⁹ addressing social inclusion and services used by the majority of consumers.

³⁷ Review of the scope of Universal Service SMART number: 2014/0011 Published in 2016

<https://publications.europa.eu/en/publication-detail/-/publication/6eee3cb7-9adf-11e6-868c-01aa75ed71a1>

³⁸ The key focus of this European Commission study is wired fixed broadband connections, (footnote 1 page 11) which states that “*Other technologies are good complements and in particular cases even excellent solutions. However, these technologies are often affected by issues like data caps, the shared nature of a wireless channel, weather-dependence and, in the case of satellite, signal latency and end-user equipment cost. These technologies were not considered in this report*”. Fixed wired connection technologies considered in this study include xDSL, cable and FTTX.

³⁹ Primary Basket of Review of the Scope of Universal Service: email, social media, professional networking, telephoning/video calls, search engine, access to information about training and education, health information, online news, information about goods and services, eGovernment services, buying and ordering goods and services, and of internet banking.

Internet Services	% use 2013 ⁶²	Eurostat data source
Email	74	Sending/receiving e-mails
Search engines	Alexa rating ⁶³	Eurostat does not collect data specifically on this service
Information about goods and services	59	Finding information about goods and services
Training and education	50	Individuals who used Internet for training and education
Online newspapers/news	49	Reading/downloading online newspapers/news
Buying/ordering goods or services	47	Individuals using the internet for ordering goods or services (Eurostat code: tin00096)
Professional networking	45	Participating in social or professional networks
Finding information about any subject	44	Consulting wikis (to obtain knowledge on any subject)
Seeking health information	44	Seeking health information
Internet banking	42	Individuals using the internet for internet banking (Eurostat code: tin00099)
Social media/instant messaging	40	Posting messages to social media sites or instant messaging
eGovernment service use	32	E-government usage by individuals (Eurostat code: tsdgo330)
Telephoning or video calls (standard quality)	25	Telephoning or video calls

Figure 24: Services in the primary basket⁴⁰

The primary basket⁴¹ developed by the study for the purposes of this report is comparable to and closely matches Annex V⁴² of the EECC, apart from a difference in certain terminology used. Furthermore the 'seeking health information' category is included in the primary basket but not in Annex V, and similarly 'job searching tools' are included in Annex V but not in the primary basket. However, it can be considered that both terms fall under the 'finding information about any subject' criterion of the primary basket or the 'search engines enabling search and finding of all type of information' requirement of Annex V of the EECC. Thus, the two lists of online services for the purposes of ensuring social inclusion and the determination of adequate broadband provision under universal service are easily comparable.

The report determined a methodology for calculating the minimum bandwidth requirements, including considerations of concurrent and consecutive use and upload and download bandwidth requirements, which may be relevant to support MS in the defining of adequate broadband internet access service. Having established the primary basket of online services, the report then goes on to outline a step by step methodology for estimating the minimum broadband connection requirements (upload, download and latency) to deliver the services contained in the basket, and does so at MS level, selecting a representative sample of eight EU MS to calculate the upload and download bandwidths to connect to each service in the

⁴⁰ Review of the scope of universal service (published 2016-09-30, p 53 Figure 10)

⁴¹ Services in the primary basket are unless stated to the contrary derived from Eurostat data.

⁴² Annex V of EECC: e-mail, search engines enabling search and finding of all type of information, basic training and education online tools, online newspapers or news, buying or ordering goods or services online, job searching and job searching tools, professional networking, internet banking, eGovernment service use, social media and instant messaging, calls and video calls (standard quality).

basket. The most commonly used service providers in each of the sample MS were then examined for each of the internet services contained in the primary basket. This was done in some instances using the web analytics service Alexa in order to identify the most used providers for a given service.

Upload and download speeds were calculated for all sources in order to determine the upload and download requirements for use of these services. Additionally, Alexa data on the regularity of use of the services was also considered in order to estimate the monthly data requirements of an average user in a given MS.

The results were presented into key findings;

- the minimum download bandwidth requirements of the most data-consuming services commonly used in the provision of each service contained in the primary basket (Mbit/s);
- the average minimum bandwidth requirement for all services in the primary basket (Mbit/s);
- the average monthly data requirements for each service in the primary basket (MB); and
- a monthly average based on the cumulative data requirements for the all services in the primary basket (GB).

The results were slightly different for each MS considered in the report, reflecting the different service providers most commonly used in each territory. The study noted that it is important that usage levels do not exceed the usage “caps” imposed by the packages offered by internet access service providers.

	Download bandwidth requirement 2015	Download bandwidth requirement 2020	Monthly data requirement 2015	Monthly data requirement 2020
Primary basket	4 M bps	9.6 Mbps	10 GB/month	26 GB/month
Basket 2	4.6 to 8.3 M bps	11.9 M bps	40 GB/month	104 GB/month
Basket 3	8.3 to 21 Mbps	21.5 M bps	150 GB/month	389 GB/month
Basket 4	Over 21 M bps	Over 54.5 Mbps	340 GB/month	882 GB/month

Figure 25: Minimum bandwidth and monthly data requirements⁴³

The steps taken in this analysis by the study can be simplified as follows:

1. Develop a list of services, conceptualised as a primary basket of online services generally used by the majority of consumers that help to address social exclusion;
2. Investigate and determine the upload and download speeds required to use the most commonly used services accessed in a MS for the delivery of each of the online services in the primary basket (web analytics service Alexa was used to determine the most used services per category);

⁴³ Review of the scope of universal service (published 2016-09-30, p56)

3. Data about the regularity of use of services was used to estimate monthly data requirements for the average online user. This was then used to identify minimum monthly usage levels.

The steps taken by the study to determine the necessary speeds and data requirements of users in eight MS are useful in considering how in the future MS might themselves define adequate broadband in their territories, particularly in light of the consistency between the internet services listed in the primary basket and Annex V of EECC.

Chapter 7 of the report also looks forward to 2020, estimating the future requirements of the average user for the services in the primary basket. The report found that bandwidth requirements for the primary basket were likely to increase to a requirement of a 9.6 Mbit/s connection (from the average of 4 Mbit/s estimated for 2015).

The Review of the Scope of Universal Service report was a requirement under Article 15 of the Universal Service Directive, this document and its related studies should be carefully considered in defining of adequate broadband internet access service.

European Commission Data

PROPOSED EUROPEAN COMMISSION DATA	
Digital Economy and Society Index (DESI) Data	The DESI ⁴⁴ is a composite index that summarises relevant indicators on EU MS' digital performance and tracks the progress in digital competitiveness. The five dimensions of the DESI are connectivity, human capital, use of the internet, integration of digital technology and digital public services (separate report e-Government and benchmarking, Digital Single Market).
At risk of poverty and social exclusion	People at risk of poverty or social exclusion by most frequent activity status (population aged 18 and over) ⁴⁵ Reasons for not having internet access at home - % of households with at least one member aged 16 to 74 and without internet access at home ⁴⁶
Digital inclusion	Individuals ⁴⁷ Internet use ⁴⁸ E-commerce sales ⁴⁹ Internet purchases by individuals ⁵⁰ Consumers' behaviour related to online purchases ⁵¹ Internet activities ⁵² E-government activities of individuals via websites ⁵³ e-banking and e-commerce ⁵⁴ Financial activities over the internet ⁵⁵ Participation in social networking ⁵⁶
Broadband connection	Household - type of connections to the internet ⁵⁷ ICT usage in enterprises - Internet access ⁵⁸
European broadband mapping	European broadband mapping (SMART2014/0016 and SMART2012/0022); ⁵⁹ Geographic surveys: QoS-1: Calculated availability of Service, network performance of existing infrastructure Geographic surveys: QoS-2: Measured provision of Service, excluding end user's environment. Geographic surveys: QoS-3: Measured experience of Service, including end user's environment.

Figure 26: Proposed European Commission Data

⁴⁴ [DESI 2019 - Use of Internet Services](#)

⁴⁵ [People at risk of poverty or social exclusion by most frequent activity status \(population aged 18 and over\)](#) [ilc_peps02]

⁴⁶ Eurostat [Households- reasons for not having internet access at home](#) [isoc_pibi_rni] (percentage of households)

⁴⁷ Eurostat [individuals](#) [isoc_bdek_dij] "Regular internet use in the EU, 2017-2018 (% of individuals)"; "Individuals who never used the internet, 2017-2018 (% of individuals)"

⁴⁸ Eurostat [internet use](#) [isoc_ci_ifp_iu] "Individuals who have never used the internet by age, 2018" and "Gender gap between individuals who are regular internet users (at least once a week) between 2010-2018 and according to educational level"

⁴⁹ Eurostat [Internet purchases by individuals](#) [isoc_ec_ibuy] "Individuals buying online by age groups, 2018", and "Individuals buying online by education level, 2018"; Eurostat [e-banking and e-commerce](#) [isoc_bde15cbcl] "Individuals ordering goods or services cross border, 2018"; [e-commerce sales](#) [isoc_ec_eseln2]

⁵⁰ Eurostat [Internet purchases by individuals](#) [isoc_ec_ibuy] "Individuals buying online by age groups, 2018", and "Individuals buying online by education level, 2018";

⁵¹ [Consumers' behaviour related to online purchases](#) [isoc_ec_ibhv]

⁵² Eurostat [internet activities](#) [isoc_ci_ac_i] "Individuals watching video on demand, 2016-2018 (% of internet users)"; "Participation in professional social networks, 2015-2017 (% of internet users)"; "Participation in professional social networks, 2017-2018 (% of internet users)"; "making an appointment with a practitioner via website, 2016-2018 (% of internet users)";

⁵³ [Individuals using the internet for interaction with public authorities, by type of interaction](#) [TIN00013];

⁵⁴ Eurostat [e-banking and e-commerce](#) [isoc_bde15cbcl] "Individuals ordering goods or services cross border, 2018"

⁵⁵ "Individuals who used internet banking in previous 3 months (% of internet users) 2017-2018" Eurostat [internet activities](#) [isoc_ci_ac_i]

⁵⁶ [Individuals who used the internet for participation in social networking](#) [isoc_ci_ac_i]

⁵⁷ Eurostat [Households - type of connection to the internet](#) [isoc_ci_it_h] "household internet connection" (% of households);

⁵⁸ Eurostat [ICT usage in enterprises- Internet access](#) [isoc_ci_in_en2];

⁵⁹ <https://www.broadband-mapping.eu/>; <https://ec.europa.eu/digital-single-market/en/broadband-and-infrastructure-mapping-project>

The current Digital Economy and Society Index (DESI) Report 2019⁶⁰ on the use of internet services highlights that there are still large disparities across EU MS regarding the use of internet services.

