

# **BEREC supplementary analysis of intra-EU calls**

20 April, 2018

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## Executive summary

The purpose of this BEREC paper is to present a supplementary analysis of telecommunications operator data (for both fixed and mobile operators), recently collected by National Regulatory Authorities (NRAs) on behalf of BEREC, on the matter of intra-EU calls. This is BEREC's second paper on intra-EU calls, the first of which was published on 26 February 2018.

As stated in the first paper BEREC published on the matter, BEREC's preliminary analysis, it should be made clear from the outset that no policy inferences or policy conclusions are made in this paper. BEREC has prepared this supplementary analysis as a complement to the earlier paper, and in order to add to the (non-BEREC) material and information that has already been published on this issue, for example the European Commission's non-paper on intra-EU calls.

It should be noted that, as in the preliminary analysis, BEREC only includes, in this analysis, data from those countries that it considers to be of sufficient quality and consistency. It is for this reason that some of the analysis is based on a small sample of countries. While BEREC has received responses from 26 NRAs, it is **necessary to clearly state that the level of detail and data quality in the responses that NRAs received from operators is not consistent throughout, and therefore the findings in this paper should not be interpreted as a Europe-wide analysis**, rather this paper should be considered as a presentation of data and derived metrics for a subset of countries whose data was validated and considered to be of good quality to BEREC.

According to the supplementary analysis conducted by BEREC, on average, the proportion of intra-EU calls included in bundles is higher in fixed networks than in mobile networks. **For ten countries analysed, more than 50% of total intra-EU minutes originating in fixed networks were included in bundled offers. In the case of mobile networks, these proportions are lower still, only exceeding 30% in four countries.**

In addition, the data indicates that, year-on-year, the average revenues per-minute outside bundles are considerably higher than the average total revenues (i.e. revenues from bundles and outside bundles combined) per-minute. This is to be expected and is usually the case for any service, since bundled offers usually have a lower per-unit price. **In 2017, based on the country data provided by 5 NRAs, average revenues per minute outside bundles in fixed networks were 27% higher than average total revenues** (i.e. revenues from bundles and outside bundles combined) per-minute. **For mobile networks, in 2017, based on the country data provided by 5 NRAs, the data suggests that, on average, revenue per voice minute outside bundles was 50% higher than average total revenues** (i.e. revenues from bundles and outside bundles combined) per minute.

Regarding outpayments, the analysis estimates that the **average outpayments per minute for calls originating on fixed networks is 1.14 Eurocents per minute in 2017**, while for calls originating **on mobile networks the average outpayments per minute is 1.33**

**Eurocents per minute in 2017**<sup>1</sup>. These averages are based on a subset of countries whose data BEREC considers to be of sufficient quality for publication.

For SMS, despite a better dataset over time, the data indicates that, across Europe, **intra-EU SMS volumes represent, on average, a small fraction ( $\leq 2\%$ ) of all SMS volumes on an annual basis**. The data also show a rather significant heterogeneity between Member States. For instance, in 2017, the range of this metric, across 20 Member States, is 0.2%-12.8%.

At this time, BEREC, having published two papers on the matter of intra-EU calls, does not intend to gather any further data on this matter. **BEREC remains available to the EU institutions to provide technical inputs to the debates.**

## 1. Background

In its opinion released on 8 September 2017 to the European Parliament's lead committee ITRE<sup>2</sup>, regarding the proposal for a European Electronic Communications Code, IMCO<sup>3</sup> proposed to introduce article 92a on "intra-Union calls". This proposal envisages that providers of number-based interpersonal communication services (including SMS and MMS) could not charge higher fees to users when calling from mobiles or landlines to another European Union Member State (MS) than they do when calling within their own MS, unless objectively justified by the additional direct costs that the operator might have to bear.

Given that part of BEREC's mission is to contribute to the development and better functioning of the internal market for electronic communications networks and services, in December 2017, through dialogue with the European Commission, BEREC proposed to gather data on intra-EU calls, and subsequently to prepare and publish its analysis.

