



Brussels, 12.11.2018  
SWD(2018) 463 final

**COMMISSION STAFF WORKING DOCUMENT**

**EVALUATION REPORT**  
**on the Commission's 2009 Recommendation on Termination Rates (Recommendation**  
**2009/396/EC)**

{SWD(2018) 464 final}

# Evaluation Report on the Commission's 2009 Recommendation on Termination Rates (Recommendation 2009/396/EC)

## Table of Contents

<a href="#">1. Introduction</a>	3
<a href="#">Purpose</a>	3
<a href="#">Scope</a>	3
<a href="#">2. Background to the initiative</a>	4
<a href="#">General description of the Termination Rates Recommendation and its objectives</a>	4
<a href="#">Baseline</a>	6
<a href="#">3. Evaluation Questions</a>	6
<a href="#">4. Method</a>	7
<a href="#">5. State of play: Implementation &amp; Evolution of the Sector</a>	9
<a href="#">5.1. State of TRR's implementation across the EU</a>	10
<a href="#">5.1.1. Mobile termination</a>	10
<a href="#">5.1.2. Fixed termination</a>	11
<a href="#">5.1.3. Level of consistent implementation of the recommended model</a>	12
<a href="#">6. Answers to the Evaluation Questions</a>	13
<a href="#">6.1. Relevance</a>	13
<a href="#">6.2. Effectiveness</a>	15
<a href="#">6.2.1. Level of termination rates</a>	16
<a href="#">6.2.2. Impact on competition</a>	17
<a href="#">6.2.3. Penetration rate and traffic volumes</a>	20
<a href="#">6.2.4. Reduction of fixed and mobile retail prices and new retail offers</a>	21
<a href="#">6.2.5. Social welfare</a>	23
<a href="#">6.2.6. Limited effectiveness – barriers to the internal market</a>	26
<a href="#">6.3. Efficiency</a>	28
<a href="#">6.3.1. General remarks</a>	28
<a href="#">6.3.1. Impact on operators' revenues and investment</a>	29
<a href="#">6.3.2. Costs and benefits of the TRR</a>	30
<a href="#">6.4. EU added value</a>	31
<a href="#">6.5. Coherence</a>	32
<a href="#">6.5.1. Internal coherence</a>	32
<a href="#">6.5.2. External coherence</a>	32
<a href="#">7. Conclusions</a>	33

<a href="#">7.1. Relevance</a> .....	33
<a href="#">7.2. Effectiveness</a> .....	33
<a href="#">7.3. Efficiency</a> .....	34
<a href="#">7.4. EU added value</a> .....	34
<a href="#">7.5. Coherence</a> .....	34
<a href="#">8. LIST OF ANNEXES</a> .....	34
<a href="#">Annex 1 Procedural information</a> .....	35
<a href="#">Annex 2: Methodology and analytical models</a> .....	37
<a href="#">Annex 3: Synopsis Report</a> .....	40

## 1. INTRODUCTION

At the outset, it has to be considered that the evaluation of the 2009 Termination Rates Recommendation (hereinafter the "Recommendation" or the "TRR") ran in parallel with the legislative works on the adoption of the European Electronic Communications Code ("EECC").

In June 2018 a political agreement on the EECC was reached, and it is expected that it will be formally adopted by end of that year.

The main principle established by the TRR refers to the methodology used to set the rates applied to termination services by operators of fixed and mobile networks. The same principle set by the TRR has been included in the EECC and, consequently, it became binding. Indeed, Annex III of the EECC provides that "the cost methodology to calculate efficient costs shall be based on a bottom-up modelling approach using long-run incremental traffic-related costs of providing the wholesale voice call termination service to third parties".

Therefore, the publication of this Evaluation Report follows the adoption of the EECC. Nevertheless, the Commission considers necessary, in the interest of transparency and accountability, to publish this Evaluation Report, which was prepared in the course of the preparatory works for the EECC. This Evaluation Report also fulfils the obligation to review the functioning and the effects of the Termination Rates Recommendation.

### **Purpose**

The Termination Rates Recommendation states in its Recommend no. 13 that "[t]his Recommendation will be reviewed not later than four years after the date of application". The Commission's commitment to review the TRR by 31.12.2016 at the latest (four years after the deadline for applying the recommended approach), constitutes the basis for this evaluation, the purpose of which is to assess the effect and efficiency of the TRR on market developments in the telecommunications sector in the EU, including a review of different approaches to modelling fixed and mobile termination costs. Such overview should help identify the extent to which other approaches than the recommended one are still used, as well as possible divergences in how the recommended approach has been implemented. The outcome of this evaluation will serve as input to identify whether further action at EU level is needed and to define the scope of such action. The evaluation thus offers a framework for assessing whether it is appropriate to maintain or amend the Recommendation as a tool for achieving the main policy objectives of promoting competition and EU citizens' interest as well as developing the internal market.

### **Scope**

The evaluation covers the implementation of the TRR across the EU since its adoption in 2009. It examines the actual developments in voice termination markets in the EU (e.g. the levels of fixed and mobile termination rates in the various EU countries, differences in these levels across EU countries, and differences between the level of fixed termination rates and the level of mobile termination rates across EU countries) and their impact on wholesale and retail prices.

The evaluation examines the impact of the TRR on competition in fixed-mobile converged services, mobile penetration and competition for voice calls from smaller fixed and mobile operators. The evaluation assesses and quantifies the impact on trade in the internal market (e.g. resulting from the uneven implementation of the TRR by Member States) and consequent impact on end-users. It also seeks to analyse the impact of some Member States' non-implementing the TRR.

In addition, the evaluation looks into the question whether there is a need for either further specification of the recommended methodology and parameters used to derive efficient costs for fixed and mobile network operators, and if so, to identify how this should be done, or change of the current legal instrument used (i.e. Recommendation). For further specification of the scope, please refer to Section 4.

## **2. BACKGROUND TO THE INITIATIVE**

### **General description of the Termination Rates Recommendation and its objectives**

Termination rates are the charges payable by one operator to another for terminating calls to customers of the latter from customers of the former. Termination markets represent a situation of two-way access where both interconnecting operators are presumed to benefit from the arrangement but, as these operators are also in competition with each other for customers, termination rates can have important strategic and competitive implications. Indeed, termination markets are structural monopolies where competitive conditions are not prone to change due to the calling party pays principle (CPP), according to which terminating operators have not sufficient incentives to negotiate efficient termination rates to the ultimate benefit of final consumers. When choosing its operator, the called party is not directly affected by the price of calls paid by the calling party. As such the terminating operator is not constrained by the receiver of the call to set lower termination charges. By subscribing to an operator's network, the subscriber grants monopoly power to its operator on all parties requesting termination in that operator's network.

Where termination rates are set above efficient costs, this creates substantial transfers between fixed and mobile markets and consumers. In addition, in markets where operators have asymmetric market shares, this can result in significant payments from smaller to larger competitors. Furthermore, mobile termination rates (MTRs) which are higher compared to fixed termination rates (FTRs) usually translate into high, albeit decreasing prices for end-consumers. High termination rates tend to lead to high retail prices for originating calls and correspondingly lower usage rates, thus decreasing consumer welfare.

The 2009 Recommendation aimed to achieve consistency between the various approaches applied by national regulatory authorities when regulating termination rates on the basis of sound economic analysis of the efficient rate that would be applied if the market were in fact competitive (estimated using a pure BU-LRIC cost model). The use of a consistent BU-LRIC methodology was expected to lower mobile and fixed termination rates, limit inefficient cross-subsidies between operators, and support increased fixed-mobile competition. The TRR was also expected to facilitate the development of innovative pricing structures and enhance

competition, promoting lower retail prices and the development of innovative services such as fixed-mobile convergent bundles<sup>1</sup>.

Absent a Union-wide effort to coordinate the approach to termination rates, national regulators are likely to take diverging approaches when striking a balance between addressing the interests of end-users (for lower termination rates) and those of their national operators (for higher termination rates) to the detriment of the single market. Such varying approaches would create obstacles to the competitiveness of the sector in the EU and the attainment of consumer benefits from cross-border competition and services. An incoherent application of termination rates regulation among Member States therefore represents a barrier to the internal market.

In particular, the Recommendation requires the implementation of a unique cost model to all operators, based on a hypothetical efficient operator and thus resulting in symmetrical termination rates, i.e. the same rate for all operators in a given country. The recommended model calculates the incremental costs of providing the relevant termination service, namely only those costs which would be avoided if the termination services were no longer provided to third parties. The recommended approach thus implies the exclusion of common costs<sup>2</sup>.

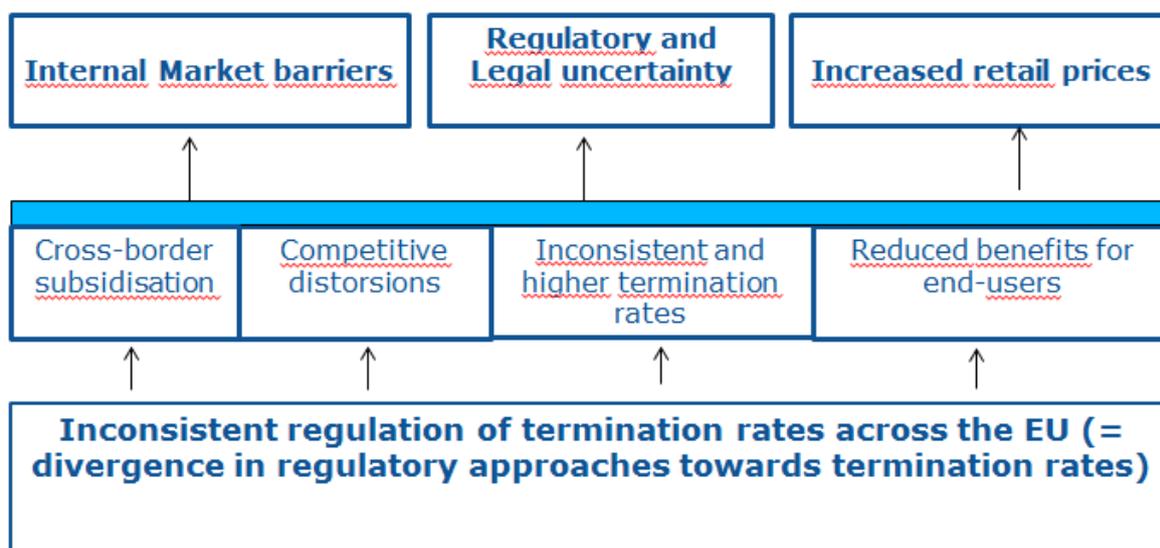
However, some NRAs have not followed the recommended approach thus favouring their national operators by allowing them to charge higher wholesale prices for the termination services – in some instances up to 200% above the EU average. This results in cross-subsidisation of the operators and end users in the non-implementing Member States. Such differentiated treatment, not justified by any objective national circumstances, undermines the regulatory predictability and creates regulation-induced asymmetrical revenue flows across Member States. This in turn distorts efficient investment decisions across the borders.

At the time of its creation the initiative aimed to resolve the problems illustrated in the graph below:

---

<sup>1</sup> Efficient pricing of wholesale termination services and enhanced retail competition have proved to increase consumer benefits, not only in terms of lower retail prices but also wider choice and more innovative services. While the extent to which customer phone bills would decrease depends amongst other things on the extent to which operators pass through any termination rates' reductions to the final consumers, it cannot be ignored that high termination rates are likely to artificially increase consumer prices.

<sup>2</sup> A BU-LRIC approach that includes common costs is referred to as a 'BU-LRIC+' approach.



### Baseline

The assessment of more than 440 draft measures, related to the termination markets, notified under Article 7 of Directive 2002/21/EC (the Framework Directive) since 2003 and until the adoption of the TRR had shown that inconsistencies in the regulation of voice call termination rates existed across the EU. Although some form of cost orientation was generally provided for in most Member States, price control measures were differing across Member States. The practices in implementing those tools were also different. Foremost the differences related to the choice of the cost setting methodology (such as Fully Distributed Costs models, Long Run Incremental Average and approach to the individual cost elements (inclusion or exclusion of spectrum licence costs, commercial costs) or model assumptions (network technology, market share). This in turn resulted in significant variations in the FTRs' and MTRs' levels across the EU. National specificities could only partly explain the resulting spread.

The significant divergences in the regulatory treatment of fixed and mobile termination rates created fundamental competitive distortions<sup>3</sup>. The lack of harmonisation in the application of cost-accounting principles to termination markets called for a common approach providing greater legal certainty and the right incentives for efficiency. The objective of coherent regulation in termination markets was at the time clear, recognised by the NRAs and repeatedly expressed by the Commission in the context of its assessment of draft measures under Article 7 of the Framework Directive.<sup>4</sup>

### 3. EVALUATION QUESTIONS

The following questions were set out under the five different evaluation criteria and form the main basis for the evaluation:

<sup>3</sup> Commission SWD SEC(2009) 599 of 7 May 2009, p. 12.

<sup>4</sup> Commission has consistently commented on the need to apply a coherent European approach. For examples of such comments see cases: UK/2006/0498, FR/2007/0669, FI/2008/0778, IT/2008/0779, PL/2008/0794, CZ/2008/0841, BG/2009/0866.

## **Relevance**

- To what extent do the original objectives of the Recommendation still correspond to the issue it was designed to address?
- Does the issue still exist, has it disappeared or is there a different or supplementary issue which has now emerged which needs to be tackled?
- Will the existing measure, in terms of both legal tool (Recommendation) and recommended methodology (BU-LRIC model) continue to enable the objectives set to be achieved?
- Is there still a need to continue to have a Recommendation in this field at EU level? If so, why?

## **Effectiveness**

- How successful has the Recommendation been in achieving its objectives?
- Are there any aspects that are more or less effective than others, and, if so what lessons can be drawn from this, e.g. when setting the model parameters?

## **Efficiency**

- If the Recommendation led some NRAs to adopt the proposed costing methodology (LRIC), what have been the costs and benefits entailed (for each type of stakeholder impacted)?
- In particular, has the expected increase in competition and decrease in prices for consumers been observed, and if so, is it likely that it stems from this Recommendation (causal link) and/or could other parallel developments/factors have been the main change drivers?

## **EU added value**

- What is the additional value resulting from the intervention at EU level compared to what could have been achieved by Member States acting at national and/or regional levels?

## **Coherence**

- To what extent has the Recommendation proven to be coherent with other related EU policies?

## **4. METHOD**

The evaluation of the Termination Rates Recommendation started in the second quarter of 2015.

It involved the establishment of a Steering Group, of relevant Commission Services (Secretariat General, DG ECFIN, DG COMP, Legal Service, DG GROW, DG EMPL, DG JUST and DG TRADE) to oversee the evaluation. The inter service group met regularly throughout the entire evaluation process.

Evidence gathering:

a. Study of the TRR's impact by an external consultancy

A contract was signed with TERA consultancy to gather and assess data available in order to provide a quantitative analysis of the issues indicated in Section 2 ('TERA study'). This quantitative analysis has been used by the Commission services as input for the qualitative evaluation of the Recommendation. A workshop involving the Commission, BEREC, NRAs and private stakeholders was held as part of this study.

b. Evidence from monitoring, including evidence from assessing the implementation and application of legislation (complaints, infringement procedures)

Article 7 allows the Commission to follow the degree of implementation of the current Recommendation. Moreover, the Body of European Regulators for Electronic Communications (BEREC) provides regular snapshots of the level of termination rates and the degree of implementation of the Recommendation. High-quality data stemming from telecoms national regulators and operators is therefore available.

c. Public open consultation

In accordance with Better Regulation Guidance a 12 week on-line public consultation was undertaken on the EU Survey website from 15 March to 7 June 2016. The questionnaire was available in 3 EU languages (EN, FR, DE) and gathered a total of 65 replies from stakeholders in all Member States as well as from outside the Union. An initial summary report of the findings and a full "synopsis report" together with the submissions to the public consultation were published on the Commission website on 1 February 2017<sup>5</sup>.

It also aimed at gathering views on the extent to which the currently recommended methodology is (still) appropriate, on whether there is a need for further action at EU level and on the scope of any such action.

d. BEREC Benchmarking Reports on the Fixed and Mobile termination rates

BEREC regularly publishes a benchmark of fixed and mobile Termination Rates (TRs) across Europe<sup>6</sup>. This benchmark is based on the BEREC Benchmarking Expert Working Group in cooperation with the BEREC Remedies Expert Working Group and the BEREC Office and aims to offer a picture of the regulated rates for fixed and mobile interconnection services in

---

<sup>5</sup> <https://ec.europa.eu/digital-single-market/en/news/commission-reports-public-consultation-termination-rates-recommendation>

<sup>6</sup> For the most recent report please see [https://berec.europa.eu/eng/document\\_register/subject\\_matter/berec/reports/8162-termination-rates-at-european-level-january-2018](https://berec.europa.eu/eng/document_register/subject_matter/berec/reports/8162-termination-rates-at-european-level-january-2018) and previously [http://berec.europa.eu/eng/document\\_register/subject\\_matter/berec/reports/6603-termination-rates-at-european-level-july-2016](http://berec.europa.eu/eng/document_register/subject_matter/berec/reports/6603-termination-rates-at-european-level-july-2016)

Europe. The benchmarking report presents the overview of the levels of termination rates, their evolution over time, forward-looking developments (future dates of entry into force of price decisions), applied methodologies, etc.