The 2019 report may be summarised as follows. The differences in regular internet usage shrank further in 2018, however in some MS, over a third of the population still does not regularly go online.⁶¹ The share of people in the EU who have never gone online decreased again in 2018, currently 11% of the population never goes online.⁶² Despite convergent trends, large disparities remain across MS. 83% of people in the EU go online at least weekly. A general gap persists but is narrowing. The elderly and those with low education levels or on low incomes continue to be at risk of digital exclusion.⁶³ Growth in the use of online services is generally slow, although use of the internet for video on demand picked up significantly in 2018.⁶⁴ Almost every third internet user (31%) watched video on demand in 2018.⁶⁵ Participation in online social networks increased moderately in the EU in 2018, reaching 65% of internet users.⁶⁶ Participation in online professional social networking is still very low in the EU, at around 15% of internet users in 2017.⁶⁷ The upward trend in e-commerce continues in 2018, with around 69% of EU internet users now shopping online.⁶⁸ The most popular goods and services purchased in 2018 were clothes and sports goods, followed by travel accommodation services and household goods.⁶⁹ Only 36% of online shoppers ordered cross-border goods and services from other EU countries in 2018.⁷⁰ 64% of EU internet users used online banking in 2018, although a large majority of them still do not in a number of MS.⁷¹ Seeking health information on the internet is widespread, but only one-fifth of EU internet users made an online appointment with practitioner in 2018.⁷²

The Eurostat Data for households with broadband access indicates that 86% of the individuals throughout the European Union are connected via broadband in 2018 (fixed or mobile connections). It also shows data on the reasons for individuals for not having internet access at home i.e. equipment costs are too high or lack of skills.

The Eurostat data shows that 97% of enterprises (which employ at least ten people) are connected to broadband (via fixed or mobile connections), with 17% of enterprises receiving online orders in 2018.

EU BROADBAND AND INFRASTRUCTURE MAPPING PROJECT

The European Commission launched two major projects that examine the mapping of broadband data on a European scale. Mapping of fixed and mobile broadband services in

⁶⁰ <https://ec.europa.eu/digital-single-market/en/use-internet> DESI 2019 - Use of Internet Services

⁶¹ Eurostat "Regular internet use in the EU, 2017-2018 (% of individuals)"

⁶² Eurostat "Individuals who never used the internet, 2017-2018 (% of individuals)"

⁶³ Eurostat "Individuals who have never used the internet by age, 2018" and "Gender gap between individuals who are regular internet users (at least once a week) between 2010-2018"

⁶⁴ Eurostat "Use of internet services in the EU, 2017-2018, selected indicators (% of internet users)"

⁶⁵ Eurostat "Individuals watching video on demand, 2016-2018 (% of internet users)"

⁶⁶ Eurostat "Participation in professional social networks, 2017-2018 (% of internet users)"

⁶⁷ Eurostat "Participation in professional social networks, 2015-2017 (% of internet users)"

⁶⁸ Eurostat "Individuals buying online by age groups, 2018", and "Individuals buying online by education level, 2018"

⁶⁹ Eurostat "Purchase frequency by the age groups, 2018"

⁷⁰ Eurostat "Individuals ordering goods or services cross border, 2018"

⁷¹ Eurostat "Individuals who used internet banking in previous 3 months (% of internet users) 2017-2018"

⁷² Eurostat "making an appointment with a practitioner via website, 2016-2018 (% of internet users)"

Europe (SMART2014/0016) and Study on Broadband and Infrastructure mapping (SMART 2012/0022).

This builds upon existing data sets gathered from national public authorities and private international crowdsourcing initiatives, which are mapped for the first time on a European scale. The mapping application covered three different data sets all of which reflect Quality of Service (QoS) in different ways:

- QoS-1: Calculated availability of Service, network performance of existing infrastructure;
- QoS-2: Measured provision of Service, excluding end user's environment;
- QoS-3: Measured experience of Service, including end user's environment.

QoS-1: Calculated availability of service	What	Theoretical network performance of existing infrastructure (coverage, no pure infrastructure data)	
	How	Wired Assessment / calculation / marketed speeds by provider / geodata-based simulation models / prediction tools	Wireless Assessment / calculation via geodata-based simulation models / prediction tools / radio field planning
QoS-2: Measured provision of service	What	Provision of service measured at the Customer Premises Equipment (CPE), e.g. routers, mobile devices <u>excluding</u> end user's environment	
	How	Wired Measurement through panel probes	Wireless Measurement through drive tests or speed tests
QoS-3: Measured experience of service	What	Actual user's experience when using Internet Access Service (IAS) tests <u>including</u> end user's environment	
	How	Wired Measurement via online speed	Wireless Measurement via online speed tests

Figure 27: QoS concepts⁷³

Data provision to the project is voluntary and is carried out continuously.

This project will ultimately be replaced by the BEREC Guidelines on Geographical surveys of network deployments. This data provision will be mandatory in MS and will ultimately address QoS-1 to QoS-3. This will become an important input in the ongoing review and development of the BEREC best practices report.

⁷³ European Commission, QoS concepts: <https://ec.europa.eu/digital-single-market/en/broadband-and-infrastructure-mapping-project>

ANNEX 3 - Broadband universal service – 9 MS

Up to 2019, Belgium, Croatia, Finland, Latvia, Malta, Slovenia, Spain, Sweden and the United Kingdom have adopted legislation and have already included the provision of broadband connection in the scope of universal service.

For ease of comparison, in this Annex each MS is presented in a consistent manner, commencing with a MS specific summary table addressing when a broadband USO was introduced, designation (where relevant), evaluation and eligibility criteria used, bandwidth specified, quality of service and monitoring parameters, affordability measures and whether the USO is industry or State funded. This is then followed by a brief written summary. The information is based on two questionnaires and ancillary clarification questions issued by BEREC to the relevant MS.

Figure 28 below shows broadband coverage and the bandwidth of the broadband USO across the 9 MS which have introduced it up to 2019.

Member State	Standard fixed broadband coverage/availability (DESI)	% Households with broadband access (Eurostat tin00073)	Average broadband speed NRA questionnaire	USO broadband	Year current USO broadband speed introduced
Belgium	99.90%	84%	>8.5Mbit/s (50% households) > 8.5Mbit/s (80% of broadband subscribers)	1 Mbit/s	2014
Croatia	99.90%	81%	>10 Mbit/s	1 Mbit/s	2015
Finland	94.40%	93%		2 Mbit/s	2015
Latvia	93.90%	79%		not specified	2010
Malta	100%	84%	>30Mbit/s	4 Mbit/s	2011
Slovenia	98.10%	87%	>10 Mbit/s	4 Mbit/s	2018
Spain	96.10%	86%		1 Mbit/s	2012
Sweden	97.40%	90%		10 Mbit/s	2018
United Kingdom	100%	95%		10 Mbit/s	2018

Figure 28: Broadband coverage and bandwidth of current broadband USO in 9 MS

Belgium

SUMMARY		BELGIUM (BIPT)
USO INTRODUCED	BIPT proposal - 13th January 2014 Royal Decree - 2 April 2014	
EVALUATION CRITERIA	Analysis of: <ul style="list-style-type: none"> (i) Functional internet access (ii) Criteria suggested by EC (i.e. Directive 2009/136/EC) including a European benchmark (iii) Estimation of fixed broadband availability of current provider and cost estimate to expand its geographic coverage to 100% of primary residences (iv) Estimation of broadband availability using complementary technologies and cost estimate to expand the geographic coverage to 100% of primary residences <ul style="list-style-type: none"> (a) method for estimating broadband availability (territory/household) (b) Territory/household coverage per bit rate (c) calculation of potential additional costs of imposing a bit rate for FIA (using a mixture of all technologies) (d) specific circumstances of the Belgium market (v) COCOM working document (COM(2011) 795 final) <ul style="list-style-type: none"> (a) majority of households have access to a broadband connection (b) speed cannot be higher than that enjoyed by 80% of households with a connection 	
ELIGIBILITY	Primary residential premises No cost cap per premise	
USP DESIGNATION	None - 1Mbit already provided by the market Will evaluate the need to designate based on complaints about the absence of 1mbit/s connection at primary residence. No related complaints received to date	
BANDWIDTH	At least 1 Mbit/s	
QUALITY OF SERVICE	Download speed of at least 1 Mbit/s (every days of the year, all hours of the day; except during a maximum period of one hour a day)	
MONITORING	Constant monitoring via: <ul style="list-style-type: none"> Availability - coverage map Quality - service barometer Affordability - tariff comparisons 	
AFFORDABILITY MEASURES	Elderly people, disabled and or low income end-users are already eligible for social tariffs Operators with turnover over €50 Million legally obliged to offer social tariffs Geographically average pricing (GAP)	
FUNDING (WHERE APPLICABLE)	Industry	

Figure 29: Belgium

Belgium considered the introduction of a broadband USO after the Royal decree came into force on 9 June 2014.⁷⁴ BIPT used the evaluation criteria outlined above and was guided on the practical application of Article 4 of the USD (“*substantial majority of the population*”) and

⁷⁴ Following a proposal from the Council of the BIPT (January 2014), a Royal Decree introduced a broadband universal service obligation on 2 April 2014.

by the COCOM Working Document “*Implementation of the revised Universal Service Directive: internet-related aspects of Article 4*” (COCOM10-31 FINAL) and assessed the prevailing technologies used by the majority of subscribers. The broadband take-up rate was greater than 50%, and 80% of broadband subscribers had a throughput of over 8.5 Mbit/s.