The purpose of this BEREC paper is to present a supplementary analysis of telecommunications operator data (for both fixed and mobile operators), recently collected by National Regulatory Authorities (NRAs) on behalf of BEREC, on the matter of intra-EU calls. This is BEREC's second paper on intra-EU calls, the first of which was published on 26 February 2018<sup>4</sup>. As stated in the preliminary analysis, it should be made clear from the outset that no policy inferences or policy conclusions are made in this paper. BEREC has prepared this supplementary analysis as a complement to the earlier paper, and in order to add to the (non-BEREC) material and information that has already been published on this issue, for example the European Commission's non-paper on intra-EU calls<sup>5</sup>.

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<sup>1</sup> It should be noted that outpayments for termination and transit are only a part of total costs. In addition to termination and transit costs, operators also have costs for originating a call and other costs that are also of relevance (see 4.2 section).

<sup>2</sup> The Committee on Industry, Research and Energy is a committee of the European Parliament.

<sup>3</sup> The Committee on Internal Market and Consumer Protection is a committee of the European Parliament.

<sup>4</sup> [http://berec.europa.eu/eng/document\\_register/subject\\_matter/berec/reports/7962-berec-preliminary-analysis-of-intra-eu-calls](http://berec.europa.eu/eng/document_register/subject_matter/berec/reports/7962-berec-preliminary-analysis-of-intra-eu-calls)

<sup>5</sup> Commission non-paper on intra-EU calls: WK 13452/2017 INIT, 20 November 2017, Brussels.

In the preliminary analysis, BEREC also stated it intended to continue reviewing and refining the data received. In addition, BEREC stated that any additional data received from those NRAs that were not able to provide the operators' responses to the questionnaire it issued in December 2017 (by the initial deadline), could be included in any subsequent analysis.

Therefore, this paper presents data either not already received or not already verified and validated at the time of publishing the first paper. Data on out of bundle revenues, on outpayments, on SMS, and on responses to the qualitative questions<sup>6</sup> (also included in the questionnaire) are included. In addition, updated or additional data was provided by several NRAs<sup>7</sup>.

The next chapter of this paper presents a brief summary of the findings in BEREC's preliminary analysis of intra-EU calls. Chapter 3 provides an overview of the data used in the supplementary analysis, as well as a discussion on the methodology used by BEREC in the current paper. Chapter 4 presents a statistical analysis covering out of bundle revenues, outpayments, and SMS data, as well as a summary of the responses to the qualitative questions in the questionnaire which BEREC circulated in December 2017. Finally, chapter 5 summarises the findings of this supplementary analysis.

It should be noted that, as in the preliminary analysis, BEREC only includes, in its analysis, data from those countries that it considers to be of sufficient quality and consistency. It is for this reason that some of the analysis is based on a small sample of countries. Therefore, the overall results should not be interpreted as a Europe-wide analysis.

## 2. Results of the preliminary analysis

On 26 February 2018, BEREC published a preliminary analysis of intra-EU calls<sup>8</sup>. In order to provide an evidence-based analysis, BEREC circulated a detailed questionnaire on this matter to all National Regulatory Authorities (NRAs), and received responses (based on data submitted by operators in the individual Member States) from 26 NRAs.

In light of the decision to minimise the burden of the ad hoc nature of the request to operators, small operators were not included in the data collection. Therefore, BEREC asked NRAs to only collect data from operators representing 80% of both the fixed and mobile markets in their respective Member States. This would, it was felt, help to provide BEREC, and other interested parties, with a reasonable understanding and perspective on the dynamics of intra-EU calls.

However, some small operators serve niche markets and, inter alia, specialise in offers for international calls, which is why the missing data might have an impact on, for example, the average revenue per minute of intra-EU calls.

The data provided covered an average market share of 70% for fixed markets and 69% for mobile markets. BEREC assessed the responses received and only included data of

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<sup>6</sup> See Annex 2.

<sup>7</sup> One country provided new data to the questionnaire and another one updated data.