#### Collation/Triangulation of evidence

The evaluation of the implementation of the TRR was supported by a dedicated study, based mostly on the quantitative assessment of the evolution of the termination rates prior to and after the date of application of the Recommendation. Other sources of evidence include the results of the workshop and submissions in the public consultations, Commission's experience and case law related to the draft measures notified throughout the year by National Regulatory Authorities under the Article 7 of the Framework Directive, as well as available studies and reports published by other regulatory authorities.

The gathered evidence has been assessed against the responses obtained in the public consultation, and the experience built through Commission's Article 7 decision practice. This triangulation is contributing to the robustness and the independence of the findings provided in this evaluation.

#### **Limitations**

The evaluation takes into account the inherent limitations of the findings of public consultations, which – as can be seen from the above – has been one of several methods to evaluate the TRR's impact and achievements.

Firstly, as in all surveys, the answers received reflect the views of a self-selecting sample of relevant stakeholders and not those of the entire population which has a stake in this domain. Secondly, stakeholders' views convey an individual rather than a holistic perspective. Stakeholder mapping was used to mitigate this effect.

It is not considered that the market developments described in this report should be solely and directly attributed to the TRR. First, there are many other factors that have influenced developments in fixed and mobile markets in Europe over the last years. Second, there is significant heterogeneity between countries that have implemented the TRR and similarly between those that have not. Thus, it is sometimes difficult to establish a causal relationship between the implementation of the TRR and market developments. This limitation has been taken into account when drawing conclusions on the TRR's effects.

## **5. STATE OF PLAY: IMPLEMENTATION & EVOLUTION OF THE SECTOR**

This section summarises the current state of implementation of the 2009 Termination Rates Recommendation.

## 5.1. State of TRR's implementation across the EU<sup>7</sup>

Despite the non-binding nature of the Termination Rates Recommendation, 27<sup>8</sup> NRAs currently apply it to address excessive pricing in mobile termination markets, and 25<sup>9</sup> NRAs to address the same market failure in the fixed termination markets.

The NRAs, supported by BEREC, considered that the constraints imposed by national law, particularly as to the interpretation of the principle of proportionality, are one of the key reasons for the lack of implementation of the Recommendation. According to BEREC, the main reason for the Recommendation being implemented to a slightly lesser extent for fixed termination is that NRAs have first started working on the mobile voice call termination markets, where the termination rates were the highest.

### 5.1.1. Mobile termination

One NRA (FI) has not yet implemented the recommended pure BU-LRIC methodology for mobile termination<sup>10</sup>. The situation in this Member state is as follows:

- Finland: In February 2015, the Finnish regulator (FICORA) has notified<sup>11</sup> the Commission its decision setting mobile termination rates according to a 'top-down fully allocated' cost model which, if applied, would result in much higher rates when compared to a pure BU-LRIC level. This stance translates into significant distortions in the balance of payments for cross-border call traffic and, ultimately, creates a notable barrier to the internal market. FICORA justified its decision to deviate from the recommended pure BU-LRIC methodology by alleged restrictions imposed on FICORA by way of national law, and more specifically on the interpretative value of the preparatory documents leading to the adoption of the Finnish Information Society Code<sup>12</sup>. Despite the fact that those limitations have not been formally incorporated into

---

<sup>7</sup> Please note that the Commission services are providing the most recent data updated according to the latest notifications received and assessed by the Commission under Article 7 consultation procedure. The TERA Study which also constitutes a source of evidence for this evaluation is based on slightly outdated data.

<sup>8</sup> Austria, Belgium, Bulgaria, Croatia, Czech Republic, Denmark, France, Germany, Greece, Hungary, Ireland, Italy, Luxembourg, Malta, the Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden and United Kingdom have developed their own BU-LRIC cost models. Cyprus, Estonia, Latvia and Lithuania have imposed MTR rates via benchmarking of other countries that applied pure BU-LRIC. (Source BEREC and EC database).

<sup>9</sup> Austria, Belgium, Bulgaria, Croatia, Czech Republic, Denmark, France, Greece, Hungary, Ireland, Italy, Lithuania, Luxembourg, Malta, the Netherlands, Romania, Slovakia, Slovenia, Spain, Sweden and United Kingdom have implemented their own pure BU-LRIC cost models. Cyprus, Estonia, Latvia and Portugal have followed the benchmarking alternative approach, based on pure BU-LRIC rates of other NRAs. (Source BEREC and EC database). Despite the initial intentions of the German regulator (BNetzA) to set the FTRs at the pure BU-LRIC levels, the rates are not yet set according to this cost standard. The Commission is currently conducting a Phase 2 investigation concerning the proposed FTRs regulation by BNetzA, with the deadline of 23 June 2017.

<sup>10</sup> However, in the Commission's view, there are only two NRAs who have not implemented the TRR since (i) in Ireland the NRA has already adopted a BU-LRIC model for MTRs which has entered into force in August 2016, and (ii) pure BU-LRIC rates apply for MTRs in Germany as of March 2017.

<sup>11</sup> Case notified to and reviewed by the Commission under case FI/2015/1718.

<sup>12</sup> The reasoning of Government Bill 221/2013 (a preparatory document leading to the adoption of the binding Information Society Code) states that "*The costs of an efficient operator should include, to a reasonable degree, also the overheads regarding production of the products or services. Hence, the pure LRIC methodology, which has been used in some EU countries, could not be seen as reasonable.*"

the binding legal provisions, FICORA considered them as binding upon itself, based on the decisive nature of the preparatory documents when interpreting the meaning of the legal provisions.

The Netherlands: until October 2017<sup>13</sup> the Dutch regulator (ACM) applied a BU-LRIC+ cost model as a result of the annulment by the Trade and Industry Tribunal of the NRA's decision of 7 July 2010 regulating termination rates on the basis of the recommended methodology. The Tribunal ordered OPTA (ACM's predecessor) to take a new decision regarding the price caps for both fixed and mobile termination rates on the basis of the BULRIC+ methodology. Following a preliminary reference by the Dutch College van Beroep voor het bedrijfsleven (CBb), the ECJ clarified, in a judgment of 15 September 2016, that a national court, in its judicial review of a decision by a national regulator, must take into account the approach set under a Commission Recommendation and may only deviate from it in order to address identified, specific national circumstances. Moreover, the proportionality of the decision should be judged taking into account among others the interest of the users (EU citizens) on the retail market which is not subject to ex ante regulation (para 50-55). Finally, a review body cannot require that the NRA actually demonstrates the actual impact on the objectives under Art 8(FwD) (para 57-60). On 10 July 2017, the CBb confirmed in a final ruling that ACM may impose tariff regulation for fixed and mobile termination based on the pure BU-LRIC model<sup>14</sup>. The CBb followed ACM's view that pure BU-LRIC tariff regulation will contribute, *inter alia*, to the development of the internal market. The model currently applied in the Netherlands (as of October 2017) is pure BU-LRIC, therefore in line with the TRR.

### 5.1.2. Fixed termination

3 out of 28 NRAs have not implemented the Recommendation for fixed termination. The reasons for this non-compliance are the following:

- Finland: The NRA considers that in view of the state of market development (services in the fixed networks are a declining market), *ex ante* regulation of FTRs is not appropriate.
- Poland: While the NRA has not reviewed the fixed termination market since 2009, the Commission has no information as to the intention to apply a BU-LRIC model.
- Germany: As of 1 January 2017, the regulator (BNetzA) has notified its intentions to set the FTRs in line with the pure BU-LRIC method<sup>15</sup>. However the FTRs in Germany are not yet set at the pure BU LRIC level<sup>16</sup>.

---

<sup>13</sup> Case notified to and reviewed by the Commission under Cases NL/2017/1975-1976.

<sup>14</sup> KPN et al. v. ACM, cases 13/550, 13/552, 13/558, 13/672, 13/700, 13/701.

<sup>15</sup> Case notified to and reviewed by the Commission under Case DE/2016/1945.

<sup>16</sup> On 17 November 2016, BNetzA notified the Commission its intention to align FTRs with the TRR (case DE/2016/1945). However, on 23 January 2017 BNetzA notified its decision setting out the prices for FTRs, proposing to adjust the rate resulting from its BU-LRIC model by a benchmarking approach referencing against those countries which also apply a pure BU-LRIC cost model. This draft measure was the object of a Commission Recommendation issued after a Phase II investigation (case DE/2017/1961).

- The Netherlands: until October 2017<sup>17</sup> the NRA applied a BU-LRIC+ cost model. In 2013, three mobile operators challenged the decision of the Dutch NRA imposing (lower than the current) pure BU-LRIC rates for fixed and mobile termination markets, underlining the need to follow the Commission's Recommendation on Termination Rates in view of the pursuit of the Single Market objective. In particular, KPN challenged the proportionality of the cost methodology before the national court, arguing that it was more burdensome for operators compared to the previously used BU-LRIC+ costing methodology. The court annulled the measure. Further to a challenge to a court of appeal, and subsequent to a request for a preliminary ruling to the ECJ, the latter adopted a judgment clarifying the extent to which national courts can depart from the Termination Rates Recommendation (Judgment of 15 September 2016, C-28/15). The model currently applied in the Netherlands (as of October 2017) is pure BU-LRIC, therefore in line with the TRR.

In February 2016, the Austrian regulator (TKK) notified the Commission a draft measure proposing to allow Austrian operators to differentiate termination rates charged to other MS' operators based on a reciprocity criterion, i.e. higher price caps for calls originating in MS which had not brought down MTRs and FTRs in line with the TRR. Austria itself had implemented the EU-recommended model, without differentiating between EU countries of origin. RTR's draft measure aimed to address the financial losses on traffic incurred by Austrian operators which experienced significant traffic flows with operators in some of the EU Member States which had not yet implemented the EU-recommended approach, and in particular Germany.

Further to a Commission Recommendation concluding on the inconsistency of the draft measure with the non-discrimination principle and its deepening the existing barriers on the internal market, TKK did not implement the proposed measure.

### *5.1.3. Level of consistent implementation of the recommended model*

When investigating the cases notified in accordance with the Article 7 EU consultation procedure, the Commission (and also BEREC in some cases) identified a lack of consistency in the way NRAs are implementing the recommended model. The Commission has in particular observed the following:

- A divergence in the way wholesale commercial costs are calculated for the purpose of setting FTRs<sup>18</sup>;
- The need for the purpose of determining the minimum efficient scale to model an operator who is already efficient when it enters the market (instead of modelling an operator which would need several years to reach an efficient target scale)<sup>19</sup>;
- The need to define the appropriate interconnection level to be modelled for the purpose of defining FTRs;
- The need to model 4G technology;
- The need to properly define the termination increment;

<sup>17</sup> Case notified to and reviewed by the Commission under Cases NL/2017/1975-1976.

<sup>18</sup> See for instance case AT/2014/1618. According to information available to the Commission, some NRAs did entirely disregard in their BU-LRIC cost models wholesale commercial costs, and those NRAs which calculate such costs would have found ratios of wholesale commercial costs to total costs varying between 20% and 75%.

<sup>19</sup> Case EL/2016/1563, C(2014) 1690 final.

- Some NRAs are applying the average rate resulting from the model's output for the several years modelled) while others apply a different rate for each year as calculated by the model.

TERA has identified some room for possible further EC guidance to modelling termination costs on the basis of the recommended pure BU-LRIC approach<sup>20</sup>. In response to the public consultation, BEREC expresses the view that the advantages of such guidance should be carefully assessed against potential drawbacks, such as an increased regulatory burden. Moreover, the predominant majority of respondents in the public consultation (60% among them also industry associations<sup>21</sup>) consider that it is appropriate to act at the EU level in order to achieve closer harmonisation of MTRs and FTRs across EU.

## 6. ANSWERS TO THE EVALUATION QUESTIONS

This section summarises the main findings in relation to the analysis of each of the questions set out in Section 3.

### 6.1. Relevance

The section below evaluates the extent to which the general specific objectives of the Recommendation are still relevant and/or if new objectives should be pursued.

The evaluation found that the TRR's objectives – promoting efficiency and sustainable competition, as well as consumer welfare by rendering termination rates lower and consistent across Member States, in line with Article 13(2) of the Access Directive – remain relevant. Although most of the Member States apply its provisions, some NRAs have asserted that the TRR is incompatible with national law or the NRA's decision to impose BU-LRIC-based termination rates was successfully challenged by operators. Even in a scenario where one NRA fully aligns its approach to termination rates with the TRR, the above issues highlighted in paragraph 6.1.3 would persist as long as termination rates in other Member States are not consistent.

Consistent low termination rates, in line with the Recommendation, are an important prerequisite for the sustainable implementation of the roam-like-at-home provisions, since they can help to avoid margin squeeze between retail prices at national level and roaming rates which will have to cover the costs of terminating a call. Remaining inconsistencies would not allow achieving the RLAH's objective, namely the reduction of roaming charges.

In addition, since NRAs have to make several discretionary choices before calculating the costs of termination rates, it is very likely that some of these choices vary from one country to another. The evaluation exercise points to the possibility for some modelling aspects to be further harmonized. This concerns in particular the NRAs' approaches for calculating the

---

<sup>20</sup> While for MTRs it appears less obvious to parameters which could be further specified, TERA suggests that FTRs recover the following categories of costs: wholesale commercial costs specific to termination; avoidable interconnection gateway costs and avoidable IMS costs.

<sup>21</sup> 46 respondents, of which 28 in the "industry" category.

wholesale commercial costs. Notifications reviewed under the Article 7 procedure following the adoption of the TRR revealed discrepancies in the way commercial costs are accounted for. While 30 (out of the 65)<sup>22</sup> respondents to the public consultation consider that further guidance on wholesale commercial costs is needed, the outcome is rather uncertain when it comes to the content of such guidance. The responses vary from no inclusion of these costs to harmonisation of their calculation. BEREC, in its response to the public consultation, has expressed the view that the advantages of further harmonisation should be carefully assessed against potential drawbacks, such as an increased regulatory burden. Moreover, at the workshop on the TERA<sup>23</sup> study, some stakeholders have warned against the potential drawbacks of further specifying the model's requirements. In addition, the TERA study notes the NRAs' divergent treatment of spectrum costs for which the TRR has left some room for interpretation.<sup>24</sup>

Nearly 59%<sup>25</sup> of the respondents to the Commission public consultation considered that the TRR is significantly or moderately relevant to meeting the policy objective defined in Article 8 of the Framework Directive, namely the development of the internal market. The corresponding figures relating to the promotion of competition and the promotion of the interests of the EU citizens are respectively 66%<sup>26</sup> and 60%<sup>27</sup>.

Operators subject to price control argued that it is not necessary, or will not be necessary in the near future (due to technological developments). Almost 30% of respondents (largest operators) underlined that in the all-IP environment termination services will no longer constitute a bottleneck. In addition they also consider that due to fixed-to-mobile substitution the regulation of fixed termination rates will no longer be needed, while over-the-top providers (OTTs) will sufficiently constrain the pricing of mobile termination rates. However a clear majority of respondents (64.6%<sup>28</sup>) as well as BEREC<sup>29</sup> considered that given the current monopolistic character of call termination markets, these markets will remain a bottleneck in the future and continue to require regulation. Therefore intervention at the EU level was found to remain relevant also in the foreseeable future.

Moreover, BEREC considers that BU-LRIC is the appropriate approach to TRs and recalls the positive impact of the TRR on the internal market, competition and end-users as well as regulatory certainty. Similarly, the majority<sup>30</sup> (60%) of respondents to the public consultation see the need to address the termination rates at the EU level in order to achieve greater harmonization.

---

<sup>22</sup> 17 industries/associations, 6 NRAs/other public authorities, 7 individuals.

<sup>23</sup> Workshop on the Evaluation of the Termination Rates Recommendation held with public and private stakeholders on 15 March 2016.

<sup>24</sup> Costs of spectrum usage relate to the authorisation to retain and use spectrum frequencies. It is observed that while currently some NRAs include spectrum costs in their BU-LRIC model, others do not.

<sup>25</sup> 38 respondents: 20 industry, 12 individuals/NGOs, 6 NRAs/other public authority.

<sup>26</sup> 43 respondents: 28 industry, 9 individuals, 6 NRAs/ other public authority.

<sup>27</sup> 39 respondents: 25 industry, 9 individuals, 5 NRAs/ other public authority.

<sup>28</sup> 42 respondents: 23 industry, 12 individuals, 5 NRAs.

<sup>29</sup> BEREC, while considering that in the future, the need to regulate termination rates will have to be assessed, expresses the view that "for now and at least the near future", call termination markets can be expected to remain a bottleneck and as long as the regulation of termination rates remains necessary, an action at EU level is relevant, in the light of the impacts on the internal market.

<sup>30</sup> 46 out of 65 respondents, of which 28 among the industry.

In light of the above, it can be considered that the principles of the TRR remain relevant. The main issue to be addressed is termination rates' divergence due to the non-implementation of the TRR in some Member States. Therefore an intervention at EU level, ensuring that the TRR's principles are effectively implemented in all Member States appears appropriate to address the failures in the relevant fixed and mobile voice call termination markets.