BIPT also developed a list⁷⁵ of possible services it deemed necessary for social inclusion,⁷⁶ which ultimately formed part of the broadband USO. This included ‘surfing the internet’⁷⁷ which encompassed a number of elements now listed in Annex V of EECC (but excluding real time video as it was not considered essential for social inclusion at that time). This list of services was accessible at a functional bitrate of 512 kbit/s since at that time not having access to real time video – needing a data transmission rate of 8 Mbit/s – would not impose a risk of social exclusion.

SERVICE	TYPICAL USE	NOMINAL BIT RATE REQUIRED
Surfing the Internet, looking for work on the Internet, e-commerce, e-government	Surfing to 20 pages that contain graphs (each 100 KB)	512 Kbps
E-mailing	Sending or receiving a mail message containing 30 lines (30 KB)	56 Kbps
Access to social networks	Posting a high resolution picture (2 MB)	512 Kbps
Real-time video	Watching a two-hour high-definition movie (3 GB)	8 Mbps

Figure 30: Source; Analysis Mason 2013

Belgacom (a Belgian service provider) then commissioned a study to establish the potential cost of extending broadband coverage to 100% of households. At the time of this study 99.8% of households theoretically had 1 Mbit/s coverage. The study examined the cost of imposing (1) a 512 kbit/s, (2) 1 Mbit/s and (3) 2 Mbit/s broadband USO. The incremental cost of imposing a 512 kbit/s was estimated at less than €0.05 per annum per household connected to a broadband USO. The incremental cost of imposing a broadband USO of 1 Mbit/s was estimated at less than 0.01% of revenue of the electronic communications service (ECS) providers in Belgium. The incremental cost of imposing a 2 Mbit/s broadband USO was estimated to be in excess of €5 million, which if imposed would lead to significant market distortion, without any significant incremental benefit to end-users, when compared with imposing a 1 Mbit/s broadband USO.

⁷⁵ Accessing social networks (proxy: posting a high resolution picture - 2 Mbit/s) - requires a nominal bitrate of 512 kbit/s; emailing (proxy: sending /receiving an email with 30 lines – 30 kbit/s) - requires a nominal bitrate of 56 kbit/s; real-time video (proxy: watching two hour high-definition movie – 3 GB) – requires a nominal bitrate of 8 Mbit/s.

⁷⁶ Email; buying or ordering goods or services online; job searching and job searching tools; e-Government service use; social media and instant messaging; “surfing the internet” (which covers online news, search engines etc.).

⁷⁷ Proxy: opening up to 20 pages containing graphs where the graphs were 100kB each.

Accordingly, BIPT introduced a broadband USO of 1 Mbit/s in 2014 for all primary residential premises, with no cap on the cost per premise. It has a guaranteed 24 x 7 x 365 download speed availability of at least 1 Mbit/s, except for a maximum period of one hour per day.

BIPT has not introduced any specific broadband USO affordability tariffs, as operators with a turnover greater than €50M are already legally obliged to offer social tariffs for fixed telephone and internet to certain categories of consumers.

BIPT has not designated a USP as the Belgian market is currently being served on a commercial basis. BIPT monitors the number of complaints received in respect of the absence of a 1 Mbit/s connection at the primary residential premises. To date BIPT has only received complaints pertaining to high speed broadband and digital TV, which are beyond the scope of the current USO. BIPT will continue to monitor the situation and evaluate whether it is necessary to designate a USP.

BIPT continuously monitors quality, availability and affordability of broadband USO through its quality of service barometer, coverage map, and tariff comparison tools.

Where applicable, the broadband USO would be funded by industry.

Croatia

SUMMARY		CROATIA (HAKOM)
USO INTRODUCED		December 2012
EVALUATION CRITERIA		Analysis of: (i) Expected availability of broadband without public intervention (ii) Social and economic disadvantages for those excluded, including disabled users (iii) Estimation of the cost of implementing a broadband USO (iv) Timeframe to make broadband USO available (v) Geographic survey (vi) Comparison with other EU countries (vii) Market distortion
ELIGIBILITY		All residential premises No cap on the cost per premises
USP DESIGNATION		National USP designation 2015 - 2019 (current) Currently working on a procedure to designate USP(s) for next three years
BANDWIDTH		144 Kbit/s (download) early 2013 1 Mbit - January 2015 4 Mbit/s (download; 512kbit/s upload) to be effective from 1/1/2020)
QUALITY OF SERVICE		Download speed of at least 1Mbit/s (during 24hour period) QoS framework established for all providers of fixed broadband internet service
MONITORING		Number of complaints received by HAKOM (NRA)
AFFORDABILITY MEASURES		From 1/1/2020 USP will be required to provide reduced tariff options to person with low income or special needs
FUNDING (WHERE APPLICABLE)		Industry

Figure 31: Croatia

Croatia introduced a broadband USO in January 2015.⁷⁸ HAKOM recognises that a lack of access to broadband, where Croatian government services are increasingly becoming digital by default, may result in social and economic exclusion for sections of society.

HAKOM used the evaluation criteria outlined above and was also guided on the practical application of Article 4 of the USD (*“substantial majority of the population”*) by the COCOM Working Document *“Implementation of the revised Universal Service Directive: internet-related aspects of Article 4”* (COCOM10-31 FINAL). HAKOM assessed the prevailing technologies used by the majority of subscribers, using its market analysis data to identify the prevailing bandwidths being used by end-users. HAKOM also considered the main services

⁷⁸ National Telecommunications Law requiring the adoption of secondary legislation was introduced in December 2012. This set out the scope, including the specific requirements and guidance for the design of the USO which gave HAKOM the explicit power to introduce a broadband USO providing functional internet access, appropriate for the relevant needs.

being used by end-users, however it did not develop a list of online services based on social and digital inclusion.

HAKOM also analysed the expected availability of broadband without public intervention and concluded that, absent public intervention, a significant number of residential premises' access to broadband would lag behind the majority. HAKOM did not develop or use a model to estimate the connectivity levels (in Mbit/s) and the investment needed to deliver it. HAKOM considered available EU country data.

In January 2015, HAKOM's initial assessment, based on the aforementioned evaluation criteria, resulted in a broadband USO of a minimum of 1 Mbit/s. This applies to the availability of a broadband connection, residential premises only, where no cost cap per premises applies.

HAKOM sought expressions of interest from industry in becoming the designated USP(s). No expressions of interest were received in respect of a broadband USO, and accordingly HAKOM nationally designated the incumbent (HT d.d.) as the broadband USP.⁷⁹ The current broadband USO designation period is 4 years and will expire in November 2019.

HAKOM has not specified any broadband QoS, or affordability obligations on the USP. HAKOM currently monitors the broadband USP's compliance with its obligations based on the number of broadband access connection complaints received by HAKOM, which ultimately decides whether any non-compliance with its broadband USP obligations has occurred.

HAKOM are currently assessing universal service in advance of the expiry of the current designation and amended the minimum broadband speed from 1 Mbit/s to 4 Mbit/s (download with an upload of 512 kbit/s) from January 2020.

Where applicable, the broadband USO would be funded by industry. There is no reimbursement of the net costs, where the USP has a market share by total revenue of 70% or more. Currently the incumbent has a market share in excess of 70% by total revenue and under national legislation there is no reimbursement of the net costs.

⁷⁹ One expression of interest was received in respect of telephone services and accordingly Imenik d.o.o. was designated in this respect.

Finland - it appears that the summary listed twice??

SUMMARY		FINLAND (Traficom)
USO INTRODUCED		Ministry - In 2008 the Communications Market Act to be amended by 2010 (at the latest) to include a broadband USO
EVALUATION CRITERIA		Analysis of: (i) Expected availability of broadband without public intervention (ii) Geographic survey (iii) Prevailing connection speeds available to the majority of subscribers (iv) Financial impacts of regulation on operators (v) Geographic survey (vi) Speed of domestic internet connections
ELIGIBILITY		Primary residential and permanent business premises No cap on the cost per premises
USP DESIGNATION		3 USPs (Telia, Elisa and DNA) designated based on a regional basis based on: (i) voluntarism (ii) financial stability (iii) best available network in the area
BANDWIDTH		At least 1 Mbit/s 2010 2 Mbit/s - from 1 November 2015
QUALITY OF SERVICE		QoS targets Minimum speed of 1.5 Mbit/s during 24 hour period; and Minimum speed of 1 Mbit/s during 4 hour period.
MONITORING		Constant monitoring Compliance with USP's obligations Availability
AFFORDABILITY MEASURES		Affordability - relative population income level and general tariffs Defined criteria to assess affordability
FUNDING (WHERE APPLICABLE)		State - public funds

Figure 32: Finland

In December 2008, the Finnish government adopted the “*National Broadband Plan 2009-2015*.” This document set out a legislative change to the USO element of the Communications Market Act, (requiring it to be amended on or before 2010) to include a broadband connection USO. The download speed was set at a value of at least of 1 Mbit/s. This legislative change was implemented in 2010 by the Finnish Ministry. This required TRAFICOM to examine, where necessary, the data transfer service markets, the prevailing connection speeds available to the majority of subscribers and the level of technological development, and to produce an analysis of the financial impact of the broadband regulation on ECS operators.

