

Assessment of the cost of providing wholesale voice call termination services on fixed networks in the EU/EEA countries

EXECUTIVE SUMMARY

A study prepared for the European Commission DG Communications Networks, Content & Technology by:



Digital Single Market

This study was carried out for the European Commission by

Axon Partners Group Consulting



Internal identification

Contract number: LC-00855859

SMART number: 2018/0014

DISCLAIMER

By the European Commission, Directorate-General of Communications Networks, Content & Technology.

The information and views set out in this publication are those of the author(s) and do not necessarily reflect the official opinion of the Commission. The Commission does not guarantee the accuracy of the data included in this study. Neither the Commission nor any person acting on the Commission's behalf may be held responsible for the use which may be made of the information contained therein.

ISBN 978-92-76-12589-1 doi: 10.2759/370144

Luxembourg: Publications Office of the European Union, 2019

© European Union, 2019. All rights reserved. Certain parts are licensed under conditions to the EU.

Reproduction is authorised provided the source is acknowledged. The reuse policy of European Commission documents is regulated by Decision 2011/833/EU (OJ L 330, 14.12.2011, p. 39).

For any use or reproduction of photos or other material that is not under the EU copyright, permission must be sought directly from the copyright holders.

Abstract

Axon Consulting assesses in this study the costs of providing wholesale voice call termination services on fixed networks in EU/EEA countries¹. The assessment is based on Axon's Bottom-up Long-Run Incremental Cost (BULRIC) model, developed thanks to the collaboration with National Regulatory Authorities (NRAs), BEREC and telecom operators across the EU/EEA.

This initiative was commissioned to Axon Consulting by the European Commission (EC) in the context of the Directive (EU) 2018/1972² (the European Electronic Communications Code - EECC) from December 2018, which required the Commission to establish a single maximum voice termination rate that apply Union-wide.

The results of our assessment will be one of the inputs the European Commission will use to fulfil its obligations for the definition of the fixed termination Eurorate for all the EU/EEA Member States.

All the public materials produced under this cost study are available in the Commission's website.

¹ The 31 states that are members of the EU (European Union) and/or EEA (European Economic Area) are: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Liechtenstein, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden and the United Kingdom. However, it is worth noting that Finland, Iceland and Liechtenstein decided not to participate in this cost study and hence, specific results could not be produced for these three countries.

² Directive (EU) 2018/1972 of the European Parliament and of the Council of 11 December 2018 establishing the European Electronic Communications Code, available <u>here</u>.

Executive Summary

This executive summary provides an overview of the context, methodological framework and outputs of the study performed by the EC/Axon team to quantify the costs of providing wholesale voice call termination services on fixed networks in EU/EEA countries. This executive summary is structured as follows:

- Context
- Methodological framework
- Scenarios modelled
- Final results

1. Context

The cost study kicked-off on 3 September 2018. On 23 October 2018, the Commission and Axon hosted the Workshop 1 in the EC's headquarters to present the main principles to be adopted in the development of the Bottom-Up cost model to the industry (including National Regulatory Agencies – NRAs – as well as Fixed Network Operators). Stakeholders were given the possibility to comment on the Workshop 1 materials so that their feedback could be taken into consideration in the methodological design of the model. Detailed answers to stakeholders' feedback were provided in the "Overview of comments to the Methodology presented in Workshop 1 and the Data Collection Process" document circulated on 10 December 2018.

On the same 10 December 2018, a data gathering process was launched with the industry to collect from the NRAs and operators the relevant information required to populate the model for each Member State. A Data Request Form was circulated to the NRAs, together with a Data Request Manual providing detailed descriptions of the data gathering process and instructions on how to fill in the Form. The data collection process was closed on 1 February 2019, although additional pieces of information provided after this deadline were also taken into account when populating the model.

Based on the data provided, the Commission and Axon worked on the implementation of a draft version of the model. This draft, together with its associated documentation³, was submitted to consultation on 6 May 2019. Stakeholders were given eight weeks (until 28 June 2019) to provide their views on the 19 questions that were raised in the consultation

³ Including: methodological approach document, user manual of the model, descriptive manual of the model, consultation document.

document. This consultation process served to i) identify areas of improvement in the model, ii) gather new/corrected inputs from several stakeholders and, as a result, to iii) achieve more accurate and representative results. The feedback and data received were accounted for in a new and final version of the model which addressed the main areas of improvement identified in the consultation round.

The detailed outcomes of the consultation round as well as the final results produced by the model were presented to the stakeholders in the Workshop 2 held at the EC's headquarters on 26 September 2019.

Overall, the process benefited from the participation of the European industry (both NRAs and operators), having received feedback from 66 stakeholders.

2. Methodological framework

The Commission Recommendation on the regulatory treatment of fixed and mobile termination rates⁴ from 2009 defined the key methodological guidelines to be observed by European NRAs in the determination of fixed and mobile termination rates.

The methodological choices presented in the 2009 Recommendation have been reinforced in the Directive (EU) 2018/1972⁵ (the European Electronic Communications Code - EECC) from December 2018.

The methodological framework adopted in this cost study is consistent with the 2009 Recommendation as well as with the related provisions in the EECC.

The table below provides a summary of the key methodological approaches adopted in the development of the cost model:

Methodological aspect	Approach Adopted		
Cost standard	Pure LRIC		
Cost categories considered	 Network CapEx Network OpEx Wholesale specific costs 		

⁴ Commission Recommendation of 7 May 2009 on the Regulatory Treatment of Fixed and Mobile Termination Rates in the EU, available <u>here</u>.