## 6.2. Effectiveness

The evaluation found that the TRR has contributed to achieving lower (see section 7.2.1 below) and more consistent termination rates across the EU (see section 6.1 above)<sup>31</sup>. It has also reduced the difference between mobile and fixed termination rates, thus limiting the unjustified cross-subsidisation from fixed to mobile operators, as shown by the sharp reduction in MTRs, charged both to mobile and fixed operators. Prior to the adoption of the TRR, fixed operators were charged artificially high mobile termination rates subsidising mobile operators' activity, as explained in the Commission's Staff Working Documents accompanying the TRR<sup>32</sup>. Low termination rates have helped develop new all-net and flat-rate offers and the decline of offers differentiating between on-net and off-net calls<sup>33</sup>, thereby allowing new entrants to expand and compete more effectively, as shown below in section 7.2.2. Nothing indicates that the TRR may have had a more negative impact on those countries that have implemented it. This appears to apply both to the measurable impact on investment in networks<sup>34</sup> as well as the impact on retail tariffs to compensate for operators' decreased termination revenues, i.e. a waterbed effect, which had been feared by some at the outset, has not materialised or has disappeared<sup>35</sup>.

According to BEREC<sup>36</sup>, the efficient cost-oriented and symmetric termination rates enforced by the Recommendation have undoubted benefits for end-users in terms of retail prices, quality and diversity of telecommunication services. Furthermore, the respondents to the public consultation pointed out, that while the TRR has been successful in lowering termination rates across Europe and achieving symmetries at national level, thus promoting the interests of EU citizens and competition in the market, it was somewhat less successful in

---

<sup>31</sup> BEREC benchmarking report "Termination rates at European level January 2016", BoR (16)90.

<sup>32</sup> See SEC (2009) 599 and 600 of 7.5.2009.

<sup>33</sup> An on-net call is one where both the calling and called parties are on the same provider's network. An off-net call is one where the call terminates on a provider's network, which is different from the caller's network. Flat-rate offers cover calls to all networks (and not only on-net calls), or fixed/mobile convergence offers. In more general terms, flat-rate refers to a pricing structure where a single fee is charged for a service, regardless of usage/volume.

<sup>34</sup> TERA consultants recognise the difficulty of assessing the causality between the TRR and investments in fixed networks. However, given that the countries that have not adopted pure BU-LRIC do not appear to be investing more than the implementing countries (the analysis rather points to the contrary), the report concludes that the TRR does not have a negative impact on investments. Evaluating the impact of the TRR on the fixed sector was more difficult due to the following factors: (i) the greater relevance of voice services in the mobile sector than in the fixed sector; (ii) citizens in Europe typically use more their mobile phones than their fixed phones to make calls more; (iii) FTRs have always been much lower than MTRs. Therefore, the consultants considered that the impact of FTRs on the fixed market is likely to be small and difficult to determine. Academic papers evaluating the impact of regulation of termination rates in Europe also suggest that there is no evidence that regulation caused a reduction in mobile operators' investments. See Genakos, C. and Valletti T., 2014, 'Evaluating a decade of mobile termination rate regulation', December 2013. Working paper available at: <ftp://www.ceistorvergata.it/repec/rpaper/RP303.pdf>.

<sup>35</sup> Genakos, C. and Valletti T., 2014, 'Evaluating a decade of mobile termination rate regulation', December 2013. Working paper available at: <ftp://www.ceistorvergata.it/repec/rpaper/RP303.pdf>

<sup>36</sup> BEREC Report on the implementation of the Termination Rate Recommendation, BoR (15) 209\_

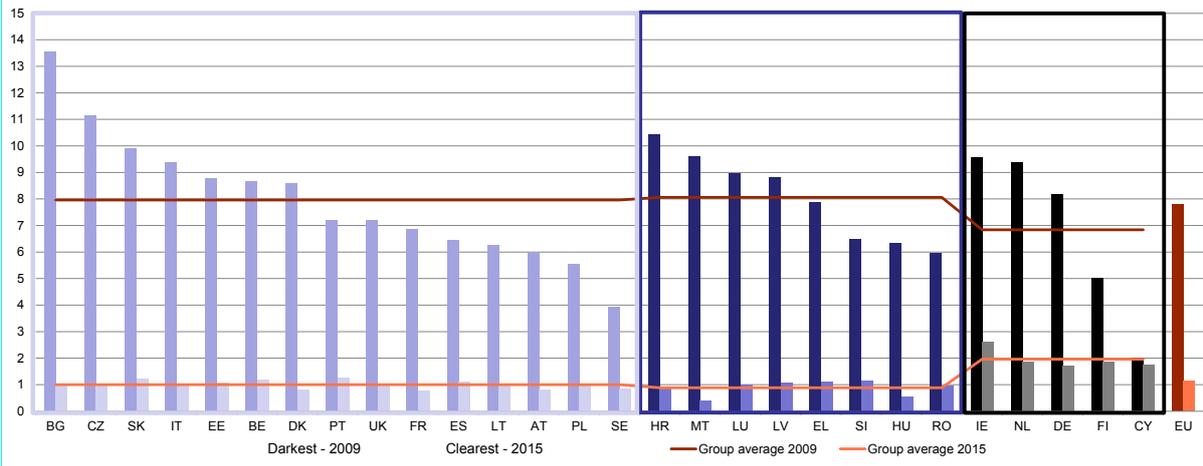
promoting the internal market. The main reason appears to be asymmetries of termination rates across the Member States, mainly due to the non-implementation of the TRR and to a lesser extent to the inconsistent implementation of the recommended principles. Almost half<sup>37</sup> of the respondents indicated that the TRR's contribution to the internal market objective was significant or moderate, whereas others considered this contribution to be little or not at all. This indicates that while the Recommendation has led to decreased termination rates based on more consistent regulatory approaches, it has not been fully effective in promoting the development of the internal market, which remains one of the main principles of the EU telecommunications framework.

6.2.1. Level of termination rates

Mobile termination rates

MTRs decreased significantly in all Member States that have implemented the TRR, from an average of 8 EURcents/min in 2009 to 1 EURcents/min in 2015 (an 87% decrease).

Figure 1: Evolution of MTRs in EU28 between 2009 and 2015 (EURcents/min) – Light blue: Early Pure LRIC Group / Dark blue: Late Pure LRIC Group / Black: No Pure LRIC Group



While MTRs were already showing a decreasing trend before 2009 (-11% per annum), this decreasing trend has accelerated after the TRR (-27% per annum) and was even faster in the countries that implemented pure BU-LRIC (-29%) (see Figure 6 below). TERA consultants estimated that without the TRR, average MTRs in the EU28 in 2015 would have been between EUR1 cent/min (+100%) and EUR 4 cent/min (+400%) higher than the present MTRs.

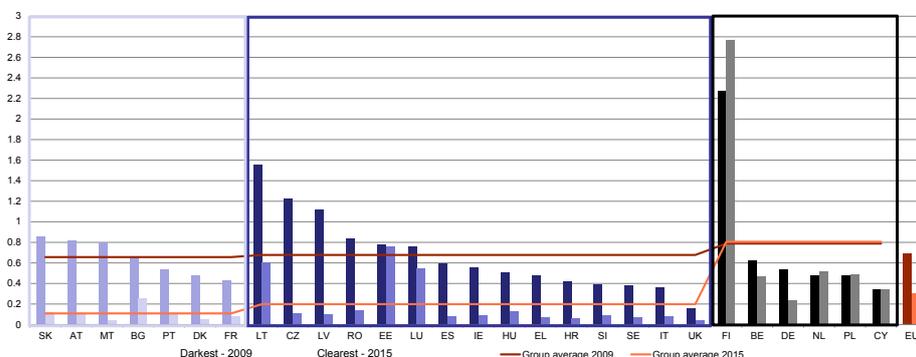
The above therefore indicates that the adoption of the TRR has led to the decrease of termination rates. In addition, as most Member States had implemented the recommended approach, the differences in MTRs between Member States have also significantly declined across countries in the last years, the average of MTRs based on the recommended approach amounting to approximately EUR 1 cent/minute.

Fixed termination rates

<sup>37</sup> 30 respondents: 16 industry, 8 individuals, 6 NRAs.

FTRs decreased significantly in all Member States that have implemented the TRR, from an average of EUR 0.7 cents/min in 2009 to EUR 0.3 cents/min in 2015 (a 57% decrease).

**Figure 2: Evolution of FTRs in EU28 between 2009 and 2015 (EURcents/min) – Light blue: Early Pure LRIC Group / Dark blue: Late Pure LRIC Group / Black: No Pure LRIC Group**



While FTRs were decreasing before 2009 (-6% per annum), this decreasing trend has accelerated after the TRR (-13% per annum) and even faster between 2013 and 2015 (-22% per annum) for the EU28. This is despite the fact that countries that did not implement the TRR have experienced a stable evolution of FTR since 2011.

Unlike MTRs, disparities in FTRs across Member States have not decreased but rather slightly increased since 2009. It is also important to note that the difference between MTRs and FTRs has been significantly decreasing to around EUR 1 cent/min while it was 7 times greater in 2009. In relative terms, the ratio MTR/FTR has decreased from 10 in 2009 to 4 in 2015.

The responses to the public consultation show significant convergence on the conclusion that a pure BULRIC approach is best suited to meet policy objectives. However, some industry stakeholders consider that the reduction of termination rates cannot be attributed solely to the TRR, but also to an overall development in the market over the last years. Therefore, it is difficult to assess exactly what would have happened without regulation. Given the important reduction of both fixed and mobile termination rates, it can nevertheless be concluded that the TRR has played an important role in the termination rates' downward trend observed in the EU.

### 6.2.2. Impact on competition

One of the key expectations of the TRR was the increase in competition in the EU mobile market with the decline of the biggest operators' advantage due to reduced on-net/off-net price differentials vis-à-vis smaller operators.

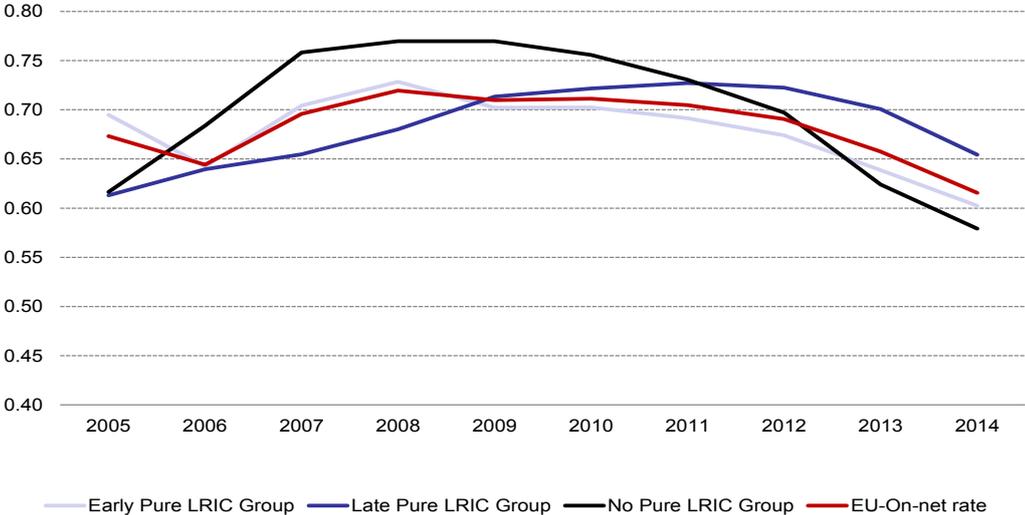
These expectations appear to be well founded.

The share of on-net calls<sup>38</sup> has been decreasing in all countries with the decrease of MTRs. The decrease has been slower for countries that implemented the TRR late. Overall it can be

<sup>38</sup> The lower share of on-net calls is the consequence of the decline of offers differentiating between off-net and on-net calls and the development of new all-net offers. Above-cost termination rates result in higher off-net wholesale and retail prices. As smaller networks typically have a large proportion of off-net calls, this leads to significant payments to their larger competitors and hampers their ability to compete with on-net/off-net retail offers of larger incumbents. High termination rates can thus reinforce

noticed that the share of on-net calls has been decreasing at EU level especially since 2012, which was the deadline for TRR's implementation. Decreased and symmetrical (set at the same level for all operators) termination rates led to the decline of offers differentiating between off-net and on-net calls and the development of new all-net offers. This has in turn led to a decrease in the share of on-net calls.

**Figure 3: On-net calls rate (%)**



Also, the number of mobile virtual network operators (MVNO) across Europe has grown by 120% between 2009 and 2015. While several factors can potentially explain the growth in the number of MVNOs in Europe, the importance of MTRs for MVNOs is such that the TRR can be considered as one of the main factors<sup>39</sup>. Indeed, given that MVNOs have a smaller subscriber basis compared to MNOs, high TRs would be detrimental to MVNOs since this would imply higher termination outpayments for off-net calls.

According to the TERA study (see figure below) since 2010 the market shares of the smallest operators have been constantly increasing in all Member States, showing the increasing competition since the TRR was issued<sup>40</sup>. While termination rates have been decreasing in all countries, the observed downward trend has been incentivized by the adoption of the TRR which first led to significant reductions in implementing countries.

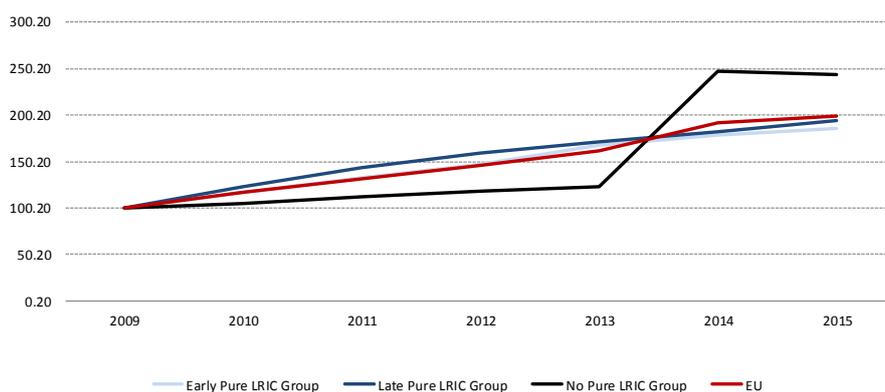
---

the network effects of larger networks and increase barriers to smaller operators entering and expanding within markets. The lower share of on-net calls shows that such network effects have not been reinforced, allowing smaller operators to compete more effectively. The alignment between historically high prices for off-net calls and prices for on-net calls at a truly cost-oriented level (as result of TRR's calculation principles) annuls the possibility for operators to apply higher rates for the termination of calls originated in other operators' networks (off-net calls). This results in more off-net calls being terminated contributing to smaller operators' expansion.

<sup>39</sup> It is to note however that only 24.6% of the respondents to the public consultation consider that lower termination rates led to (significantly or moderately) decreased entry barriers for new operators who decided to enter the fixed and mobile telephony markets. Nearly the same percentage replied that lower termination rates did not decrease entry barriers for new operators at all.

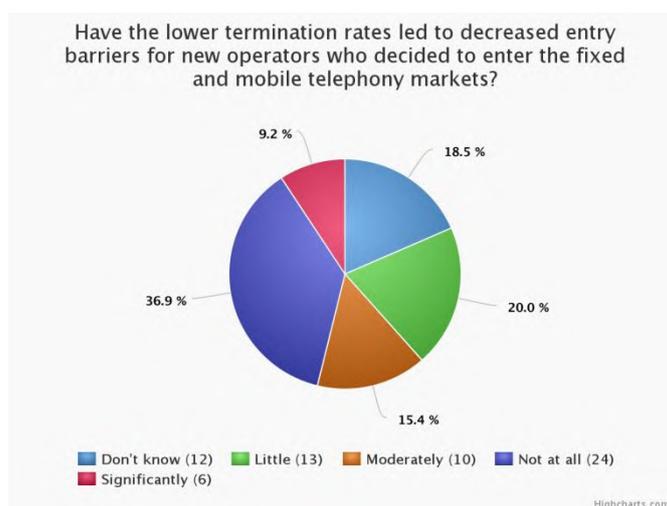
<sup>40</sup> The sudden growth of the No Pure LRIC Group is related to the two mergers that occurred in Germany and Ireland in 2013 described previously.

**Figure 4: Evolution of smaller operators' market shares (base 100 in 2009)**



Moreover, as the below figure indicates, approximately 45%<sup>41</sup> of the respondents to the public consultation are of the opinion that TRR has led to a small, moderate or significant decrease of entry barriers for new entrants.

**Figure 5: The effect on lower termination rate on entry barriers**



However, many others consider that the TRR is not directly linked to the reduction of entry barriers, which is rather due to changing dynamics of the market. Large operators do not find enough evidence to suggest that the TRR led to an increase of competition with mobile offerings<sup>42</sup>. Although the decreased entry barriers cannot be directly attributed to the TRR, most respondents agree that TRR has contributed to the emergence of flat-rate and bundled offers, as well as to significantly reduced cross-subsidisation which ultimately enhances competition.

In response to the public consultation, BEREC argued that in the case of termination services, the pure BU-LRIC is the best suited approach to facilitate a more efficient distribution of financial transfers between competing operators and, consequently, to contribute to a level playing field between all fixed and mobile operators.

<sup>41</sup> 29 respondents: 19 industry, 6 individuals/ NGOs, 4 NRAs.

<sup>42</sup> In particular, the industry's position is that the TRR did not provide greater investment possibilities because operators' revenues decreased (these aspects are further developed in section 7.3.1.).