Accordingly, TRAFICOM used the parameters set out in its national legislation, using a geographic survey and its own specific broadband data speeds information to assess the expected availability of broadband without public intervention. TRAFICOM did not develop a

list of online services or use a model to estimate connectivity levels (in Mbit/s) and the investment needed to deliver it. TRAFICOM introduced a broadband USO of 1 Mbit/s in 2010.

In 2015 TRAFICOM amended the broadband USO to 2 Mbit/s through Regulation 439/2015. This currently applies to the availability and affordability of a broadband connection only at primary residential premises, and no cost cap per premises applies. Some variation is permitted. The average minimum speed is 1.5 Mbit/s over a 24-hour measurement period and 1 Mbit/s over any 4-hour measurement period.

The basis for the selection of the USP(s) is set out in national legislation and is required to be efficient, unbiased, open and non-discriminatory based on a ranking of ECS service providers using pre-defined benchmarks (e.g. the financial capacity of comparable ECS operators to operate; comparison of networks; and a TRAFICOM selection where operators' capabilities are equal). TRAFICOM has designated three regional USPs, Telia, Elisa and DNA. The designation period is open ended, as the national legislation requires TRAFICOM to amend its current decision where there are significant changes to the matters which underpin the relevant decision.

TRAFICOM monitors the USPs' compliance with broadband USO through both a process of continuous monitoring and based on the number of recurring broadband access connection complaints.

TRAFICOM has placed affordability obligations on the USPs (based on criteria for assessing affordable prices)⁸⁰ in respect of general price levels of ECS services and the income level of the population.

To date no USP has made a funding application. Where applicable, the broadband USO would be funded by public funds.

⁸⁰ Memorandum on how to estimate a reasonable price for universal service for phone and/or broadband (in Finnish):

http://pilvi.viestintavirasto.fi/attachments/toimialatieto/UUSI_Muistio_yleispalvelun_hinnoittelun_kohtuullisuuden_arvioinnista_2.pdf

Latvia

SUMMARY	LATVIA (SPRK)
USO INTRODUCED	2010
EVALUATION CRITERIA	No evaluation criteria provided
ELIGIBILITY	Primary residential premises Disabled end users only Obligation relates to affordability measure only
USP DESIGNATION	USP designation 2010 - unknown (current) Incumbent (Lattelecom) National designation
BANDWIDTH	not specified
QUALITY OF SERVICE	No QoS targets No minimum set of technical parameters
MONITORING	Number of complaints received by SPRK (NRA)
AFFORDABILITY MEASURES	Disabled end-users: Discount 100% for connection fee for broadband internet services €12.21 per month from a monthly subscription fee for broadband internet service
FUNDING (WHERE APPLICABLE)	State - public funds

Figure 33: Latvia

SPRK introduced broadband USO affordability measures specifically for disabled end-users, who receive 100% discount on connection fee for broadband internet services; and a reduction of €12.21 per month from a monthly fee for broadband internet service. In 2010 Latvia (SPRK) provided special discounts for disabled end-users for broadband, but at the end of 2016 the level of these discounts was adjusted, and these adjustments entered into force on 01 January 2017. The discount is extended to disabled end-users for a connection fee and for a monthly subscription fee which covers broadband internet service tariff plan, disregarding the broadband speed. Disabled end-users are able to opt for the most appropriate Lattelecom (Tet) broadband tariff plan which includes a necessary broadband speed and to receive a fixed discount for this option. The current broadband connection USO is applicable to primary residential premises only, with no cost cap per premise. No online list of services has been developed based on social and digital inclusion and no model has been developed or used to estimate the connectivity levels (in Mbit/s).

SPRK has designated the incumbent Lattelecom (Tet) as the national USP. The incumbent, Lattelecom (Tet), has been the only company to handle the obligations of the universal service in the electronic communication sector since 2003. A USP is nominated on a national scale for the purpose of providing all services included in the USO. SPRK will review the USO again in 2021.

There are no QoS or technical parameters defined. SPRK currently monitors the USP's compliance with its broadband USO obligations based on the number of broadband access connection complaints received by SPRK, which ultimately decides whether any non-compliance with its broadband USO obligations has occurred.

Broadband USO funding applications have been received by SPRK. Where applicable, the broadband USO is currently funded by public funds.

Malta

SUMMARY		MALTA (MCA)
USO INTRODUCED	2011 1 July 2015 - restricted to cases of market failure (availability and affordability)	
EVALUATION CRITERIA	Analysis of: (i) Expected availability of broadband without public intervention (analysis based on fixed broadband coverage information from operators providing broadband services) (ii) Social and economic disadvantages incurred by those without access to a broadband connection , including disabled users (iii) Estimation of the cost of implementing a broadband USO(based on those individuals entitled to specific social benefits and cost of USO for the provision of a fixed connection) (iv) Timeframe to make available broadband in USO	
ELIGIBILITY	All end-users and all premises. Only when market failure occurs (i.e. where no other service provider is willing to provide functional internet access to the end-user requesting the service). No cap on the cost per premises.	
USP DESIGNATION	USP designation - GO Plc. (incumbent) on the basis of: adequate technical abilities experience and knowledge of providing USO No expressions of interest received	
BANDWIDTH	At least 4 Mbit/s In exceptional cases (economic, technological factors, absence of comparable offers available in the market) - 2 Mbit/s Speed is currently under review and likely to increase	
QUALITY OF SERVICE	No USO QoS targets QoS framework established for all providers of fixed broadband internet service	
MONITORING	By constant monitoring: Compliance with USP's obligations USP Quarterly report: (i) Total number of USP broadband connections (ii) percentage of total broadband connections capable of achieving the minimum speed (iii) Total number of new broadband connections installed during the period (iv) Total number of new broadband connections installed during the period capable of achieving less than the minimum speed (v) Number of new broadband connection capability related complaints during the period (vi) Total number of broadband access connection related complaints during the period (vii) Total number of broadband connections not capable of supporting the defined minimum speed	
AFFORDABILITY MEASURES	Broadband USO obligation is confined to availability of a connection only Separately USP is required to provide reduced tariff options to persons with low income or special social needs	
FUNDING (WHERE APPLICABLE)	Not defined USP has never made a funding claim for the provision of broadband USO	

Figure 34: Malta

Malta introduced a broadband USO with a guaranteed speed of 4 Mbit/s in 2011, for at least 97% of the population, at all premises.⁸¹ In exceptional cases (i.e. economic (absence of comparable available offers in the market) or technological factors) a connection may be provided at a lower speed, however this could not be lower than 2 Mbit/s. The broadband USO is not confined to a specifically identified group.

MCA used the evaluation criteria outlined in the table above and the data rate was set by taking into account the prevailing bandwidth used by the majority of subscribers and technological feasibility. MCA took into consideration data on fixed broadband penetration per population, national broadband take-up rate per household and the broadband speed used by the majority of subscribers. As of December 2010, more than 50% of the households in Malta used broadband at a data rate equal to, or above 4 Mbit/s.⁸² MCA did not develop or use a list of online services that end-users should be able to access to ensure social and digital inclusion. MCA did not set specific QoS, as MCA in 2013 established a QoS framework for all providers of fixed broadband internet.

MCA did not define any specific broadband USO affordability measures in its current decision, as the USP is required to provide reduced tariff options/packages for fixed line rental that are lower than those offered under normal commercial market conditions to low income and /or special needs individuals.

The designation was based on the USP's adequate technical abilities, experience and knowledge in providing universal service. In order not to exclude a priori any undertaking, MCA invited expressions of interest from all interested parties. MCA invited any interested parties to submit their interest in writing to the Authority in providing the universal services. Since no operators willingly expressed interest in providing universal services, MCA designated the undertaking 'GO' to fulfil the universal service obligations

MCA modified the broadband USO on 1 July 2015 to only be applicable in the case of market failure (i.e. where no other undertaking is offering a broadband access connection in a particular geographic location). No model was developed or used to estimate the connectivity levels (in Mbit/s) and investment needed to deliver the service. All other aspects of the previous broadband USO (excluding market failure) were retained and the USP was re-designated. One USP (GO Plc.) was designated nationally for a period notionally set at 4 years.

MCA monitors compliance with broadband USO obligations on a quarterly basis using the Functional Internet Access (FIA) connection report which the USP is mandated to provide MCA on a quarterly basis and the number of end-user complaints regarding inability to access a broadband connection and/or at the specified bandwidth. The FIA connection report includes data on (i) total number of USP broadband connections; (ii) percentage of total broadband connections that are capable of achieving the minimum speed; (iii) total number of new broadband connections installed during the period; (iv) total number of new broadband

⁸¹ This was informed by the Maltese government's policy to reduce the digital divide and ensure the availability of an affordable broadband internet connection to every citizen.