⁵ Directive (EU) 2018/1972 of the European Parliament and of the Council of 11 December 2018 establishing the European Electronic Communications Code, available <u>here</u>.

Methodological aspect	Approach Adopted		
Modelled operator	Hypothetical Efficient operator		
Assets valuation method	 Current Cost Accounting (CCA) 		
Depreciation methodology	 Economic depreciation 		
Modelled period	> 2015-2025		
Core network architecture	 An IMS network architecture for the provision of fixed voice services composed of the following core elements is modelled: AS (Voice Application Server) CDF (Charging Data Function) I-CSCF (Interrogating CSCF) S-CSCF (Serving CSCF) Access SBC (Session Border Controller) P-CSCF (Proxy CSCF) IMS-AGW (IMS Access Gateway) IX SBC (Session Border Controller) IBCF (Interconnect Border Control Function) TrGW (Transition Gateway) ENUM (Electronic Number Mapping System) MRF (Media Resource Function) 		
Active transmission and switching	A mark-up percentage applied over core network costs is considered in the model to reflect the cost associated with active transmission and switching elements.		
Volume forecasts	Projections are based on an assessment of historical traffic patterns and data provided by the stakeholders.		

Exhibit 1: Key methodological approaches adopted in the cost model [Source: Axon]

3. Scenarios modelled

The determination of fixed services' costs in a Bottom-Up model heavily relies on the inputs considered. At the same time, as interactions with stakeholders have shown along the project, in some cases, there may be a debate on what are the most suitable inputs that shall be taken into consideration. In order to address such situations, the model includes the following scenarios for the four elements described below:

Scenario	Alternatives	Description
Core equipment unit costs	Discrete Price catalogues	A set of discrete configurations/capacities is available. If the capacity required falls between two configurations, the higher one must be purchased.
	Continuous functions	A continuous function of price/capacity is used, based on price catalogues used in previous option.
Reference operator	25% Market Share	The model allows the selection of market share of the reference operator.
	50% Market Share	
	Incumbent Market Share	
Demand forecasts	Base Case	Based on historic growth rate.
	Conservative Case	Based on historic growth rate -5 percentual points.
	Aggressive Case	Based on historic growth rate +5 percentual points.
Dimensioning of the AS, I-CSCF, S- CSCF and ENUM ⁶	Based on Subscribers	The dimensioning is assumed based on subscribers, and thus, the cost of this equipment does not contribute to the voice termination service under the Pure LRIC standard
	Based on Voice traffic	The dimensioning is performed based on voice traffic. This option results in the identification of additional incremental costs associated to the core element for the voice termination service.

Exhibit 2: Description of the modelled scenarios [Source: Axon]

The results produced under each combination of scenarios are going to be taken into consideration by the Commission in its decision-making process.

⁶ A different scenario is available in the model for each of these four core elements.

4. Final results

As outlined in the previous section, the model produces results under multiple combinations of scenarios. A 'Summary of results' file (Presentation of results) has been published in the Commission's website that shows the results produced for the fixed termination service in each Member State from 2015 until 2025 under the 288 different combinations of scenarios.

As an illustrative summary of the results, exhibits below show the costs produced by the model under two sample combinations of scenarios. They both take into consideration the following configurations: Core equipment unit costs (Discrete Price catalogues), Reference operator (Incumbent Market Share) and Demand forecasts (Conservative Case). These configurations consider stakeholders' preferred options for each of the scenarios defined. The choice of these scenarios does not necessarily reflect the EC's preferences.

In addition to the above, the two sample combinations of scenarios show the model's results considering the following:

- In the first chart, the scenarios of Dimensioning of the AS, I-CSCF, S-CSCF and ENUM are assumed 'Based on Voice traffic' for these four core elements.
- In the second chart, the scenarios of Dimensioning of the AS, I-CSCF, S-CSCF and ENUM are assumed 'Based on Subscribers' for these four core elements.

In this context, it is important to note that, as interactions with stakeholders have shown along the project, there may be a debate on what are the most suitable dominant capacity units (i.e. between voice traffic and subscribers) that shall be taken into consideration for the dimensioning of these core network elements. This was reflected with stakeholders changing their support in relation to the dominant capacity units for these four core elements⁷. This is also the reason why EC/Axon team decided to include additional scenarios in the cost model to allow the realization of sensitivity analyses.

This does not preclude any decision that the EC will take for the level of Eurorate.

⁷ The majority of operators reported in the Data Request Templates employed during the data gathering process that the dominant capacity units of these core network elements were the number of subscribers. However, during the public consultation on the cost model, some stakeholders provided arguments in favour of dimensioning these four core elements based on voice traffic instead of subscribers.



Exhibit 3: Illustrative results for the fixed termination service assuming that the dimensioning of the AS, I-CSCF, S-CSCF and ENUM is 'Based on Voice traffic' [Source: Axon]



Exhibit 4: Illustrative results for the fixed termination service assuming that the dimensioning of the AS, I-CSCF, S-CSCF and ENUM is 'Based on Subscribers' [Source: Axon]

European Commission

Assessment of the cost of providing wholesale voice call termination services on fixed networks in the EU/EEA countries

Luxembourg, Publications Office of the European Union

2019 – 11 pages

ISBN 978-92-76-12589-1 doi: 10.2759/370144



doi: 10.2759/370144

ISBN 978-92-76-12589-1