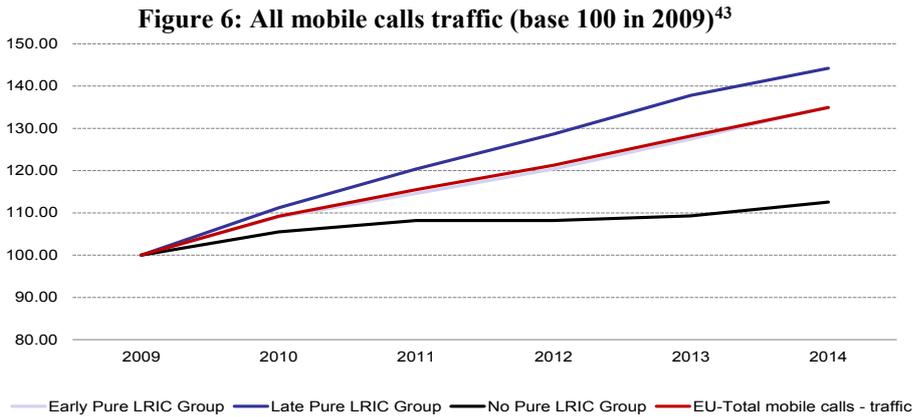
The above findings suggest that TRR has contributed to eliminating competitive distortions in the termination markets.

*6.2.3. Penetration rate and traffic volumes*

The mobile penetration rate across Member States has grown since the adoption of the TRR, both in terms of number of SIM cards (from 122% in 2009 to 140% in 2014) and number of customers (from 73.4% in 2009 to 77.5% in 2015). Such growth could not be ascribed only to the TRR. TERA's study thus only shows that the TRR has not had any discernible negative impact on mobile penetration.

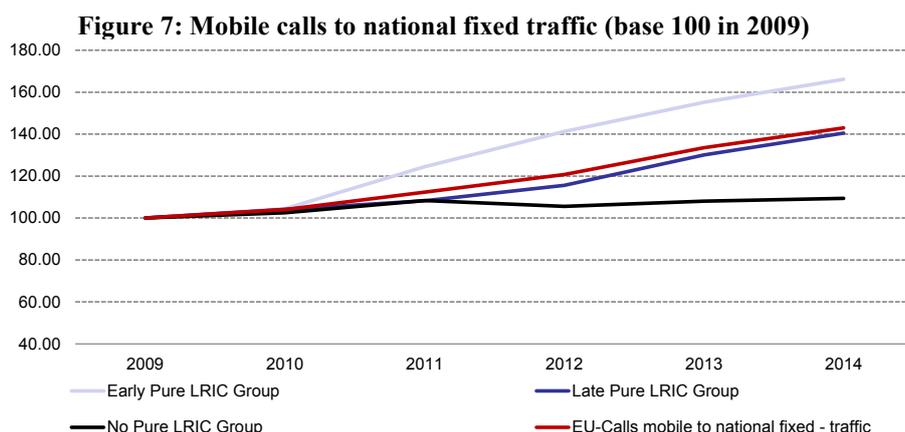
The downward trend characterising the penetration of fixed telephony lines before 2009, accelerated after the adoption of the TRR in 2009. This trend was however faster in countries which did not implement the TRR thus showing that this decreasing trend cannot be attributed to the TRR's entry in force and implementation.

As to traffic volumes, a constant increase can be observed for mobile traffic in all Member States since 2009.



The analysis clearly shows the positive impact of the TRR on traffic volumes from mobile to fixed networks. The traffic volumes of the latter increased substantially in countries which implemented the TRR (especially those which implemented it early), and remained stable in Member States which did not implement the TRR.

<sup>43</sup> The conclusions are identical when the base year considered is 2012.



The TERA study shows a 66% increase in mobile calls to fixed networks between 2009 and 2014 in countries which have implemented the TRR, thus demonstrating the expected increase in usage as a result of lower fixed termination rates. The increase in voice traffic from mobile to fixed networks could be explained by several factors<sup>44</sup>. The increase was limited to 9% in countries that did not implement the TRR.

In this respect, it is important to note that the difference between MTRs and FTRs has been significantly decreasing to around EUR 1 cent/min while it was 7 times greater in 2009. In relative terms, the ratio MTR/FTR has decreased from 10 in 2009 to 4 in 2015. The decreased difference between MTR and FTR appears thus to have addressed the issue of cross-subsidisation between fixed and mobile operators.

#### *6.2.4. Reduction of fixed and mobile retail prices and new retail offers*

Most NRAs agreed that the reduction of FTRs was one of the drivers of the appearance of new retail offers and the reduction of both fixed and mobile retail prices. Retail prices for the mobile sector could not be observed at a disaggregated level<sup>45</sup>.

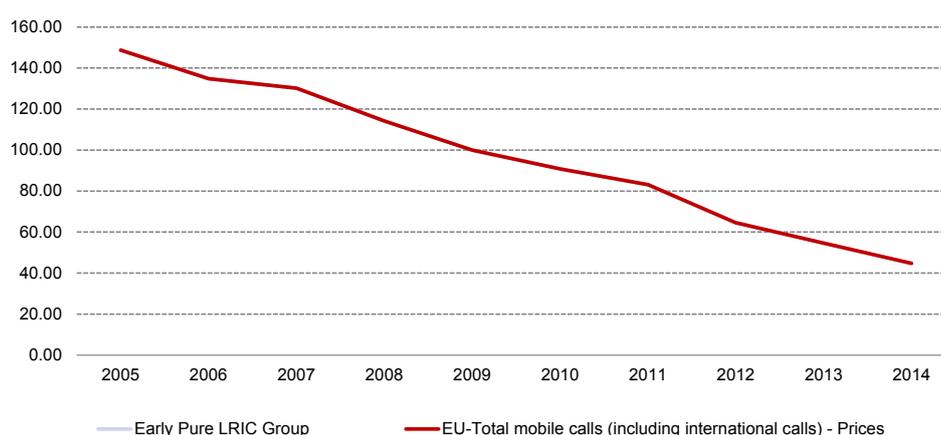
According to the TERA study, retail prices declined by 16% per year between 2009 and 2012 leading to a 71% decline between 2009 and 2015<sup>46</sup>. In particular, an increase in retail prices cannot be observed which also points to the absence of a waterbed effect. The decrease in retail prices associated with the decrease in revenues observed contradicts the theory of the waterbed effect put forward by the opponents to the 2009 Recommendation.

<sup>44</sup> There might also be other reasons (than reduced termination rates) for increased voice traffic from mobile to fixed networks, for example the increase of volume of calls originated in mobile networks.

<sup>45</sup> Since very few NRAs provided data, TERA observed prices only on a European level.

<sup>46</sup> Based on data available, provided by countries that first implemented pure BU-LRIC.

**Figure 8: Prices of all mobile calls (base 100 in 2009)**



Moreover, according to the TERA study, since the TRR adoption in 2009, flat-rate offers increased and are currently present in every Member State. Although these developments cannot be exclusively attributed to the TRR, some NRAs<sup>47</sup> have considered lower MTRs and FTRs as being a key factor in the increase of flat-rate and all-net offers.

In addition, nearly half<sup>48</sup> of the respondents to the Commission public consultation agreed with the statement that the implementation of the TRR significantly (27.7%) or moderately (21.5%) contributed to an increase in the number of flat-rate offerings (fixed to mobile calls included) and/or bundles.<sup>49</sup> However, they underline that flat-rates are also determined by other market factors like impact of new market players (OTT) and consumer requests. One NRA considered that despite non-application of TRR in its country the flat-rate offerings or bundled services had developed successfully.

Overall, the implementation of the TRR can be thus seen as one of the key factors in facilitating the development of innovative pricing structures and in development of new offers in the market ultimately leading to increased usage and the reduction of retail prices.

As depicted in the figure below, approximately half of the respondents (47%<sup>50</sup>) did not observe any negative impact of the lower termination rates on retail prices for other services (some national regulators noticed a slight decrease in other services, like broadband prices, which however cannot directly be attributed to TRR). Also they do not consider that a waterbed effect is present, although data is insufficient in this regard. However, a quarter of the respondents (24.6%) consider that lower termination rates led to the increase in prices of other (retail) services, while 27.7% of the respondents were not able to answer the question.

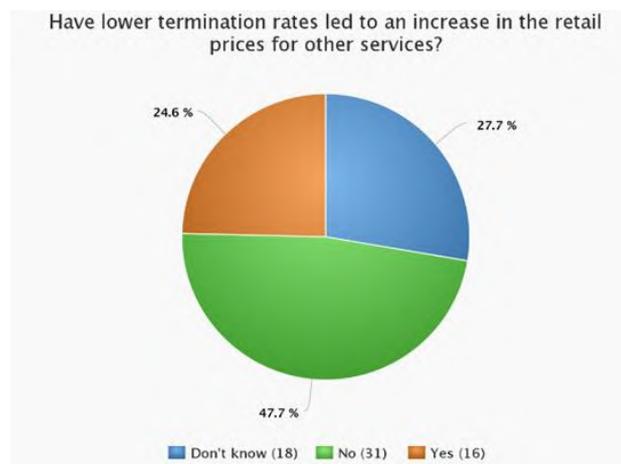
<sup>47</sup> Poland, Portugal, Romania, Austria or Belgium (for more details, see Section 7 of TERA's report).

<sup>48</sup> 32 out of 65 respondents: 20 industry, 7 individuals, 5 NRAs.

<sup>49</sup> For 17 out of the 65 respondents the TRR had only a small role to play in the increase of flat-rate offerings, and for 8 of them the TRR played no role at all.

<sup>50</sup> 31 out of 65: 17 industry, 7 individuals, 7 NRAs/ other public authority.

**Figure 9: Effect of termination rates on retail prices for other services**



### 6.2.5. Social welfare

The TERA study estimates the social welfare (as the sum of the consumer and producer surplus) for the fixed and mobile markets, with the total social welfare impact being the sum of the two<sup>51</sup>.

The TERA study estimates the social welfare for two potential scenarios: (i) No BU-LRIC ("Baseline scenario" in their report) and (ii) BU-LRIC ("Recommended approach" in their report). In addition, TERA's results depend on the assumptions they make. In particular, the scenario that considers that (i) there are positive call externalities and no waterbed effects ("Best case scenario") delivers greater social welfare gains than the scenario that assumes (ii) no call externalities and waterbed effects ("Worst case scenario"). Call externalities allow taking into consideration user's greater utility from having more users joining the network, i.e. the more users there are the more a user values its subscription. As specified in the TERA study, call externalities can increase significantly the benefit of low and consistent termination rates calculated in line with the TRR's principles.

According to the TERA study, in the period 2013-2015, the TRR led to increased consumer benefits of approximately EUR 2.9 billion (EUR 2.1 billion in mobile consumer surplus<sup>52</sup>, and EUR 0.8 billion in fixed consumer surplus), and an overall social welfare increase of about EUR 1.7 billion<sup>53</sup>. These worst and the best case scenarios are presented in Figure 10 and 11.<sup>54</sup>

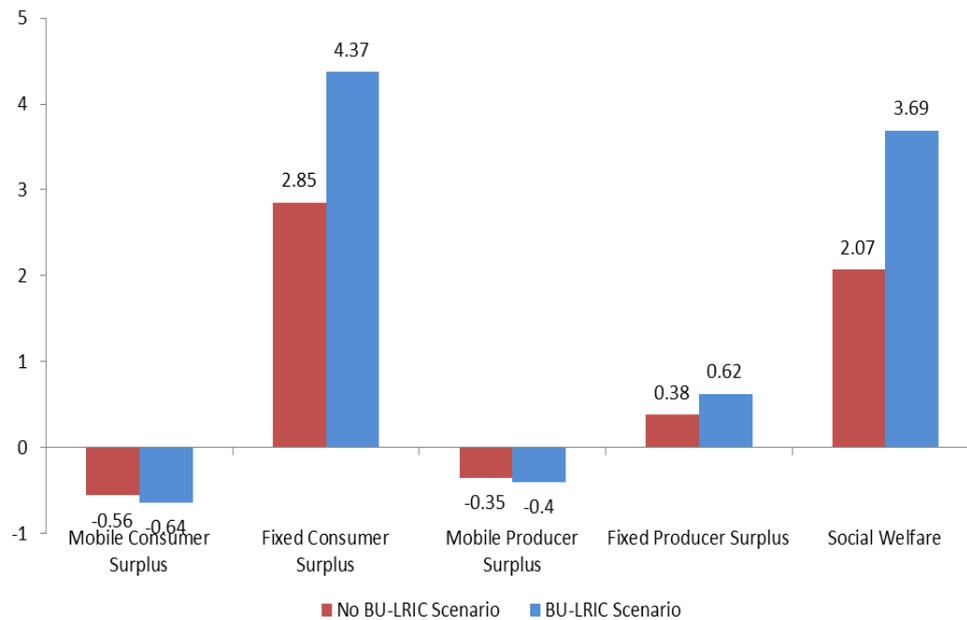
<sup>51</sup> For the publicly available version of the TERA study please see [http://ec.europa.eu/newsroom/dae/document.cfm?doc\\_id=40953](http://ec.europa.eu/newsroom/dae/document.cfm?doc_id=40953).

<sup>52</sup> The consumer surplus is the difference between the price consumers would be willing to pay for a call, and the price they are actually paying for that call. On the other hand, producer surplus is the difference between the amounts that producers benefit from selling at a market price that is higher than what they would have been willing to sell it for.

<sup>53</sup> The model measures the impact on producers' surplus, consumers' surplus and resulting social welfare. This analysis is performed both for the fixed and mobile termination markets. The model assumes that consumers are sensitive to retail prices (measured by price elasticity) and that termination rates are passed through from the wholesale to the retail level (pass-through rates). The model was first run for 2013 and then for 2014-2015. The analysis has shown that the impact on social welfare for 2014 and 2015 have the same order of magnitude. The model compares the situation in a market absent the TRR with a situation where all NRAs would have followed the TRR.

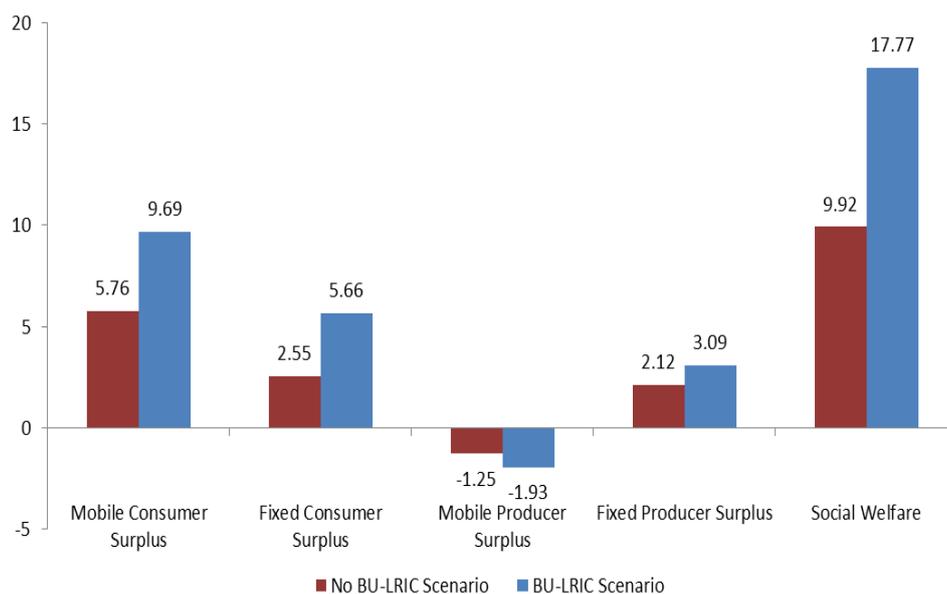
<sup>54</sup> For clarity, they correspond to Figure 47 and Figure 46 of the TERA study.

**Figure 10: Worst case scenario: Social welfare changes 2013-2015 (in billion €)** [Source EC & TERA Consultants analysis]



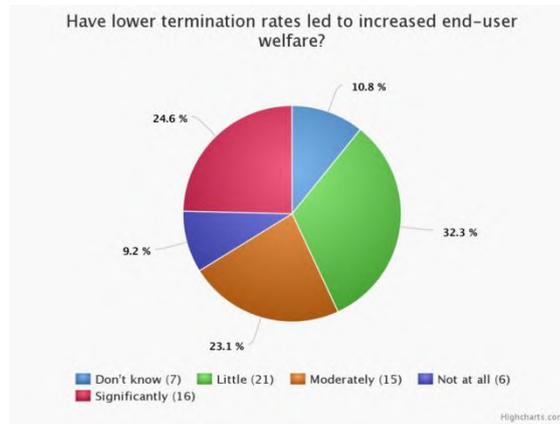
The benefits appear even greater if estimated on the basis of a model that takes into account not only price-elasticity and pass-through but also call externalities and waterbed effect. The graph below shows the TRR's impact in a situation without waterbed effect. Such scenario seems indeed to be the most representative since the conducted analysis has concluded on the absence of waterbed effect. Estimates based on such model result in a social welfare increase of EUR 7.8 billion, and in increased fixed and mobile consumer surplus of respectively EUR 3.1 billion and EUR 3.9 billion. These benefits would however materialise only if all national regulators applied the TRR.

**Figure 11: Best case scenario: Social welfare with externalities, without waterbed effect 2013-2015 (billion EUR)** [Source EC & TERA Consultants analysis]



In addition, as depicted in the below figure, overall 52<sup>55</sup> respondents to the Commission public consultation believe that the TRR contributed to an increase of consumer welfare. According to the respondents, the consumer welfare was increased by accelerating market dynamics which incentivised development of flat-rates. In addition, lower termination rates have, in their view, translated into lower retail prices.