⁸² Circa 80% of households used broadband at a data rate equal to or above 4 Mbit/s. 98.4% of all broadband subscribers using broadband at a data rate equal to or above 4 Mbit/s.

connections installed during the period that are capable of achieving less than the minimum speed; (v) number of new broadband connection capability related complaints during the period; (vi) total number of broadband access connection related complaints during the period (vii) total number of broadband connections not capable of supporting the defined minimum speed, USP provided report, and a description of details on the locations that are not capable of supporting 4 Mbit/s and the work programmes in place to reach the minimum data rate if applicable.

Where an end-user expresses doubts about the broadband capability of a line, the USP is required to provide a written statement on the data capability of that line to the end-user. Where a given line is incapable of achieving the minimum bitrate, the USP must tangibly demonstrate that it is in the process of or planning to make improvements to its network (whether equipment, line, or both) in respect of the given line.

Broadband USO funding applications have not yet been received by MCA. Accordingly, the funding mechanism has yet to be defined.

Slovenia

SUMMARY		SLOVENIA (AKOS)
USO INTRODUCED		2018
EVALUATION CRITERIA		<p>Analysis of:</p> <ul style="list-style-type: none"> (i) broadband market (ii) user needs (iii) usage patterns (iv) penetration rates (v) market share of operators (vi) potential financial burden (vii) demand side (viii) supply side <ul style="list-style-type: none"> (a) majority of households have access to a broadband connection (b) speed cannot be higher than that enjoyed by 80% of households with a connection
ELIGIBILITY		<p>Primary residential premise</p> <p>No cap on the cost per premises</p> <p>Available in areas where no other broadband service is available at a reasonable price</p>
USP DESIGNATION		<p>USP designation - Telekom Slovenije (incumbent)</p> <p>Designation period is 5 years</p> <p>No expressions of interest received</p>
BANDWIDTH		4 Mbit/s download and 512 kbit/s upload
QUALITY OF SERVICE		<p>USO QoS parameters - not specified numerically</p> <ul style="list-style-type: none"> (i) delivery time for the initial connection less than 30 days for 100 % offers (ii) Generally available rate of data transmission (iii) Minimum data rate (iv) Latency (round trip delay) (v) Data transmission packet loss (vi) Minimum monthly end-user data quantity <p>Aforementioned must be at least equal to those provided by operators of similar services commercially under normal market conditions</p>
MONITORING		<p>Compliance with USP's obligations</p> <p>USP reporting:</p> <ul style="list-style-type: none"> (i) total number of USP requests for broadband connections (ii) total number of USP requests for broadband connections rejected by the USP and the associated rationale (iii) total number of USP requests for broadband connection complaints received by the USP (iv) total number of USP requests for broadband connections rejected by the USP and the measures taken by the USP
AFFORDABILITY MEASURES		<p>For disabled end-users only</p> <ul style="list-style-type: none"> (i) equipment at the cost price (ii) 50% discount on connection fees (iii) 50% discount on recurring rental fees <p>For disabled end-users and low income end-users:</p> <p>Separately NRA has the capability to intervene where price of USO rises by more than 5% of CPI, where the increase in income level is below this level/threshold</p>
FUNDING (WHERE APPLICABLE)		Industry

Figure 35: Slovenia

Slovenia (AKOS) introduced a broadband USO in 2018 of 4 Mbit/s (4 Mbit/s download and 512 kbit/s upload). AKOS used the evaluation criteria outlined above conducting both demand

and supply side analysis. The demand side analysis was based on the bandwidth and capacity needed to use a number of services in conjunction with an end-users needs survey (e.g. monthly household expenditure on ECS services; household demand for higher internet access speeds including e-content). The supply side analysis was based on operator provided data (e.g. fixed broadband access coverage and mobile data coverage at base station level). AKOS evaluated other speeds but selected 4 Mbit/s to provide the appropriate balance between end-users and providers.

AKOS also was guided on the practical application of Article 4 of the Universal Service Directive ("substantial majority of the population"), by a COCOM working document, and assessed the prevailing technologies used by the majority of subscribers. The only AKOS refinement is the exclusion of speeds above the data rate used by 80% of the households with a broadband connection. AKOS collects quarterly data from all operators (via questionnaires), and this information is used to calculate the take-up ratio. Once the 80% threshold is triggered, AKOS is legally obliged to conduct an impact analysis including the potential costs associated with any proposed change to the download speed. This analysis is subject to a public consultation process.

A list of online services was developed based on social and digital inclusion which closely matches Annex V of the EECC, apart from the following categories: 'basic training and education online tools'; and 'other(s)'. AKOS did not develop a model to estimate the connectivity levels (in Mbit/s) needed to deliver this list of online services (as the bandwidth requires for each service was available from existing data).

The broadband USO only applies to primary residential premises, and there is no capped cost per premises (economical aspect for technologically neutral solution), and the USO is not confined to a specifically identified group. End-users with disabilities or low income are entitled to additional measures (e.g. lower prices for special equipment or lower priced services 50% discount on the connection and ongoing rental fees). If the price of universal service increases by more than 5% of CPI and the average salary increases less than the price of universal service, AKOS may regulate the price for both, end-users with low income and end-users with disabilities. AKOS issued a broadband USO call to tender to all operators. As no appropriate tender was received, AKOS has designated the incumbent (Telekom Slovenija) as the broadband USP at a national level for a period of 5 years. Previous designation was exceptionally only for three years and ended in 2019, otherwise it is a 5-year designation period.

AKOS monitors broadband QoS as part of the general legislation on quality of universal service, which stipulates the same quality of service for the broadband USO as that provided for commercially services, to ensure that digital exclusion does not occur. This also applies to latency and packet loss (in the case of broadband access via satellite there is a minimum data cap of 20 GB per month), otherwise it is unlimited.

AKOS monitors broadband USO compliance based on an annual USP provided report. In the case of end-user complaints AKOS has the capability to introduce ad-hoc and or additional monitoring. Where applicable, the broadband USO is currently funded by industry funds.

Spain

SUMMARY		SPAIN (CNMC)
USO INTRODUCED		May 2011 - implementation by January 2012 Telefonia designated as the USP 1/1/12 - 31/12/16
EVALUATION CRITERIA		Evaluation criteria have not been made public. See clarification in the text below.
ELIGIBILITY		Available to all (no restrictions) No cap on the cost per premises
USP DESIGNATION		Current designation 01/01/2020 - 31/12/2022 Ministry designated Telefonica (incumbent) upon the conclusion of a tendering process where no valid tenders were received
BANDWIDTH		1 Mbit/s download
QUALITY OF SERVICE		<p>USO QoS parameters (aggregate level)</p> <p>(i) Delivery time for the initial connection : less than 60 days for 99% of orders</p> <p>(ii) Fault ratio per line : less and 4% per quarter</p> <p>(iii) Fault repair time: less than 48 hours for 95% of cases</p> <p>(iv) Billing claims rate: less than 5% per thousand per quarter</p> <p>(v) Where the USP providing the connection offers a data transmission service including internet access, the bitrate achieved must be equal to or above 1 Mbps in 95% of cases (taking into account the specific access technology used)</p> <p>USO QoS parameters (end-user level)</p> <p>(i) minimum connection time in less than 60 days</p> <p>(ii) minimum download connection speed in any 24 hour period of not less than 1Mbit/s</p> <p>(iii) interruption and or breakdown of service of less than 24 hours per month</p>
MONITORING		<p>USP reporting on each of the QoS parameters</p> <p>Data is provided to the Secretary of State for the Digital Advancement within 45 calendar days of the end of each quarter</p> <p>The Ministry also conducts on-site inspections through the provincial headquarters for telecommunication inspections</p>
AFFORDABILITY MEASURES		<p>For connections - three different price plans</p> <p>(i) Social allowance: retirees and pensioners whose income is below the public indicator of multiple effect income (i.e. IPREM)</p> <p>70% discount on connection fees</p> <p>95% discount on recurring rental fees</p> <p>(ii) Price plan for visually impaired (10 free calls per month to DQ; free bills and advertising in Braille of larger font - Note that price plans (i) and (ii) are cumulative)</p> <p>(iii) Price plan for hearing impaired: calls to next phones rated in seconds (call set up fee is optional)</p>
FUNDING (WHERE APPLICABLE)		Industry - sectoral funding mechanism

Figure 36: Spain

The Sustainable Economy Act 2/2011 states that (effective 2012) every citizen shall have access to the public communications network (PCN) to a functional internet access connection of 1 Mbit/s under a universal service obligation. This was endorsed by the legislature through the enactment of the General Telecommunications Act 9/2014. The Act (9/2014) enables the Government to update the broadband USO speed taking into account the competitive landscape and service widely used by end-users. To date there has been no further revision to the broadband speed.

It is worth mentioning that, by the time the Sustainable Economy draft bill was proposed by the Ministry (2009) only a handful of countries had established the obligation of providing broadband access as part of the Universal Service.

The criteria used for the definition of the bandwidth have not been made public. However, in 2009, the Ministry took a set of considerations into account during the process of public consultation in the frame of the revision of the mechanism for the designation of USP.

In the public consultation, the Ministry echoes the (by then) proposal for a Directive amending Directive 2002/22/EC on universal service and users' rights relating to electronic communications networks and services, and acknowledges that it is for the MS to define what is to be understood as a "functional" internet access, having regard to their national circumstances.

In this vein, the Ministry put forward in the consultation data concerning:

- Take-up of broadband accesses provided by fixed networks (42.45%) and the distribution of accesses by technologies.
- The estimated potential coverage of households by ds accesses, account taken of topological characteristics of the network, spectrum management considerations and availability of the necessary additional equipment.

SPEED	ADSL coverage over Telefonica's copper loop (April 2009)	Household coverage (final estimation)
512 kbit/s	96.12%	94.97%
1 Mbit/s	92.84%	91.73%
2 Mbit/s	91.56%	90.47%
3 Mbit/s	84.68%	83.67%

- Total estimated broadband access coverage, including satellite technologies (99%)
- The average bandwidth of broadband accesses; 99.54% out of the 9.3 million accesses –both residential and by business clients – with nominal value equal or higher than 1 Mbit/s, and 86.47% with at least 2 Mbit/s.
- Pricing data; for connections under 2Mbps tariffs range from € 15.5 to €36 per month, including the connection to the network and the internet access service).
- Technologies used for the provision of mobile broadband (1,280,152 using HSDPA), alongside total number of lines (1,359,534), up-take (2.9%) and coverage data (at least 85% for 3G technologies).
- Prospection on technology development in the Spanish market.

- Considerations regarding the requirements of the services that the access is meant to support. 1 Mbit/s is deemed sufficient to grant an adequate access to the most used applications run on the internet, with the exception of TV (for which a 2 Mbit/s connection –at least - would be necessary).
- Mentions the broadband coverage goals of a number of MS, for which a 100% objective was set for these minimum connection speeds; in France at 512 kbit/s, in Germany and Finland at 1 Mbit/s and 2 Mbit/s in the United Kingdom.

Therefore, account taken of the time of adoption of the bill, it might be regarded as an ambitious but achievable goal.

The broadband universal service obligation covers both the availability of connection and its affordability. It applies to all premises and there is no capped cost per premise. Requests to make use of the Universal Service must be reasonable. Article 29.2 of Royal Decree 424/2005 states that requests for connection to the network in the frame of the Universal Service are always to be considered reasonable if the connection is made for premises located on urban land and for premises that, despite not being located on urban land, are used as the primary residence by the requester. The affordability measures apply to end-users with special social needs such as disabled and retired citizens. For the latter, affordability is measured using the criteria of IPREM (Spanish acronym for public indicator of multiple effect income), which is established by means of Ministerial Order.

Along with the special tariff plans described in the table above, Spain has complementary affordability measures, namely:

- The possibility to choose the billing frequency as best fits their needs;
- the possibility to impede, by means of an easy process, incoming international calls and calls from premium rate services;
- transparency obligations regarding accessibility measures;
- measures for the adequate breakdown of concepts within the invoices; and
- the possibility to phase the payment for the connection to the network.

The designation of USP(s) is based on an open tender process. If no suitable tenders are received, the Ministry by means of a Ministerial order may designate a USP based on market power. A USP (Telefonica, the incumbent) is currently designated (2019) on a national basis. The current designation is for a period of 3 years (1 January 2020-31 December 2022).⁸³

QoS targets have been set for the broadband USO as outlined above.⁸⁴ The only technical parameter specified was a download bitrate of 1 Mbit/s. No list of online services was developed based on social or digital inclusion.

The Secretary of State for the Digital Advancement, of the Ministry of Economy and Enterprise, oversees the compliance of the broadband USO through the reporting obligation of the USP

⁸³ The designation encompasses the elements of the universal service concerning the connection to the public communications network and the telephony service available to the public.

⁸⁴ The global parameters set forth in the Order IET/190/2014, of June 16, regulating the conditions concerning the quality of the service in the provision of electronic communication services apply to the broadband element of the universal service and to the provision of the telephony service available to the public.

and through on-site inspections of the Provincial Headquarters for Telecommunication Inspections. The Annual Plan for the Inspection of Telecommunications details the activity of these units.⁸⁵

The broadband USO is currently funded by industry. The cost of the USO is funded by a plurality of operators, determined on a yearly basis by the CNMC, as mandated by Article 27 of the General Telecommunications Act.

The last resolution on this matter was issued in November 2019 for the 2016 fiscal year, where obligations to contribute to the National Fund for the Universal Service were imposed to 14 operators.

The funding mechanism was activated some years ago when, after the appropriate analysis, CNMC acknowledged the unfair burden that the USP was bearing in assuming the payment of the USO net cost.

According to the General Telecommunications Act, the net cost of the USO shall be funded by those operators that obtain a gross annual operating income from the operation of networks or the provision of ECS of more than €100 million. The figure may be updated or modified, but this is the applicable figure currently.

⁸⁵ Available in Spanish at: <https://avancedigital.gob.es/inspeccion-telecomunicaciones/Paginas/PAIT.aspx>

Sweden

SUMMARY		SWEDEN (PTS)
USO INTRODUCED*	Ministry - 2011 Current broadband USO introduced in 2018	
EVALUATION CRITERIA	Analysis of: (i) The expected availability of broadband without public intervention (ii) The potential demand for a broadband US in terms of both data transmission rates and the number of people reliant on the USO (iii) The benefits of public intervention and the effect on competition (iv) The estimated cost of implementing a broadband USO (v) The results of a geographic survey and the potential market distortion (vi) Consideration of a list of online services which are required to be accessible in order to guarantee social and digital inclusion	
ELIGIBILITY	Primary residential and permanent business premises When an end-user notifies PTS of their inability to secure a broadband connection (and meets certain requirements (where the cost of connection exceeds 5,000 SEK (€468)), PTS will secure an appropriate solution (not exceeding 400,000 SEK (€37,164)) which provides the end-user with functional internet access (specified in a Governmental regulation at a minimum speed of 10 Mbit/s). Where there is an indication of a lack of fixed infrastructure coverage, PTS investigates the availability of internet subscriptions via wireless infrastructure at these locations	
USP DESIGNATION	No USP currently designated	
BANDWIDTH	1 Mbit/s - 2011 10 Mbit/s - 2018	
QUALITY OF SERVICE	N/A	
MONITORING	NRA monitors compliance with USP's obligations	
AFFORDABILITY MEASURES	N/A	
FUNDING (WHERE APPLICABLE)	State	

* In Sweden, functional Internet access was firstly introduced in 2004 and set to a value of 20 kbit/s.

* In Sweden, functional Internet access was firstly introduced in 2004 and set to a value of 20 kbit/s.

Figure 37: Sweden

Sweden introduced a broadband USO in 2011. The current broadband USO was introduced in 2018 via Ministry decisions (on bandwidth and funding). The broadband universal service obligation covers the availability of connection. It applies to all primary residential premises or permanent establishments.

A list of online services based on social and digital inclusion (which reflects the listing of Annex V) was used to estimate the bandwidth needed for the USO. A model was developed and used to estimate the connectivity levels (in Mbit/s) and investment needed. PTS data on infrastructure coverage is used to inform the model. PTS examined the cost of implementing 3 Mbit/s, 5 Mbit/s and 10 Mbit/s in 2017.

PTS estimates that, at present, approximately 300 households and permanent establishments lack commercially offered internet access. When an end-user notifies PTS of their inability to secure a broadband connection and meets certain requirements (where the cost of connection exceeds 5,000 SEK (€468),⁸⁶ PTS will secure an appropriate solution by means of public procurement (not exceeding 400,000 SEK (€37,164)) which provides the end-user with functional internet access (specified in a Governmental regulation at a minimum speed of 10 Mbit/s).

No QoS targets were set. No affordability targets were set. The broadband USO is currently funded by the State.

⁸⁶ 5,000 SEK = €486 (1 EUR = 10.6743 SEK on 13/08/2019).

United Kingdom⁸⁷

SUMMARY	UNITED KINGDOM (Ofcom)
USO INTRODUCED	<p>2018 - implementation by 2020</p> <p>The government introduced the broadband USO in March 2018 through secondary legislation. Ofcom has designated BT and KCOM as Universal Service Providers, and imposed conditions which they will have to meet when delivering connections. Customers can start to request connections in March 2020. Universal Service Providers have a requirement to deliver USO connections as quickly as possible and deliver at least 80% of connections within 12 months of a request, 95% within 18 months, and 99% within 24 months of the confirmed USO order.</p>
EVALUATION CRITERIA	<p>Analysis of:</p> <ul style="list-style-type: none"> (i) Expected availability of broadband without public intervention (ii) Estimation of the potential demand for a broadband universal service in terms of both data transmission rates and the number of people reliant on the USO (iii) Social and economic disadvantages for those excluded, including disabled end-users (iv) Benefits of public intervention and effect on competition (v) Estimation of the cost of implementing a broadband USO (vi) Timeframe to make available broadband in USO (vii) Comparison with other EU countries (viii) Market distortion <p>In June 2018 Ofcom set out assessment criteria to assess the suitability of prospective universal service providers</p>
ELIGIBILITY	<p>Eligibility criteria apply</p> <p>(i) Cost threshold of £3,400 GBP (3,700 euros: 1 eur = 0.92 GBP 15/8/19)</p> <p>Homes and small business who:</p> <ul style="list-style-type: none"> (a) have no access to existing decent, affordable broadband; (b) will not be covered by a public scheme in the next 12 months; (c) will not cost more than £3,400 (3,700 euros: 1 eur = 0.92 GBP 15/8/19) to connect. Where the cost is more than £3,400, people will have the choice to pay the excess costs of installing a USO connection or use an alternative technology, such as satellite, outside the USO scheme and (d) people who only have access to a service priced over £45 per month will also have the right to request a USO connection.
USP DESIGNATION	<p>Two USPs currently designated indefinitely - BT (in the UK except Hull) and HCOM (Hull area)</p> <p>Designation is not time bounded</p>

Figure 38: United Kingdom

⁸⁷ The United Kingdom left the European Union on 31 January 2020. In accordance with the Agreement on the Withdrawal of the United Kingdom from the EU, UK is a third country to the EU. During the transition period (until 31 December 2020, subject to extension) EU law continues to apply to the UK. At the time of the data collection and drafting of this best practices report (2019) UK was a Member State of the EU and its data is included and referred to in this report.