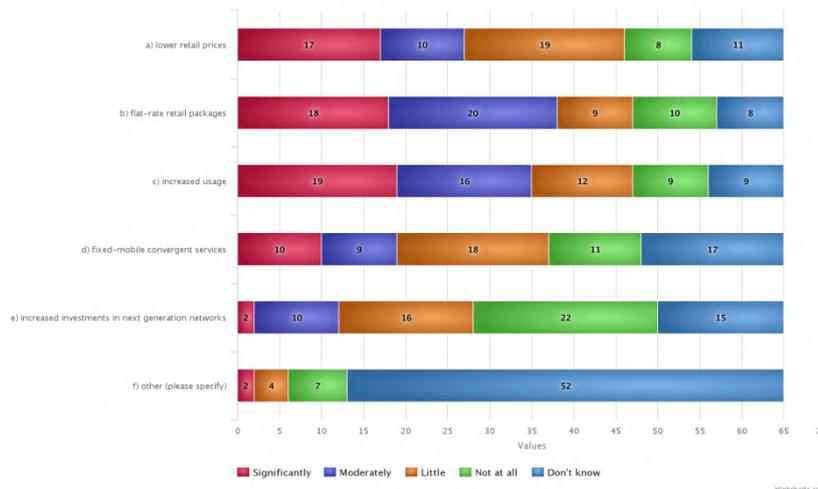
**Figure 12: Effect of termination rates on end-user welfare**



The figure below summarises the replies submitted to the question on how the increased end-user welfare resulting from the TRR has been reflected on the market. As shown, 46 out of 65 respondents considered that end-user welfare resulted in lower prices, 47 out of 65 considered the increase in flat-rate retail packages and increased usage, 37 out of 65 considered the TRR resulted in more fixed-mobile convergent services, and 28 out of 65 considered there were increased investments in next generation networks.

**Figure 13: The increased end-user welfare reflected on the market**

If you consider that end-user welfare has increased as a result of the TRR, how has this been reflected on the market?



As described in this and the previous sections, both the TERA study as well as the results of the public consultation show that TRR has effectively contributed to enhancing consumer benefits in the form of increased customer choice and increased usage, innovative pricing structures as well as lower prices.

<sup>55</sup> 30 industry, 14 individuals/ NGOs, 8 NRAs/ other public authority.

### 6.2.6. Limited effectiveness – barriers to the internal market

The fact that some Member States have not implemented the TRR, almost 6 years after the foreseen deadline (31 December 2012), results in significantly higher rates applied by operators in non-implementing countries. This in turn leads to significant distortions in the balance of payment of cross-border call traffic, and ultimately creates a barrier to the internal market. This has been demonstrated by the Commission in all Phase II investigations which were closed with recommendations under Article 7a of the Framework Directive<sup>56</sup>.

In early 2016, the lack of implementation of the TRR by all Member States has led some national regulators abiding by the provisions of the TRR to reconsider their approach and step back to reciprocate the higher rates prevailing in the non-implementing Member States<sup>57</sup>.

BEREC has supported the Commission in all relevant Article 7 cases. In its response to the public consultation on the review of the TRR, BEREC has further expressed the view that the asymmetric implementation reduces the benefits that could be achieved in terms of retail prices, quality and diversity of the telecoms services. Moreover, BEREC has listed the following negative results of the non-compliance by some regulators with the TRR:

- Cross-subsidisation to the benefit of non-implementing countries. BEREC stressed that financial transfers are significant given the traffic intensity in the non-pure BU-LRIC countries.
- Risk of higher retail prices, exclusion of cross-border calls from bundles, which is an obstacle to pan-European offers
- Distorted competition and consumer behaviour and amplified deficits in the international traffic.
- Negative effect at national and EU level.
- Inconsistent MTRs across the EU would not help the sustainable introduction of 'Roam Like At Home' (RLAH).
- Inconsistent regulation could lead to inefficient investment decisions.

In several instances operators have sought the annulment of national regulatory measures imposing pure BU-LRIC based on the argument, among others, that pure BU-LRIC is not a cost methodology which would comply with the principle of proportionality. In such cases, national courts analysed the non-binding nature of the Termination Rates Recommendation, and occasionally, ruled in favour of the use of a different cost methodology. Indeed, in some of the Member States, such as the Netherlands and the UK, the decisions of the respective NRAs to adopt pure BU-LRIC have already been argued in courts. This situation raises uncertainty for market players and contributes to the distortion of the EU internal market. The discretion that NRAs have in the application of the different elements of the pure BU-LRIC methodology to national circumstances leaves them exposed to the risk of such litigation in

---

<sup>56</sup> In particular, the Commission has expressed the view that any considerable asymmetries in termination rates within the EU not only distort and restrict competition but have a significant detrimental effect on the development of the internal market, and, therefore, result in a violation of the principles and objectives of Article 8(2) and 8(3) of the Framework Directive which require NRAs respectively to promote competition and contribute to the development of the internal market by inter alia removing remaining obstacles to the provision of electronic communications networks, associated facilities and services and electronic communication services at European level. A harmonised approach in setting termination rates is particularly important to ensure that regulators do not favour their national operators at the expense of operators in other Member States by allowing them to charge higher termination rates.

<sup>57</sup> It was the case of the notification by the Austrian regulator reviewed by the Commission under case AT/2016/1846-1847.

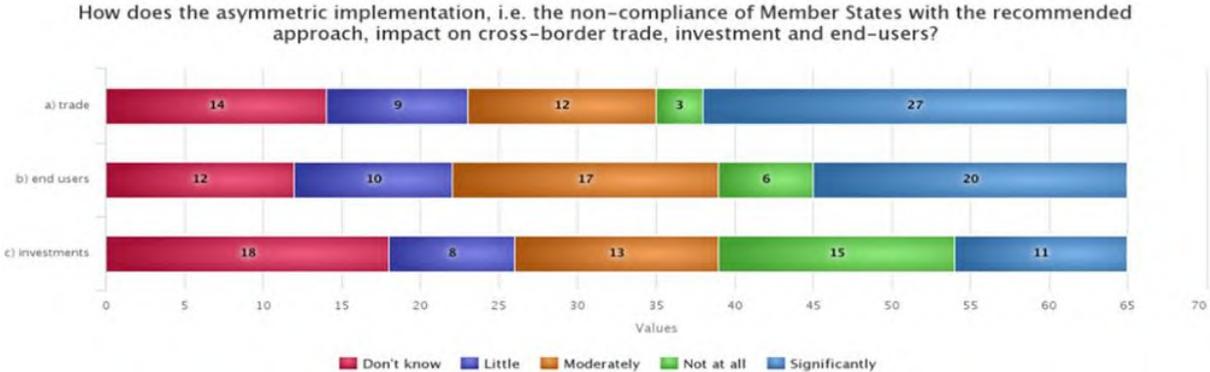
national courts. The imbalance between Member States is of serious concern, particularly in those Member States e.g. the Netherlands, which sought to apply lower rates and have high levels of cross-border traffic. At the same time, a binding act of the Commission on termination rate methodology would increase legal certainty as regards the main elements of the methodology at Union level included in such an act and would decrease the risk of litigation at national level at least on those elements, as the Court of Justice of the European Union would be competent to judge on those elements.

Differentiated regulatory treatments across the EU also distort investment incentives. They create regulation-induced asymmetrical revenue streams between Member States, which distort efficient investment decisions across Member States' borders.

Unjustified deviations from the Recommendation also undermine the predictability of regulation within the Union, with operators not being able to rely on consistent rules for traffic that crosses Member State borders within the Union.

The predominant majority of respondents to the public consultation (amongst them main industry associations, except one) consider that asymmetric implementation and/or non-compliance with TRR has a significant negative impact on competition, and negative implications for roaming services. The below figure summarizes the most common views of respondents: The asymmetric implementation significantly affects cross-border trade (27 respondents<sup>58</sup>) and end-users (20 respondents<sup>59</sup>).

**Figure 14: Impact of asymmetric implementation**



Only a few operators consider that the non-implementation of the TRR had limited effects, due to the relatively small proportion of cross-border traffic. The respondents are divided on whether a move to all-IP could lead to a decrease in voice and data costs. Nevertheless, 65%<sup>60</sup> of respondents still consider that despite the presence of OTT players and smartphones, which so far cannot be considered substitutes to traditional services, and the move to an all-IP environment, termination markets will remain a bottleneck in the medium term.

Many respondents, especially operators, report on the significant impact on competition that the asymmetric application of the TRR across the EU has, caused by undue financial flows between Member States (operators), the negative impact on retail prices for cross-border calls

<sup>58</sup> 20 industry, 4 NRAs, 3 individuals.  
<sup>59</sup> 12 industry, 4 individuals, 4 NRAs.  
<sup>60</sup> 42 respondents: 23 industry, 12 individuals, 5 NRAs.

and the creation of pan-European bundles. Such negative impacts have been observed in relation to consumer interests and regulatory uncertainty on the market.

A plurality of respondents favour a stronger binding instrument, i.e. a decision under Article 19, a regulation or a directive (nearly 39% of respondents<sup>61</sup>), that would address heterogeneous application of the TRR and ensure harmonisation at the EU level. In addition, operators and national regulatory authorities call for simplification of termination rates regulation and for longer market review periods.

With regard to the above issues, BEREC recognises the effectiveness of the TRR: "Efficient incremental-cost-oriented and symmetric termination rates assured by the Recommendation can lead to undoubted benefits to end users, both in terms of retail price level and quality and diversity of telecommunication services. Such rates enable enhanced competition, foster the development of innovative retail pricing schemes such as bundled offers, lead to more efficient investment and balance the regulatory environment between fixed and mobile networks. Harmonised cost methodologies and therefore similar rates also contribute to the development of the internal market<sup>62</sup>".

There is therefore no doubt that an inconsistent application of termination rates regulation between Member States has decreased the effectiveness of the TRR and has hampered achieving the objectives of the TRR. While greater consistency of regulatory approaches to termination rates has indeed been achieved in the EU, the issues described in this section continue representing a barrier to the internal market for electronic communications.

### **6.3. Efficiency**

#### *6.3.1. General remarks*

This section examines if the costs involved in implementation of the regulatory framework are reasonable and proportionate to the results (benefits) achieved. The evaluation of costs included examining evidence of regulation-induced costs for businesses and national authorities.

As a preliminary remark, it should be noted upfront that analysing the efficiency of EU legislation implies assessing how the resources consumed compare to the net benefits induced by it. Assessing costs and benefits with precision at EU level can be difficult, especially if the right balance between regulatory burden and data monitoring is to be achieved. Indeed, obtaining robust and comparable data to evaluate costs/benefits is a challenge across 28 Member States with different legislations and applying differentiated costs/benefit data collection.

The TRR is no exception. The actual regulatory costs are dependent on the solutions adopted in each Member State. In principle, this flexibility may allow for cost optimization for national administrations (but also for adding up requirements and thereby costs). On the other hand, it makes a precise quantification of the burden induced by the TRR particularly challenging.

---

<sup>61</sup> 25 respondents: 13 industry, 9 individuals/ NGOs, 3 NRAs.

<sup>62</sup> BEREC Report on the implementation of the Termination Rate Recommendation, BoR (15) 209\_

Direct costs for operators namely include the provision of extensive amounts of data to the NRAs developing/updating the LRIC cost model for FTRs and MTRs every three years and reviewing and commenting to the NRA's cost calculations and draft SMP decisions, which may involve the use of external lawyers or consultants. It has to be noted that operators subject to a price-control obligation are required to provide such extensive data irrespective of whether the costing model used is the recommended BU-LRIC or an alternative model. In addition, some operators highlighted the costs for handling disputes related to the TRR, including for instance external lawyers' fees.

To illustrate the difficulty of calculating the regulatory burden, the following paragraph presents the inputs given by operators during the public consultation as regards the direct costs of applying the TRR. Absent a common methodology, the differences in figures are striking and therefore the results unreliable. The estimate of annual direct and indirect costs for applying the TRR provided by stakeholders varies significantly for each stakeholder and from year to year. Estimated costs provided by operators in the public consultation vary from approximately EUR 15 million to EUR 50,000 per year. The costs for national administrations include the costs of developing or updating the cost model, which translates in personnel and external consultants' costs.

These costs should be compared with benefits associated with the TRR, namely with the social welfare surplus which in the worst case scenario is of EUR 1.7 billion as compared to a situation without the TRR (see 7.2.5 above).

### *6.3.1. Impact on operators' revenues and investment*

The analysis conducted by TERA shows a decline in the revenues of operators in both the mobile and fixed sectors. Such decrease has been the lowest for the countries that have not implemented the TRR.

As to the external study's findings on TRR's impact on revenues and investment, TERA has differentiated between the mobile and fixed sectors. While recognising the difficulty to assess the causality between the TRR and investments in fixed networks, the report shows that the Member States that have not applied BU-LRIC do not appear to be investing more than the implementing ones (the analysis rather points to the contrary). The study thus concludes that the TRR does not have a negative impact on investments. This finding seems to be supported by academic studies, which suggest that at the very least there is no evidence that the regulation of termination rates had a negative effect on network investment by the regulated operators<sup>63</sup>.

With respect to the mobile sector, a comparison between the Member States that have implemented the TRR and those that have not, shows that while revenues have – quite naturally – decreased more in implementing countries, the margins (before amortization) in those Member States have decreased less compared to the non- implementing Member States<sup>64</sup>. Moreover, the TERA study states that mobile investments have been higher in Member States implementing the TRR, which according to TERA may reflect stronger competitive pressure in markets where MTRs are set in line with the TRR, i.e. operators would invest more in order to differentiate themselves from competitors.

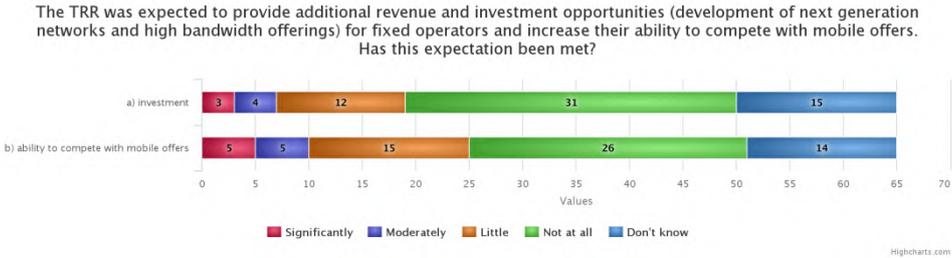
---

<sup>63</sup> Genakos, C. and Valletti T., 2014, 'Evaluating a decade of mobile termination rate regulation', December 2013. Working paper available at: <ftp://www.ceistorvergata.it/repec/rpaper/RP303.pdf>.

<sup>64</sup> The more limited decrease in margins observed in implementing countries could be explained by the increased traffic due to lower TRs. However, there are also other factors that influence the margins.

The below figure shows that nearly 48% of the respondents<sup>65</sup> to the consultation considered that the TRR did not meet "at all" the expectation to provide additional revenue and investment opportunities (development of next generation networks and high bandwidth offerings) for fixed operators, and about 40%<sup>66</sup> considered the expectation to increase fixed operators' ability to compete with mobile offers not "at all" met.

**Figure 15: Meeting the expectations regarding the additional revenue and investment opportunities created by TRR**



6.3.2. Costs and benefits of the TRR

The implementation of the TRR reduced the financial impact of the interconnection balances between Member States as the mobile and fixed termination rates are lower and less heterogeneous<sup>67</sup>. However, the asymmetric implementation of the TRR had a negative financial impact on all Member States that implemented it early to the benefit of Member States having implemented the TRR later or not at all. As an example, in 2015, German operators have benefited by around EUR 21 million in total, to the detriment of Austrian, Czech and French operators, while Germany has lost EUR 4 million in its interconnection balance of payments with the Netherlands<sup>68</sup>.

According to nearly 31% of the respondents<sup>69</sup> in the public consultation, the TRR produced, for all stakeholders, benefits that significantly or moderately exceeded the administrative or regulatory costs it triggered, whereas nearly 37% of the stakeholders<sup>70</sup> considered that the costs the TRR involved significantly or moderately exceeded the benefits. For instance, the Swedish regulator (PTS) noted that the benefits related to a decrease in regulatory costs due to simplified model application and a uniform cost calculation for all operators. PTS also noted that the benefits included improved transparency and a decrease in the number of appeals regarding regulatory decisions. On the contrary, some NRAs and operators pointed to the high costs related to building and implementing the model while some large operators stressed that the decrease in rates led to a decrease of revenues and investment (see section 7.3.1 above).

In general larger MNOs and fixed incumbents considered that a pure BU-LRIC methodology does not meet the criteria of proportionality and is too intrusive. Hence, it is not suited to

<sup>65</sup> 31 out of 65 respondents: 3 NRAs/other public authorities, 23 industries/associations, and 5 individuals/NGOs.  
<sup>66</sup> 25 respondents: 3 NRAs/other public authorities, 18 industries/associations, and 4 individuals/NGOs.  
<sup>67</sup> According to the TERA study, for example, between the 1st and 2nd market analyses in which BU-LRIC was used to set termination rates, FTRs have decreased from EUR 0.08 to 0.074 cent/minute and MTRs from 0.8 to 0.74 cent/minute. In addition, the difference between MTRs and FTRs has been significantly decreasing to around EUR 1 cent/min while it was 7 times greater in 2009. In relative terms, the ratio MTR/FTR has decreased from 10 in 2009 to 4 in 2015.  
<sup>68</sup> Source: TERA study.  
<sup>69</sup> 20 respondents: 4 NRAs/other public authorities, 11 industries/associations, and 5 individuals.  
<sup>70</sup> 24 respondents: 2 NRAs, 16 industries/associations, and 6 individuals.

support investments: rather a BU-LRIC+ methodology would better boost investments in the sector. On the other hand smaller operators and consumers supported the pure BU-LRIC approach.