BANDWIDTH	<ul style="list-style-type: none"> (i) Download sync speed of 10Mbit/s (ii) Upload sync speed of 1Mbit/s (iii) A contention ratio of no higher than 50:1 (iv) A latency which is capable of allowing the end-user to make and receive voice calls over the connection (v) The capability to allow data usage of at least 100 GB per month
QUALITY OF SERVICE	<p>USO QoS parameters</p> <p>Designated USPs will offer the same quality of service to customers connected on a commercial basis to those customers connected via the USO</p>
MONITORING	<p>Compliance with USP's obligations</p> <ul style="list-style-type: none"> (i) Continuous evaluation (ii) Number of complaints occurring: <ul style="list-style-type: none"> a) relevant to a consumer's request for a USO connection and confirming the outcome of the request (e.g. number of USO requests in each month, number of accepted and rejected requests and number of orders where a customer agrees to pay costs in excess of £3,400) ; b) that connection supply times are being met, along with fault rates and repair times; and c) on performance in relation to complaints handling and dispute resolution. <p>In addition to this there is an annual reporting requirement by the USPs to Ofcom to demonstrate compliance with specific timeframes within the obligations in respect of eligibility checking and delivery timeframes.</p>
AFFORDABILITY MEASURES	<p>Affordability threshold</p> <ul style="list-style-type: none"> (i) consumers who do not have access to service at a price below £45 (48.58 euros: 1 eur = 0.926 GBP 13/08/19) can apply for the USO <p>BT has provided Ofcom with a pricing commitment where they are the only provider.</p> <p>To ensure the affordability of the USO, USPs must offer uniform pricing so customers in USO areas pay no more than customers in other areas for an equivalent service.</p> <p>BT has also committed to offering at least one broadband connection and service that meets the USO specification at no more than £45 per month.</p>
FUNDING (WHERE APPLICABLE)	Industry

Figure 38: United Kingdom (continued)

The United Kingdom introduced a broadband USO in March 2020. Legislation⁸⁸ was passed by Government in March 2018, Ofcom is now implementing it, with consumers able to commence making requests in March 2020. The legislation enshrines “affordable broadband connections and services must be provided throughout the United Kingdom.” It applies to premises of fixed location which is a residence or business and has a capped cost of connection per premises of £3,400 (taking into account shared infrastructure costs) in addition to other eligibility criteria that consumers must meet. The speed has been set at 10 Mbit/s by

⁸⁸ The Electronic Communications (Universal Service) (Broadband) Order came into force on 23 April.

the government of the United Kingdom following technical advice from Ofcom. Ofcom set out its view that 10 Mbit/s was sufficient to allow multiple users to simultaneously use in the internet, including web browsing, video streaming, video calling and gaming in technical advice commissioned by the Government in 2016.⁸⁹ The Government considered multiple options including a standard broadband service, characterised by only a download speed of 10 Mbit/s; a superfast broadband service, characterised with download speeds of 30 Mbit/s, but chose a more highly specified standard broadband service of 10 Mbit/s, adding a specification of an upload speed of (1 Mbit/s), latency (medium response time), maximum sharing between customers (a contention ratio of 50:1), and a defined data cap based on current usage profiles (100GB per month), which it considered balanced end-users needs with the proportionality of costs to industry. The technical specification had an upload speed of 1 Mbit/s which was considered beneficial to meet the needs of small businesses who may be eligible for the USO.

The Government Order stated that affordable broadband connections and services must be provided throughout the United Kingdom with the bandwidth characteristics set out in the table above. Ofcom introduced a threshold for an affordable price at £45 per month including VAT, connection charges, monthly payments and other broadband charges.⁹⁰ This means that customers who do not have access to a service below £45⁹¹ may be eligible to apply for the USO, depending on other eligibility criteria. To ensure an affordable USO, UPSs must offer uniform pricing – connections and services at the same prices as equivalent services they offer to non-USO customers. BT also committed to offering at least one broadband connection and service that meets the USO specification at no more than £45, where they are the only provider, therefore providing a further affordability safeguard for BT customers.

Ofcom used the evaluation criteria set out in the table above, which was largely considered in Ofcom's technical advice to Government published in December 2016.

Ofcom provides analysis on the technical specification necessary to enable digital participation in society. Whilst both Ofcom and the Government considered what the USO should allow consumers to do, it was a high level/general approach i.e. it must deliver digital inclusion including but not limited to web browsing, video calling etc. In reality all of the activities listed in Annex V of the EECC are likely to be possible through the USO specification.

The designation was based on seeking expressions of interest from operators which were then objectively evaluated against a defined set of criteria. Ofcom did not specify regional areas, asking operators to define the area in which they sought to be the USP. Ofcom did however stipulate that the smallest designation area that it would be willing to designate was a 'local authority level' provided that the specified area contained at least 5,000 eligible USO premises. Ofcom designated two USPs after receiving expressions of interest from 8 providers; (BT (incumbent) and KCOM (incumbent in the Hull area)). This designation is not

⁸⁹ Achieving decent broadband connectivity for everyone published December 2016.

⁹⁰ The threshold price is the monthly average charge over the fixed commitment period, inclusive of VAT, connection charges, the monthly payment and any other broadband charges. The eligibility threshold of £45 is set by reference to prices which prevailed as at November 2018. When the USO opens for requests on 20 March 2020 the threshold will be updated to £46.10p to reflect inflation. Ofcom have based this adjustment on the Office of Budget Responsibility forecast of the Consumer Price Index (CPI). The threshold will be updated annually thereafter to reflect CPI.

⁹¹ £45 = €48.58 in value (1 EUR = 0.926294 GBP on 13/08/2019).

time bounded. Ofcom then consulted on the process of direct designation before recommending BT and KCOM be designated.

This obligation will apply to both availability and affordability of a broadband connection. The criteria used are outlined in the table above.

Ofcom will monitor broadband USO compliance through performance reporting and record keeping requirements imposed on the USPs and have indicated that it will use formal information gathering powers to monitor the USPs performance against its obligations if they identify any areas of concern. USPs will be required to submit data to Ofcom on a regular basis which will be used to monitor compliance.

QoS targets have been defined for the USPs. They are obliged to provide the same QoS as they deliver to consumers connected on a commercial basis. Ofcom consider that commercial pressures and existing regulations ensure a good QoS for consumers connected on a commercial basis, and therefore linking USO QoS to this level will ensure that USO consumers are not worse off than non-USO consumers.

The Government Order stipulated that the USO would be industry funded. Government cited the fact that it had already committed considerable public spending to superfast broadband and improving connectivity and that an industry fund would ensure that the USO would be financed in the absence of additional public funding to support it. Ofcom will consult on funding regulations in the autumn of 2019.

ANNEX 4 – Common Principles across MS that have introduced a Broadband USO – additional information and references

Belgium

For more information regarding social tariffs:

<https://www.bipt.be/en/consumers/faq/90-what-do-these-discounts-include>

<https://www.bipt.be/en/consumers/faq/89-who-is-eligible-for-the-social-tariff>

Different BIPT tools allow monitoring:

Availability via the BIPT coverage map <https://www.bipt-data.be/en>;

Quality via the barometer <https://www.bipt-data.be/en>

Affordability via the tariff comparison tool (<http://www.bestetarief.be/index.php>)

Croatia

None provided

Finland

Designation area - https://www.traficom.fi/sites/default/files/media/regulation/Viestintapalvelujen_tarjontaan_velvollisten_yleispalveluuritysten_nimeamisessa_noudatettava_menettely.pdf

According to third paragraph of Finnish Information Society Code (ISC), section 85, Traficom shall amend USO decision if there are significant changes to the matters on which the decision is based. See:

<https://www.finlex.fi/fi/laki/kaannokset/2014/en20140917.pdf>

Funding - Please see Section 94 of Information Society Code: <https://www.finlex.fi/fi/laki/kaannokset/2014/en20140917.pdf>. The funding has never been used.

Other relevant publications

Traficom's website about right to basic communications services: <https://www.traficom.fi/en/communications/broadband-and-telephone/your-right-basic-communications-services>

National legislation (information society code): <https://www.finlex.fi/fi/laki/kaannokset/2014/en20140917.pdf>. USO is covered in sections 85 to 94.

Memorandum about the process of naming companies obligated to offer universal services (in Finnish): http://pilvi.viestintavirasto.fi/attachments/toimialatieto/Viestintapalvelujen_tarjontaan_velvollisten_yleispalveluuritysten_nimeamisessa_noudatettava_menettely.pdf

Government decree about minimum requirements set for universal phone services for disabled end-users (so called symmetrical broadband connection, in Finnish): <https://www.finlex.fi/fi/laki/alkup/2014/20141247>

Traficom's Memorandum on how to estimate a reasonable price for a universal communication services for phone and/or broadband (in Finnish): http://pilvi.viestintavirasto.fi/attachments/toimialatieto/UUSI_Muistio_yleispalvelun_hinnoittelun_kohtuullisuuden_arvioinnista_2.pdf

Regulation 58 on the quality and universal service of communications networks and services: <https://www.finlex.fi/data/normit/42162/M58B2014MEN.pdf>

Decree on companies obligated to offer USO internet connection (in Finnish): https://www.trafi-com.fi/sites/default/files/media/regulation/Yleispalvelupaatas_laajakaista_2016_Elisa__DNA__ja_TSF.pdf

Memorandum for above mentioned decree (in Finnish): https://www.traficom.fi/sites/default/files/media/regulation/Yleispalvelupaatojen_perustelumustio_1029_921_2016.pdf

Malta

Ensuring Universal Access to a Broadband Connection – A review of the definition of functional Internet Access, within the context of the Universal Service Requirement Consultation Paper – 14 September 2010

<https://www.mca.org.mt/sites/default/files/consultations/uso-broadband-cons-sep10.pdf>

Provision of Access at a Fixed Location – Requirements to be complied with by the Universal Service Provider in relation to Functional Internet Access -Proposed Decision and Request for Interest in the provision of the Universal Service - 11th May 2011

<https://www.mca.org.mt/sites/default/files/consultations/bb-uso-pdecision110511.pdf>

Provision of Access at a Fixed Location – Requirements to be complied with by the Universal Service Provider in relation to Functional Internet Access – Response to Consultation and Decision Notice – 21st June 2011 <https://www.mca.org.mt/sites/default/files/decisions/bb-uso-decision-notice-published-2012-21-st-june-2011-final.pdf>

Consultation on Universal Service Obligations on Electronic Communication Services
5th November 2014

<https://www.mca.org.mt/sites/default/files/consultations/Consultation%20on%20the%20Universal%20Service%20Obligations%20on%20ECS.pdf>

Decision on Universal Service Obligations on Electronic Communication Services 12th May 2015 https://www.mca.org.mt/sites/default/files/USO%20Decision%202015_0.pdf

Slovenia

Analysis link (only in Slovenian language):

https://www.akos-rs.si/files/Javna_posvetovanja/2017/22_12/Analiza-funkcionalnega-dostopa-do-interneta.pdf

Analysis of household demand for higher speeds of Internet access and e-content and Monthly household expenditure on electronic communications services (only in Slovenian language):

<https://www.akos-rs.si/raziskava-o-mesecnih-izdatkih-gospodinjestev-za-storitve-elektronskih-komunikacij-v-oktobru-2018-in-analiza-stanja-povprasevanja-po-visjih-hitrostih-dostopa-do-interneta-in-e-vsebinah>

General Legal Act on data transfer rates suitable for functional internet access (only in Slovenian language):

<https://www.uradni-list.si/glasilo-uradni-list-rs/vsebina/2018-01-1155?sop=2018-01-1155>

General Legal Act on Quality of Universal service (only in Slovenian language):

<https://www.uradni-list.si/glasilo-uradni-list-rs/vsebina/2018-01-1154?sop=2018-01-1154>

General Act on the manner of criteria observance in respect of price options offered for determination of packages to be used by low-income customers or customers with special needs in the framework of the Universal service provision (only in Slovenian language):

<https://www.uradni-list.si/glasilo-uradni-list-rs/vsebina/2013-01-2490?sop=2013-01-2490>

General Legal Act on the method for calculating the net costs of universal service (only in Slovenian language):

<https://www.uradni-list.si/glasilo-uradni-list-rs/vsebina/2018-01-1156?sop=2018-01-1156>

Decree on measures for disabled end-users (only in Slovenian language):

<https://www.uradni-list.si/glasilo-uradni-list-rs/vsebina/2014-01-1598?sop=2014-01-1598>

Spain

Sustainable Economy Act 2/2011, March 4.

<https://www.boe.es/buscar/act.php?id=BOE-A-2011-4117>

Impact Analysis Report of Sustainable Economy Act 2/2011, of March 4

<http://www.minhfp.gob.es/Documentacion/Publico/GabineteMinistro/Varios/100319%20Memoria%20LES%20corta.pdf>

General Telecommunications Act 9/2014, of May 9.

<https://www.boe.es/buscar/act.php?id=BOE-A-2014-4950>

Order ECE/1280/2019, of 26 December, designating Telefonica España, SAU, as the USP for the elements concerning the connection to the public network of electronic communications and the telephonic service available to the public and the

<https://www.boe.es/boe/dias/2019/12/31/pdfs/BOE-A-2019-18780.pdf>

Order IET/190/2014, of June 16, regulating the conditions concerning the quality of the service in the provision of electronic communication services.

<https://www.boe.es/buscar/doc.php?id=BOE-A-2014-6729>

Royal Decree 726/2011, modifying the Regulation on the conditions for the provision of electronic communications services, the universal service and the protection of consumers established by Royal Decree 424/2005, of April 15.

https://www.boe.es/diario_boe/txt.php?id=BOE-A-2011-9012

Royal Decree 424/2005, of April 15, establishing the Regulation on the conditions for the provision of electronic communications services, the universal service and the protection of consumers.

<https://www.boe.es/buscar/doc.php?id=BOE-A-2005-6970>

Order PRE/531/2007, of March 5, publicising the agreement of the Delegated Commission of the Government for Economic Matters, of January 23, 2007, approving the conditions to guarantee the affordability of the offers applicable to the services included in the universal service.

<https://www.boe.es/buscar/doc.php?id=BOE-A-2007-5043>

Annual Plan for the Inspection of Telecommunications

<https://avancedigital.gob.es/inspeccion-telecomunicaciones/Paginas/PAIT.aspx>

Recent CNMC Decisions on the determination of the operators obliged to contribute to the national fund of the universal service

<https://www.cnmc.es/en/ambitos-de-actuacion/telecomunicaciones/servicio-universal-contabilidad-regulatoria>

Public consultation on the Universal Service: Designation process of the universal provider and other aspects (2009)

[https://avancedigital.gob.es/es-](https://avancedigital.gob.es/es-ES/Participacion/Documents/Banda%20ancha/Texto_consulta_servicio_universal.pdf)

[ES/Participacion/Documents/Banda%20ancha/Texto_consulta_servicio_universal.pdf](https://avancedigital.gob.es/es-ES/Participacion/Documents/Banda%20ancha/Texto_consulta_servicio_universal.pdf)

Sweden

PTS' report on the review of the level for functional Internet access (PTS-ER-2017:8):

https://www.pts.se/contentassets/5e53eb81b0f84474b199babd5528a11b/oversyn-niva-funktionellt-tilltrade-internet-pts-er-2017_8.pdf

Governmental regulation (SFS 2018:20):

https://riksdagen.se/sv/dokument-lagar/dokument/svensk-forfattningssamling/forordning-201820-om-stod-for-atgarder-som-ger_sfs-2018-20

United Kingdom

Ofcom, June 2018. [Implementing the Broadband Universal Service Obligation: request for expressions of interest in serving as Universal Service Provider for broadband.](#)

Ofcom, September 2018. [Implementing the Broadband Universal Service Obligation: consultation on designation regulations](#)

Ofcom, December 2018. [Delivering the Broadband Universal Service: Proposals for designating providers and applying conditions.](#)

Ofcom, June 2019. [Delivering the Broadband Universal Service – Statement: Designating Universal Service Providers and setting conditions](#)

[The Communications Act 2003](#)

[The Digital Economy Act 2017](#)

[The Electronic Communications \(Universal Service\) \(Broadband\) Order](#)

ANNEX 5 – Consultation Questions BoR (19) 260

The five questions asked in the BEREC public consultation on the draft Report on MS' best practices to support the defining of adequate broadband internet access service (BoR (19) 260) are shown below.

Questions		
	<p>The table below contains all the criteria that the different Member States with broadband universal service obligation in force took into account when they defined it. Please rate them (1-5) in terms of their importance to define the adequate broadband internet access service, and explain the rationale behind it. When rating, please take into account the following graduation:</p> <p>1: Not relevant at all 2: Less important 3: Important 4: High importance 5: Indispensable.</p>	
	Evaluation criteria	Rating 1: Not relevant at all 2: Less important 3: Important 4: High importance 5: Indispensable. Rationale
1	Where the data rate in question is used at national level by: i) at least 50% of all households; and ii) at least 80% of all households with a broadband connection.	
	Expected availability of broadband without public intervention	
	Geographic survey	
	Market distortion	
	Estimation of the potential demand for a broadband USO	
	Comparison with other EU countries	
	Benefits of public intervention and effects on competition	
	Timeframe to make available broadband under USO	
	Social and economic disadvantages incurred by those without access to a broadband connection, including disabled end-use	
	Estimation of the costs of intervention through USO versus other approaches	

Figure 39: Consultation Question 1 (BoR (19) 260)

Questions		
2	Are there any other relevant experiences and/or criteria (not mentioned in the report) that you consider useful to support Member States in defining the adequate broadband internet access service? If yes please describe and rate (1-5) them individually in the same manner described in Question 1.	
	Other relevant experiences and/or criteria (add rows as required)	Rating 1: Not relevant at all 2: Less important 3: Important 4: High importance 5: Indispensable. Rationale
3	What are your views on the minimum bandwidth requirements (e.g. upload and download speed amongst other things) of a connection at a fixed location to ensure that consumers have sufficient bandwidth to guarantee social and economic participation in society and to support the minimum set of services established in Annex V of Directive (EU) 2018/1972? Please provide reasons for your views. Annex V 1) E-mail 2) search engines enabling search and finding of all types of information 3) basic training and education online tools 4) online newspapers or news 5) buying or ordering goods or services online 6) job searching and job searching tools 7) professional networking 8) internet banking 9) eGovernment service use 10) social media and instant messaging 11) calls and video calls (standard quality)	Rationale
4	Do you have any specific observations on: (i) eligibility criteria; and/or (ii) quality of service (QoS); and/or (iii) affordability measures that might support the definition of the adequate broadband internet access service in your MS?	
5	Do you have any other general observations on this draft report?	

Figure 40: Consultation Questions 2, 3, 4 & 5 (BoR (19) 260)