BEREC, in its response to the public consultation<sup>71</sup> recalls the positive impact of the TRR for the internal market, competition and end-users. It shows the positive effects of a coherent approach across Europe for national markets as well as for the development of an internal market.

While the greater number of respondents considered that the costs outweigh the benefits, it should be acknowledged that BEREC views represent all the NRAs. Only one NRA considers that costs significantly exceed the benefits. Finally, the large number of NRAs applying the TRR demonstrates that the European telecom community considers the TRR to be an efficient regulatory instrument.

#### **6.4. EU added value**

The TRR has permitted to achieve greater consistency in regulatory approaches towards termination prices resulting in a more consistent level of TRs across the EU thus furthering the internal market for telecommunications. The fact that the great majority of NRAs use the same costing model for setting termination rates has led to an increased consistency in regulatory approaches across the EU. The direct result of the TRR's implementation was the strong decrease in the level of termination rates (57% for FTRs and 87% for MTRs over the years 2009-2015 in countries having implemented the Recommendation). The results of the study also show that lower and more consistent termination rates have contributed to enhanced competition, lower retail prices, new retail offers and increased usage to the benefit of end-users. These results would not have been observed absent intervention at EU level. The decrease in termination rates across the EU would not be so significant without the adoption of the TRR.<sup>72</sup> As shown in section 7.2.1, the differing costing methodologies used by national regulators prior the adoption of the TRR to calculate termination rates had resulted in high and divergent termination rates.

In terms of consistency of regulatory approaches across the EU, the TRR has become the most wide-spread tool for addressing the excessive pricing failure on the termination markets. The TRR has thus proven to be a success given the high number of NRAs applying it despite its non-binding nature.

This conclusion is supported by the responses submitted in the course of the Commission public consultation. Nearly 71% of respondents<sup>73</sup> consider that it is still appropriate to act on fixed and mobile termination rates at EU level. And nearly 57% of respondents<sup>74</sup> consider that there are additional objectives, other than those of the existing TRR, to be achieved with a potential future EU-level action on termination rates. Furthermore, almost 60% of

---

<sup>71</sup> BEREC response to the European Commission's public consultation on the evaluation of the Termination Rates Recommendation, BoR (16) 100.

<sup>72</sup> According to the TERA study, for example, in the absence of the TRR, the average MTRs in the EU would have been EUR 1ct/min–EUR 4 cts/min (+ 100–300%) higher than MTRs that have been applied in practice in 2015. It is also likely that FTRs would have been twice higher than they are today in the EU.

<sup>73</sup> 46 respondents: 6 NRAs/other public authorities, 28 industries/associations, and 12 individuals/NGOs.

<sup>74</sup> 37 respondents: 3 NRAs, 27 industries/associations, and 7 individuals.

respondents, including the leading industry associations, consider that an action at EU level is appropriate; for them the symmetrical implementation of TRR across the EU should be the key objective of further EU actions.

## 6.5. Coherence

### 6.5.1. Internal coherence

The TRR is coherent with the objectives pursued by the Electronic Communications Framework. In particular, the TRR's principles contribute to promoting efficiency and sustainable competition, and maximising consumer benefits, in line with Article 13(2) of the Access Directive. It also helps achieving the objectives set out in Article 8(3) of Directive 2002/21/EC, according to which NRAs shall contribute to the development of the internal market, *inter alia*, by cooperating with each other and with the Commission in a transparent manner.

The TRR finds its legal basis in Article 19 of the Framework Directive which enables the Commission to issue a recommendation (or a decision) in order to harmonise the application of the provisions of the Framework Directive or the Specific Directives where it finds that divergences in the implementation by the national regulatory authorities of such provisions may create a barrier to the internal market.

Finally, consistent mobile termination rates across the EU are necessary to ensure the sustainable implementation of the Roam-Like-At-Home initiative, which will lead to the elimination of roaming fees by 2017. As termination rates are part of roaming mobile costs, the harmonisation of termination rates is needed to ensure that roaming wholesale price caps are sufficient to recover the costs of voice calls.

### 6.5.2. External coherence

No consistency issues have been identified with respect to other EU policies during the evaluation period. This is consistent with the Commission services' observations during the TRR's implementation period observed since its adoption. The TRR is a price control tool implemented in MS after consultation at EU level, during which the Commission scrutinizes proposed national regulatory approaches. In none of the notifications analyzed to date has any conflict with other EU policies been identified as to the compatibility of the TRR's principles.

Regarding coherence with MS's instruments, the TRR's non-implementation by some NRAs would suggest TRR's incompatibility with regulatory approaches in the MS concerned. However, the reasoning provided so far by some of the non-implementing MS on the TRR incompatibility with their national law has not been considered justified in Art.7 procedures<sup>75</sup>. As indicated in BEREC's responses to the public consultation (discussed under the efficiency section among others), experience in implementing MS is positive. The information available to the Commission services does not point to the TRR's principles being incompatible with national laws.

---

<sup>75</sup> In its decision to open Phase II investigation and subsequent Recommendation to the Finnish regulator (FICORA) the Commission noted that the only reason provided by FICORA for departing from the recommended methodology are the provisions of Finnish national law which limit the regulator's discretion as to the choice of an appropriate cost setting methodology in a binding manner. However, it cannot be considered compatible with the requirement of independence of the regulatory authority.

The TRR's recommended approach (BU-LRIC) is a form of cost-oriented price control. The Commission services are not aware of this approach being incompatible with any international provisions on price control obligations.

## 7. CONCLUSIONS

### 7.1. Relevance

The analysis above has shown that the specific objectives of the Recommendation – promoting competition and consumer welfare by rendering termination rates lower and consistent across Member States – remain valid. Although the TRR has contributed to a greater consistency of regulatory approaches, the persistent asymmetries in mobile and fixed termination rates show that the pursuit of the objectives of the Recommendation is still relevant.

### 7.2. Effectiveness

The TRR has contributed to achieving lower and more consistent termination rates across the EU thereby addressing the issue of cross-subsidisation between fixed and mobile operators on one hand, and small and larger established operators on the other hand. The TRR has also contributed to the disappearance of off-net/on-net call prices differentiation, thus increasing the level playing field between smaller and larger operators. In addition, lower wholesale rates triggered a decrease of retail prices and the launch of new offers, such as fixed-mobile bundles. Since the adoption of the TRR new mobile operators entered the market and the market shares of small operators have been constantly growing in all Member States. The observed decrease in revenues was not followed by a price increase, and the TRR did not have a negative impact on investment. The effectiveness of the TRR can also be measured by the increase of mobile phone users and traffic volumes. While the penetration rates' growth observed across Member States could not be explained only by the TRR's implementation, the evaluation concludes that the TRR has not had noticeable negative impact on the number of mobile users.

While the recommended pure BU-LRIC remains the most appropriate cost methodology to provide operators with the correct signal to increase efficiency, the Recommendation does not seem to be an adequate legal instrument to enforce efficient and consistent termination rates. The fact that some NRAs have not yet implemented the TRR suggests indeed that a non-binding instrument is not sufficient to fully achieve consistent regulation of termination rates across the EU.

By comparing the countries which have implemented the TRR with countries which have not, it can be seen that revenues have decreased faster in countries which implemented the TRR, whereas investments have been higher. Penetration rates have increased faster in countries which implemented the TRR. Finally, nothing indicates that the TRR had more negative impact for those countries that have implemented it. In particular, no waterbed effect has been observed.

### **7.3. Efficiency**

The costs for national administrations include the costs of developing or updating the cost model, which translates in personnel and external consultants' costs. The regulation-induced costs of the recommended approach should be compared with benefits associated with the TRR. The social welfare surplus, which in the worst case scenario is of EUR 1.7 billion, as compared to a situation without the TRR, show the efficiency of the tool. The evaluation thus suggests that the benefits of the Recommendation – for most operators, end-users and society as a whole – broadly outweigh the costs resulting from its implementation.

The main negative effect observed by NRAs is indeed related to the asymmetric implementation of the Termination Rates Recommendation in the EU. This in turn significantly distorts the cross-border traffic and leads to financial imbalances across the EU, ultimately creating a barrier to the internal market.

### **7.4. EU added value**

The Recommendation has led to lower termination rates, thus boosting competition and increasing social welfare on the relevant termination markets. It has also favoured the harmonisation of national regulatory approaches to modelling termination costs and contributed to the development of the internal market for telecommunications. As the pre-2009 situation has shown, the same results would not have been achieved absent a coordinated action at EU level.

### **7.5. Coherence**

The TRR contributes to meeting the objectives of the Regulatory Framework, namely promoting efficiency and sustainable competition, and maximising consumer benefits, pursuant to Article 13(2) of the Access Directive, and furthering the internal market pursuant to Article 8(3) of the Framework Directive.

The TRR is also coherent with the objectives pursued by the RLAH initiative, as consistent mobile termination rates across the EU are a pre-requisite for the elimination of roaming fees by 2017. As termination rates are part of roaming mobile costs, further harmonisation of termination rates is needed to ensure that roaming wholesale price caps are sufficient to recover the costs of voice calls.

## **8. LIST OF ANNEXES**

1. Procedural information
2. Methods and analytical models
3. Synopsis report

## ANNEX 1 PROCEDURAL INFORMATION

### 1.1. Identification

This Staff Working Document was prepared by Directorate B 'Electronic Communications Networks and Services' of Directorate General 'Communications Networks, Content and Technology'.<sup>76</sup>

The Commission Recommendation (2009/396/EC) of 9 May 2009 on the regulatory treatment of fixed and mobile termination rates in the EU includes a review clause specifying that it will be reviewed no later than four years after its date of application. As the Recommendation also states that termination rates calculated according to the recommended approach should be implemented by 31 December 2012, it follows that the Recommendation should be reviewed no later than 31 December 2016.

### 1.2. Organisation of the evaluation work

Several other services of the Commission with a policy interest in the review of the telecom framework have been associated in the development of this analysis. An Inter-Service Group (ISG) has been created to this effect. The ISG includes representatives of DG COMP, DG GROW, DG ECFIN, DG EMPL, DG JUST, DG TRADE, SG and LS.

Further to a tender, the Commission appointed TERA Consultants to prepare a Study to accompany the evaluation of the Recommendation. The preliminary findings of the TERA study were presented at the ISG meeting of 29 April 2016, chaired by DG CNECT. The report on the final evaluation study was been commented upon by SG services at the ISG meeting of 21 October 2016.

### 1.3. Evidence

The evaluation process is based on the following main inputs:

(i) the contributions to the Termination Rates Recommendation public consultation;

In accordance with Better Regulation Guidance a 12 week on-line public consultation was undertaken on the EU Survey website from 15 March 2016 to 7 June 2016 using a questionnaire based on the five evaluation criteria. The questionnaire was available in 3 EU languages (EN, FR, DE) and gathered a total of 65 replies from stakeholders in all member States as well as from outside the Union. An initial summary report<sup>77</sup> and full synopsis report<sup>78</sup> of the findings was published in on 1 February 2017.

The public consultation was backward- and forward-looking, i.e. looking at lessons learnt with a view to deriving recommendations for possible further action. The questionnaire sought data on the inconsistent implementation of the TRR by NRAs and on the related impacts on all stakeholders concerned (mainly consumers, operators and NRAs). It also aimed at assessing both the extent to which the currently recommended methodology is (still) appropriate, and the need for further action at EU level.

---

<sup>76</sup> [http://ec.europa.eu/smart-regulation/roadmaps/docs/2017\\_cnect\\_001\\_evaluation\\_roadmap\\_termination\\_rates\\_en.pdf](http://ec.europa.eu/smart-regulation/roadmaps/docs/2017_cnect_001_evaluation_roadmap_termination_rates_en.pdf).

<sup>77</sup> <https://ec.europa.eu/digital-single-market/en/news/commission-reports-public-consultation-termination-rates-recommendation>

<sup>78</sup> [http://ec.europa.eu/information\\_society/newsroom/image/document/2017-5/synopsis\\_report\\_trr\\_v4\\_comb\\_tc\\_42288.docx](http://ec.europa.eu/information_society/newsroom/image/document/2017-5/synopsis_report_trr_v4_comb_tc_42288.docx).

(ii) monitoring of the degree of implementation of the current Recommendation under the Article 7 procedure, accompanied by high-quality data stemming from telecoms national regulators and operators;

(iii) assessment of the implementation and application of legislation, namely complaints and infringement procedures;

(iv) external expertise.

As specified above, the European Commission sought external expertise to assess the economic impacts of the Termination Rates Recommendation. The preliminary results of the TERA Study were presented and discussed in a workshop on 15 March 2016. The Study was published on the Commission website on 22 December 2016<sup>79</sup>.

---

<sup>79</sup> <https://ec.europa.eu/digital-single-market/en/news/termination-rates-recommendation-helps-achieve-lower-and-more-consistent-rates-new-study-shows>

## ANNEX 2: METHODOLOGY AND ANALYTICAL MODELS

### 1. Overall approach

The objective of this study is therefore to measure the evolution of TRs and to make a qualitative and quantitative assessment of the developments on the markets for fixed and mobile termination across the EU. Also, given that the TRR has not been implemented by NRAs in all EU countries, the study evaluates the potential impact of the non-implementation of the TRR in some MS on intra-EU trade in the internal market and end-users. Finally, the study assesses the need for further EU-wide harmonisation of the recommended model's parameters.

### 2. Data used

In terms of data, multiple sources of information have been used. The BEREC and EU Commission annual reports have provided information about TRs levels and the implementation of the recommended approach across the EU MS. NRAs have provided data via their answers to a questionnaire sent by the Commission services and prepared together with TERA, e.g. traffic volumes, prices, number of customers, offer structures and implementation of the Pure BU-LRIC approach. Information published on the NRAs' websites has also been used by TERA. The GSMA Intelligence database provided annual data on mobile markets for each country, e.g. number of unique customers, operators' market shares, investments, etc. Buddecom EU country reports have been used for financial data and 'market context' information about the countries such as mergers, market entries, etc.

### 3. Methodology used for measuring FTRs'/MTRs' evolution

Observing the evolution of MTRs (or FTRs) in each country would not enable observing differences between countries which have implemented the TRR and countries which have not or which have done so late. Thus, while country analyses are provided in the annexes part of the report, the evolution of average MTRs (or FTRs) is observed per for three different groups of countries:

- 'Early Pure LRIC group - the group of MS which have implemented the TRR early (by the end of 2013 to take into account possible transitional periods);
- 'Late Pure LRIC group' - the group of MS which have implemented the TRR late (since 2014);
- 'No Pure LRIC group' - the group of MS which have not implemented the TRR.

The following table describes the different metrics used in the study and their definitions.

Metrics	Definition/Scope
<b>Flat MTRs/FTRs averages</b>	Flat averages of the values of MTRs/FTRs across countries of a given group
<b>Weighted MTRs averages</b>	Average MTRs weighted by the number of customers of each country in terms of number of SIM cards (same approach as BEREC)
<b>Weighted FTRs averages</b>	Average FTRs weighted by the number of fixed lines of each country (same approach as BEREC)
<b>Standard deviation</b>	Measure used to quantify the amount of dispersion of a set of values (whether data points tend to be very close to the mean or not)

Source: TERA Consultants analysis

#### 4. Measuring the Impact on trade of the asymmetric implementation of the TRR

Given that the TRR is a non-binding legal instrument, several NRAs have not yet implemented the recommended approach, i.e. the “No Pure LRIC group”. This has resulted in an asymmetric implementation of the TRR among the MSs, and important FTR and MTR differences. This lack of harmonization has an impact on trade between MS at the detriment of those applying the Pure LRIC approach (being compensated with low TRs for the use of the network) and at the benefit of those not applying the Pure LRIC approach (hence benefitting from higher termination charges).

To assess the impact of the interconnection imbalance between countries due to this lack of harmonization, the study compares two scenarios:

- The “**real scenario**” using current termination rates to assess the actual financial flows between MS with respect to call termination,
- A “**counterfactual scenario**” assuming that all MS have been using the recommended Pure LRIC approach since 2013 to calculate TRs.

In order to calculate the interconnection balance between all MS, multiple metrics are required:

- The level of FTRs and MTRs per year and per country for both the real and the counterfactual scenarios;
- The incoming and outgoing international traffic (both from domestic users and inbound roamers) by destination and per country, for both the real and the counterfactual scenario.

While the total outgoing international traffic is generally available for each country, the current outgoing international traffic by destination or by origination is rarely available and has been assessed on the basis of inputs from NRAs<sup>80</sup> and extrapolated when NRAs have not

---

80 CEIS Tor Vergata Research paper series Vol. 12, Issue 1, No. 303 – January 2014, ‘Evaluating a decade of mobile termination rate regulation on’, December 2013. Working paper available at: <ftp://www.ceistorvergata.it/repec/tpaper/RP303.pdf>. The EC but a very limited number of Regulatory Authorities have been able to provide a traffic analysis providing details on the countries of destination. Most NRAs have however provided the aggregated total international fixed or mobile outgoing traffics (In the case the information on the total international traffic was missing, the average ratio between total calls and international calls has been calculated for all countries where the information was available, and applied to the country for which the information was missing. For the few countries where the total national traffic was also missing, the ratio between the population and the total traffic has been calculated for all countries and applied the same way).

provided inputs. This extrapolation is based on statistics on exportations<sup>81</sup>. These statistics were used as a proxy to determinate the amount of minutes of the total outgoing international traffic from a country to all the other countries of EU<sup>82</sup> as they proved to be a better proxy than for example statistics on diasporas<sup>83</sup> (see annex, section 6.7 of the study).

For incoming roaming traffic, the total incoming roaming traffic of each country<sup>84</sup> is split by origin of visitors using statistics on the number of nights spent by non-residents (depending on their origin)<sup>85</sup>.

In the counterfactual scenario, 2015 TRs' levels have been applied already as of 2013 for the countries where the TRR has been implemented, with a view to removing the impact of the delayed implementation. Furthermore, for the 'No Pure LRIC group' the 2013 annual average TR of the 'Early Pure LRIC Group' countries has been used. This allows measuring the difference between the current situation, with asymmetric implementations of the TRR, and this counterfactual scenario where all countries applied the Pure LRIC approach at the same time.

Only impact on operators' interconnection balance is considered. Impact at retail level is presumed small since operators do not often differentiate international retail call prices by destination within Europe (only sometimes by group of countries).

---

81 Eurostat import export intra EU – The data about exportations was not available for Hungary.

82 E.g. if there are for a given country 1,000,000 euros of total exportations to EU-countries of which 50,000 euros to Belgium, it will be assumed that 5% of the international traffic originated from this country is terminated in Belgium.

83 It is probable that the majority of the international traffic is generated by businesses rather than households.

84 This was assessed from the report 2009 on roaming on public mobile telephone networks which provides the number impact assessment of policy options in relation to the commission's review of the functioning of regulation (EC) no 544/2009 of the European parliament and of the council of 18 June of minutes of retail voice calls made by roamers in 2009. This value has been extrapolated until 2015 (using the trend of international traffic) and it has been assumed that the incoming roaming traffic was equal to this.

85 <http://appsso.eurostat.ec.europa.eu/nui/show.do> - Recensement européen

## ANNEX 3: SYNOPSIS REPORT

### SYNOPSIS REPORT on the public consultation on the evaluation and review of Commission Recommendation 2009/396/EU on the regulatory treatment of fixed and mobile termination rates in the EU

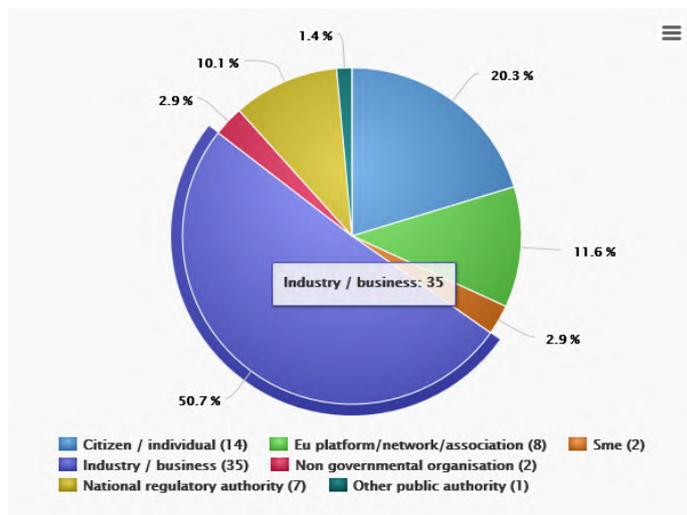
#### 1. Introduction

The **consultation on the evaluation and review of Commission Recommendation 2009/396/EU on the regulatory treatment of fixed and mobile termination rates in the EU (TRR)** gathered input for the evaluation of the current implementation, its impact on the relevant markets and assessed whether further EU action is necessary to efficiently achieve the objectives of the regulatory framework. A TRR clause requires its revision within 4 years as of its date of application.

The termination rates are the rates telecoms networks operators charge each other to deliver calls between networks. Each operator has significant market power over access to customers on its own network. In the past, the Commission has observed significant divergences in the approaches to the regulation of termination rates by the national regulatory authorities (NRAs), which created a barrier to the development of the internal market. In May 2009, the Commission, in order to ensure a correct and coherent interpretation and application of the relevant provisions of the Regulatory Framework at Union level, adopted the Termination Rates Recommendation, setting out a consistent approach that NRAs should in principle follow regarding price control obligations for fixed and mobile termination rates. The Commission recommended NRAs to ensure that by 31 December 2012 the termination rates are set at a (i) cost efficient, and (ii) symmetric level. In the context of wholesale voice call termination markets, and given in particular their characteristics ("two-way" interconnection by monopoly operators in their relevant markets) and the associated competitive and distributional concerns, the cost efficient rate is normally the one resulting from a pure Bottom Up Long Run Incremental Costs (pure BU-LRIC) methodology.

The consultation targeted consumers and other users, providers of electronic communications networks and services, national and EU operator associations, civil society organisations, national authorities at all levels, national regulators and other interested stakeholders, gathering 65 online replies from all EU countries as well as from outside the EU. 12 respondents provided their input by e-mail. Umbrella organisations and individual stakeholders contributed.

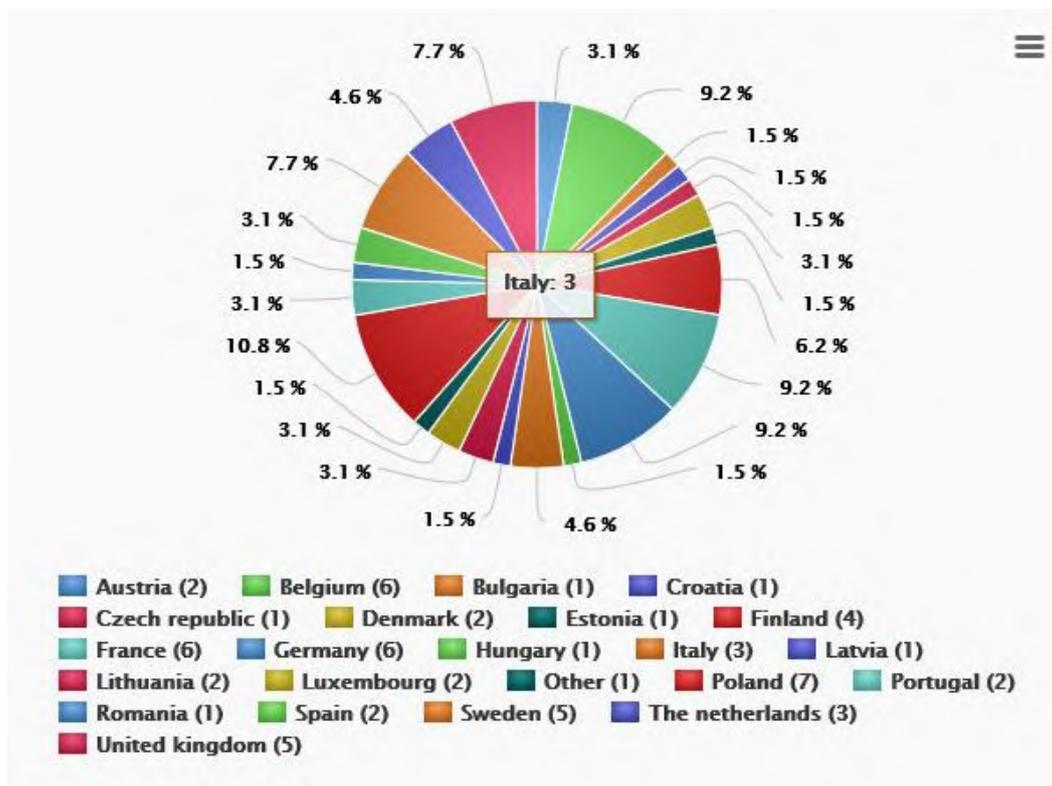
**Stakeholder participation was fairly balanced** with contributions from citizens, NGOs, SMEs, public authorities (predominantly national regulatory authorities – NRAs) and electronic communications networks and services providers – with a strong prevalence of affected operators/industry.



(Multiple answers were possible for some questions, hence the sum may exceed 65; the statistics only cover submissions via EU Survey)

This report uses the above categorisation of stakeholders in presenting converging or differing views on the issues addressed in the consultation. The contributions of the stakeholders who gave their consent to publication are available [online](#). This report also takes account of [BEREC's response](#) to this public consultation.

The **geographical coverage** of respondents is from 22 EU countries (and one outside the EU):



The input gathered corresponds to the objective of the consultation in assessing the performance of the TRR to date and providing insight on possible adjustments in order to

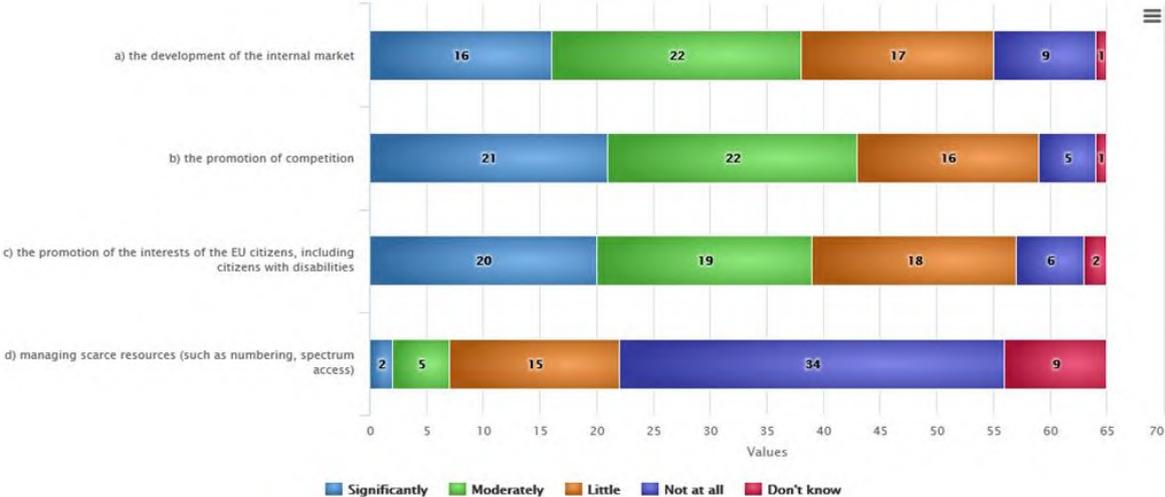
respond to market and technological advancements and challenges. This analysis does not represent the official position of the Commission and its services, and does not bind the Commission in relation to future proposals in this respect.

**2. Analysis of responses**

The analysis in this report is based on the input received by different stakeholder categories.

**2.1. Objectives and overall performance**

Stakeholders from most categories acknowledge (**consumer organisations, Member States, operators, regulators, other**) that overall the TRR helped **achieve the policy objectives** of promoting competition and the interests of citizens, and contributing to the development of the internal market.



However, respondents pointed out, that while the TRR has been **successful in lowering termination rates** across EU and achieving symmetries at national level, promoting the interests of EU citizens and competition in the market, it was **somewhat less successful in promoting the internal market. The main reason appears to be asymmetries of termination rates across the Member States, mainly due to an inconsistent implementation** of the recommended principles even among those countries that implemented the TRR and apply a pure BU-LRIC methodology. On the objective of developing the internal market, almost half of the respondents indicated a significant or moderate contribution through the TRR whereas the remaining ones considered that its contribution was little or not at all.

Respondents acknowledge that the **TRR contributed to the lowering of termination rates** and increased competition. However, the lack of consistent implementation and enforcement of its principles created asymmetries between compliant and non-compliant Member States.

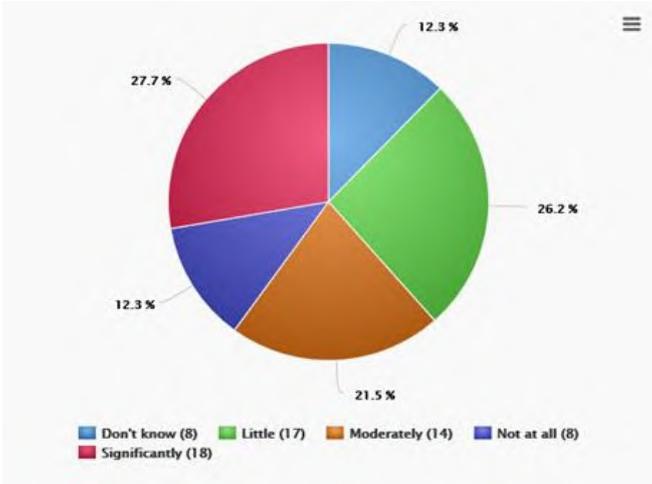
Some respondent stated that the TRR was irrelevant in achieving policy objectives (q. 2.6-2.7), stating various reasons (not fully implemented, unsuitable and disproportionate cost methodology, decrease of revenues for operators).

The majority of stakeholders, national regulatory authorities and operators, consider that **regulation of termination rates should stay in place, as termination markets will**

**continue to be a bottleneck** and the benefits of regulation exceed the underlying costs (especially for consumers, which – 46 respondents claim – benefit from the TRR's implementation as a result of lower retail prices). NRAs admit that substantial costs relate to the building of a model, some also consider that yearly updates of the model are time- and resource-consuming.

There is significant convergence on the conclusion that a **pure BU-LRIC approach is best suited to meet policy objectives**. However, some industry stakeholders consider that the reduction of termination rates cannot be attributed solely to the TRR, but also to an overall development in the market over the last years. Therefore, it is difficult to assess what would have happened without regulation.

**2.2 Impact on flat-rates**

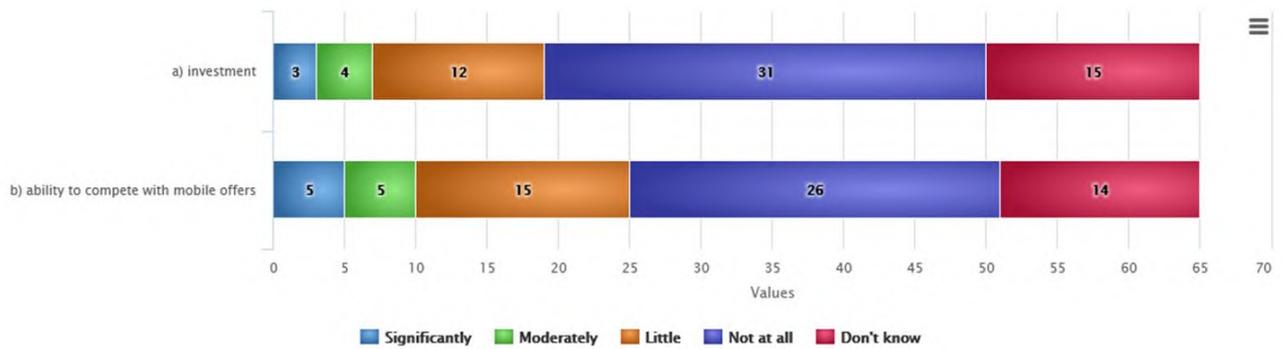


**Q: Has implementing the TRR led to a higher number of flat-rate offerings (fixed to mobile calls included) and/or bundles?**

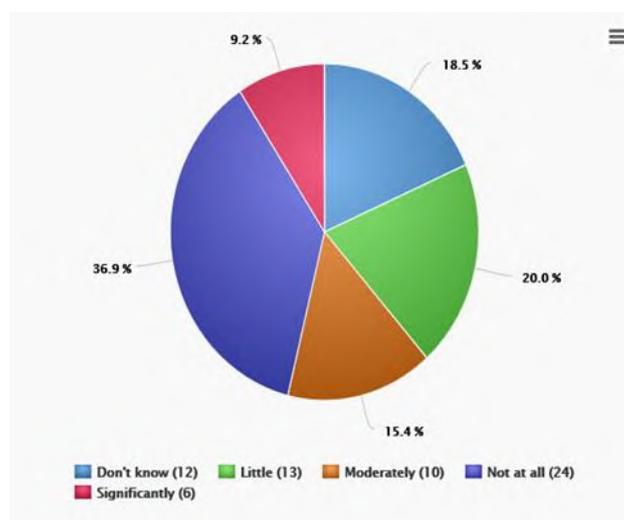
The majority of respondents (49) agreed that the implementation of the **TRR contributed to the development of flat-rates offers**. However, they underline that flat-rates are also determined by other market factors like impact of new market players (OTT) and consumer requests. One NRA considered that despite non-application of TRR in its country the flat-rate offerings or bundled services had developed successfully.

**2.3 Impact on investment opportunities and end-user welfare**

Industry's position is that the **TRR did not provide greater investment possibilities** because operators' revenues decreased. Large operators do not find enough evidence to suggest that the TRR led to an increase of competition with mobile offerings. However most respondents agree that TRR has contributed to the emergence of flat-rate and bundled offers, as well as significantly reduced the cross-subsidisation.

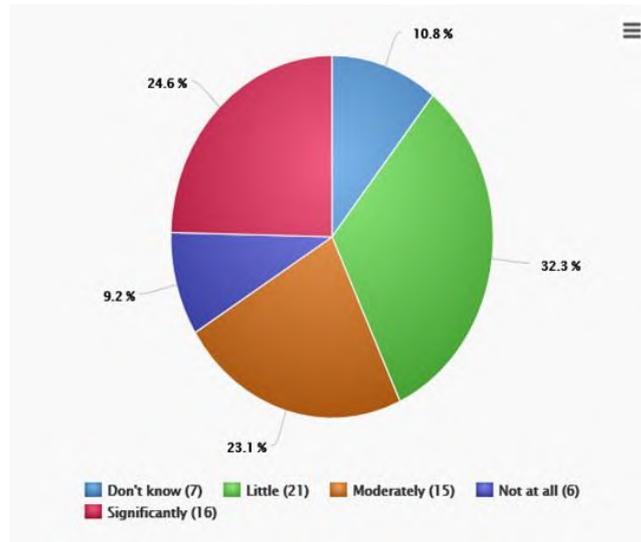


Over half of the respondents are of the opinion that TRR led to decrease of entry barriers for new entrants. However, many others consider that the TRR is not directly linked to reduction of entry barriers, which is rather due to changing dynamics of the market.



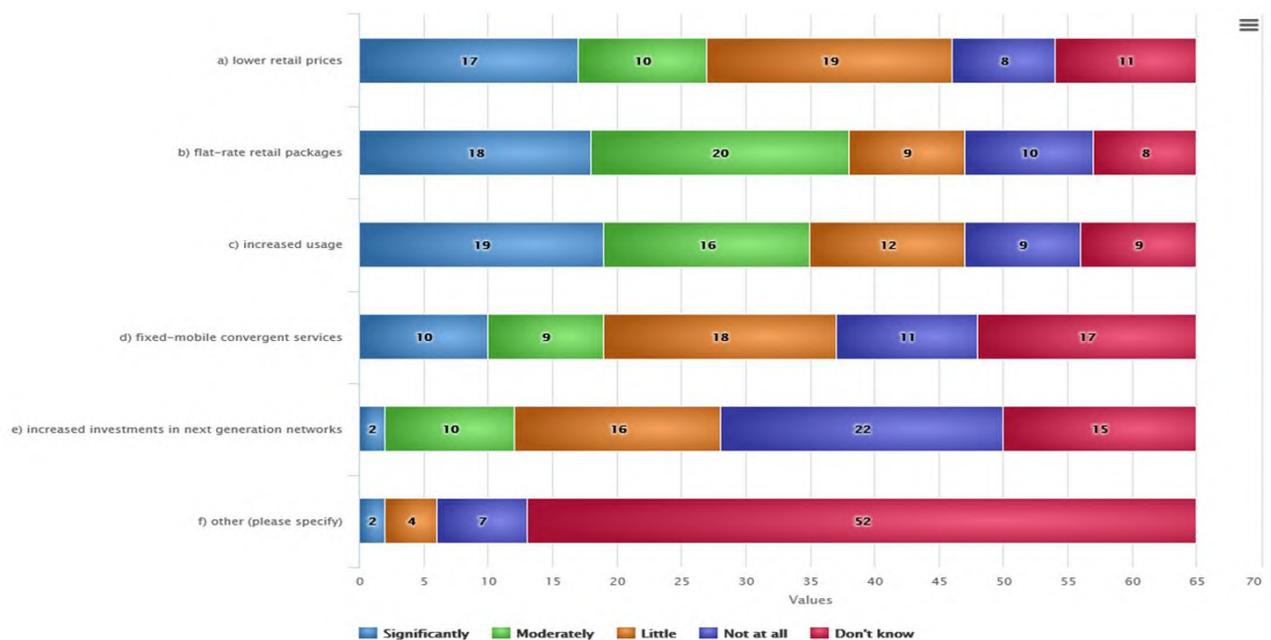
**Q: Have the lower termination rates led to decreased entry barriers for new operators who decided to enter the fixed and mobile telephony markets?**

Overall 52 respondents believe that TRR contributed to an **increase of consumer welfare** by accelerating market dynamics, also because it incentivised development of flat-rates. Lower termination rates have, in their view, translated into lower retail prices.

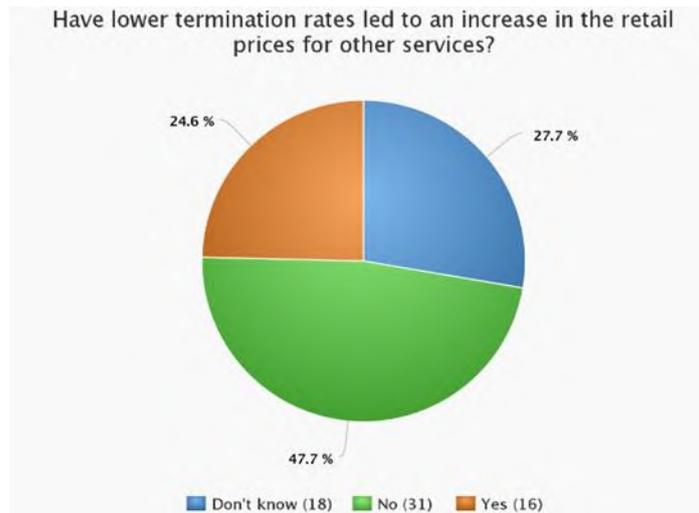


**Q: Have lower termination rates led to increased end-user welfare?**

Approximately half of the respondents (47%) **did not observe any negative impact of the lower termination rates on retail prices for other services** (some national regulators noticed a slight decrease in other services, like broadband prices, which however cannot directly be attributed to TRR). Also they do not consider that a waterbed effect is present. However, a quarter of the respondents (24.6%) consider that lower termination rates led to the increase of prices of other (retail) services.

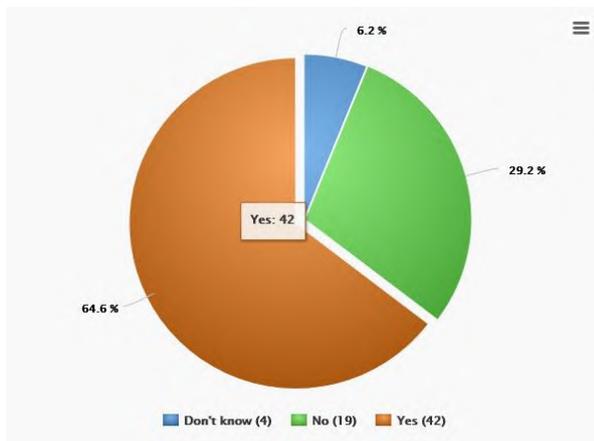


**Q: If you consider that end-user welfare has increased as a result of the TRR, how has this been reflected on the market?: a) lower retail prices, b) flat-rate retail packages, c) increased usage, d) fixed-mobile convergent services, e) increased investments in next generation networks, f) other**



## 2.4 Impact on access to bottlenecks

Approximately 2/3 of respondents (predominantly smaller player and NRAs) consider that termination markets will most likely always constitute a bottleneck especially in the short to medium term, due to the particular characteristics of the two-sided markets. Almost 30% of respondents (largest operators) underlined that in the All-IP environment termination services will no longer constitute a bottleneck. In addition they also consider that due to fixed-to-mobile substitution the regulation of fixed termination rates will no longer be needed, while over-the-top providers (OTTs) will sufficiently constrain the pricing of mobile termination rates.



### Q: Will call termination markets remain a bottleneck in the future and require continued regulation?

A predominant majority of respondents (amongst them main industry associations, except one) **consider that asymmetric implementation and/or non-compliance with TRR has a significant negative impact on competition, and negative implications for roaming services.** Only a few operators consider that the non-compliance with TRR had limited effect, due to the relatively small proportion of cross-border traffic. The respondents are divided, on

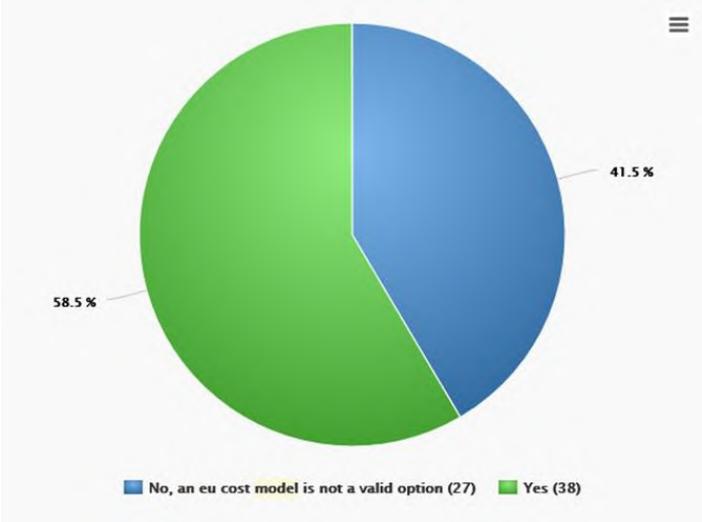
whether a move to all-IP could lead to a decrease in voice and data costs. Nevertheless, 65% of respondents still consider that despite the presence of OTT players and smartphones, which so far cannot be considered substitutes to traditional services, and the move to an all-IP environment, termination markets will remain a bottleneck in the medium term.

**Technology developments in this regard should be closely monitored.** VoIP and VoLTE calls are technically provided in a different manner and have different characteristics or even underlying costs (although in this respect operators expressed different views on the similarity of the underlying costs, see Q. 2.46), which may still be present even in an all-IP environment. Concerning an all-IP environment it is expected that the importance of the TRR could decrease, although regulation may still be needed given the likelihood of an enduring bottleneck in termination markets.

### 2.5 Application and impact of the recommended model

In general larger MNOs and fixed incumbents consider that a **pure BU-LRIC methodology does not meet the criteria of proportionality and is too intrusive.** Hence, it is not suited to support investments, rather a BU-LRIC+ methodology would better boost investments in the sector. On the other hand smaller operators and consumers support the pure BU-LRIC approach.

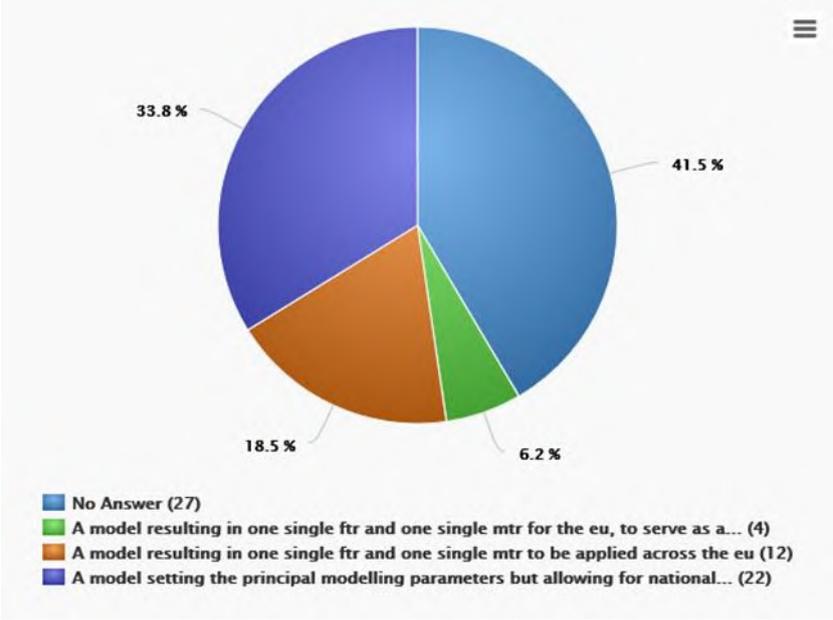
With regard to whether an **EU cost model** replacing current national models could be an appropriate option, almost 59% of respondents agreed that this would be a valid proposal. An EU model would reduce divergence based on national interpretation and regulatory burden, remove unbalanced cross-border financing and ensure regulatory certainty.



#### Q: Would an EU cost model, replacing current national models, be a valid option?

However, 22 respondents hold the view that **national specificities should nevertheless be taken into account** by such an EU modelling exercise. These respondents favour a model setting the key modelling parameters but allowing for flexibility at national level. One NRA

proposed setting an EU price cap adjustable to national circumstances, whilst the national rate could not go above the EU cap.



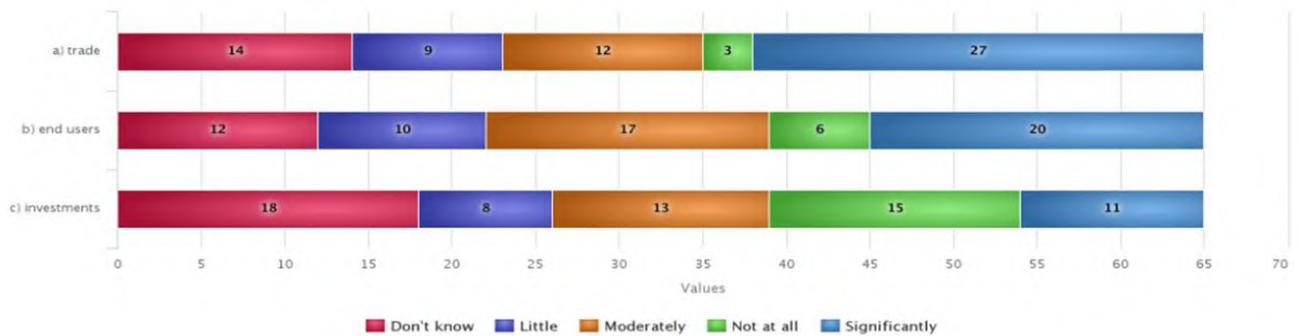
**Q: Which of the variants is most appropriate?**

Responses are split as to whether a pure BU-LRIC based approach should remain in place for an all-IP environment (Q. 2.49-2.50). A slight majority (35:30) is of the opinion that the Commission should continue to recommend a pure BU-LRIC approach in the future (Q. 2.55).

**2.6 Impact of the asymmetric implementation of the TRR**

Many respondents especially operators report on the **significant impact on competition that the asymmetric application of the TRR across the EU has**, caused by undue financial flows between Member States (operators), the negative impact on retail prices for cross-border calls and the creation of pan-European bundles. Such negative impacts have been observed in relation to consumer interests and regulatory uncertainty on the market. Almost 60% of respondents, amongst them also the leading industry associations, consider that an action at EU level is appropriate; for them the **symmetrical implementation of TRR across the EU should be the key objective of further EU actions**.

How does the asymmetric implementation, i.e. the non-compliance of Member States with the recommended approach, impact on cross-border trade, investment and end-users?



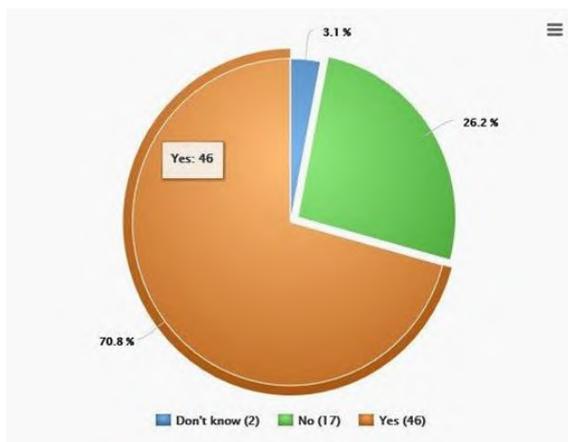
Many operators and one NRA drew attention to the **importance of a harmonised approach on non-EEA originated calls**. Some consider that an EU decision in this regard would be appropriate; others call for the reciprocity principle to be formally approved.

## 2.7 TRR and roaming (q. 2.28)

The vast majority of operators and national authorities consider that **differences in termination rates constitute an obstacle to the introduction of a roam-like-at-home (RLAH) principle** and consider that a harmonised approach on termination rates is desirable also to the benefit of roaming.

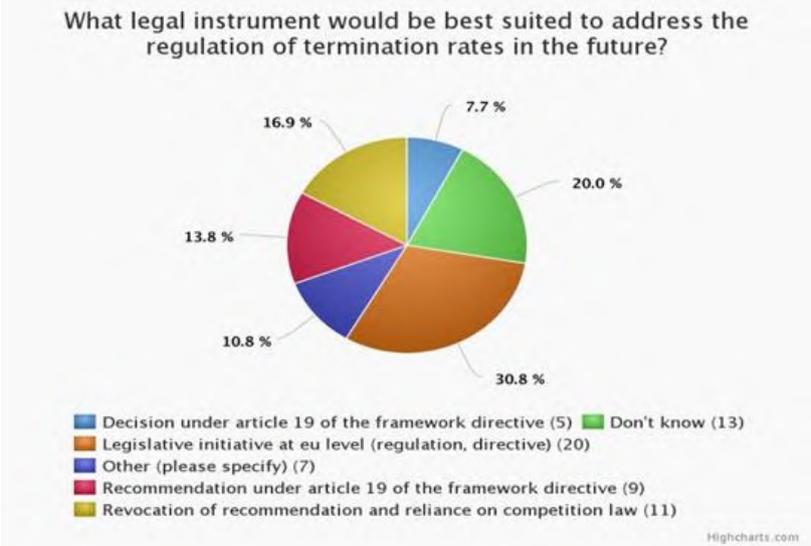
### Further action at EU level necessary?

Over **70% of respondents are of the opinion that further actions should be foreseen at EU level** with regard to TRR (q. 2.31-2.32) in order to achieve symmetry.



### Q: Is it still appropriate to act on fixed and mobile termination rates at EU level?

Operators and national regulatory authorities **call for simplification of termination rates regulation and longer market review periods**. A plurality of respondents **favour a stronger binding instrument**, decision under Article 19, regulation or directive (37% of respondents q. 2.38), that would address heterogeneous application of the TRR and ensure harmonisation at the EU level.



**Period for review of the instrument**

Respondents are divided as to the review period necessary in termination markets. The vast majority propose a 3 to 5-year review period depending on technology developments (q. 2.54) and the final instrument chosen. Some of the respondents stressed that the TRR review period should be aligned with the Roaming Regulation, in particular concerning RLAH.