<sup>8</sup> [http://berec.europa.eu/eng/document\\_register/subject\\_matter/berec/reports/7962-berec-preliminary-analysis-of-intra-eu-calls](http://berec.europa.eu/eng/document_register/subject_matter/berec/reports/7962-berec-preliminary-analysis-of-intra-eu-calls)

acceptable quality in its preliminary analysis. This resulted in a relatively small subset of countries included, which is why, as stated clearly throughout the current paper and the preliminary analysis, the results should not be interpreted as a Europe-wide analysis.

Based on the indicators listed in the questionnaire<sup>9</sup>, BEREC developed a set of derived metrics and presented them in the preliminary analysis. The derived metrics presented were as follows:

- the percentage of intra-EU minutes in total minutes for fixed and mobile networks;
- the proportion of intra-EU minutes terminating in fixed versus mobile networks;
- the evolution of intra-EU fixed voice minutes; and
- the average intra-EU revenues per minute in fixed and mobile networks.

The analysis of those derived metrics shows that fixed network intra-EU calls represent a tiny fraction of all fixed voice minutes on an annual basis in the countries analysed. In 2017, the range of this metric is 0.9%-7.0%. The data suggests that, on average, over the five year period of the analysis, approximately 70% of all fixed intra-EU minutes are made between landlines. Furthermore, the data indicates that there is a clear decline in fixed voice intra-EU calls over the period of the analysis, an approximate 14% drop in minutes.

For mobile networks, the data indicates that intra-EU calls represent a small portion (less than 3%) of all mobile voice minutes on an annual basis. In 2017, the range of this metric is 0.3%-13.4%. The data suggests that, on average, over the five year period of the analysis, approximately 80% of all mobile intra-EU minutes, for the countries analysed, were made between mobile phones. In addition, the data indicates that subscribers who make intra-EU calls only spend 9-10 minutes per month actually making such calls.

In addition, there is evidence<sup>10</sup> that traditional international phone calls are being substituted by OTT alternatives, with 39% of Europeans<sup>11</sup> regularly making voice or video calls over the Internet.

### 3. Data

While BEREC received responses from 26 NRAs to its original questionnaire on intra-EU calls, it is necessary to clearly state that the level of detail and data quality in the responses that NRAs received from operators is not consistent throughout, and therefore the findings in this paper should not be interpreted as a Europe-wide analysis, rather that this paper should be considered as a presentation of data and derived metrics for a subset of countries whose data was of sufficient quality to be included in the subsequent analysis by BEREC.

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<sup>9</sup> See Annex 1.

<sup>10</sup> Some additional evidence on the matter of OTT substitution is presented in section 4.4 of this paper.

<sup>11</sup> According to the European Commission's 2017 survey, "Information and Communication Technologies in households and by individuals", 39% of Europeans aged 16 to 74 said that they regularly make voice or video calls over the Internet.

One of the reasons for a level of inconsistency in the responses to the questionnaire is that NRAs do not collect this detailed data from operators on a regular basis, since this (intra-EU calls and intra-EU SMS) is not a regulated market<sup>12</sup>. It is for this reason that the questionnaire was sent to operators, who were requested to complete it on a voluntary basis.

However, clearly some operators had difficulties to provide the required data, as some of them do not distinguish intra-EU calls, resulting in a varying level of detail in the responses, as well as differences with regard to the availability of data for the requested years (2013-2017). It should also be noted that as the timeframe for responding to the questionnaire was relatively short, this too could have had an impact on the quality of the data provided.

In this context, it is worth emphasising the importance of collecting more complete and comparable information covering, among other things, all Member States as well as operators of any dimension, in order to support any future regulatory decisions with respect to intra-EU calls.

As already mentioned, the data provided by operators to NRAs, and subsequently (as aggregated country responses) to BEREC, were of varying quality. The main issues that BEREC noted, in terms of the lack of quality with the data, were limitations with respect to the number of data points, and a varying number of operators providing data (which creates a consistency issue) over the timeframe of the analysis. Where appropriate, in their responses, operators/NRAs indicated to BEREC where their data was lacking in terms of quality.

For its preliminary analysis published on 26 February, BEREC was able to identify country data with an acceptable level of quality to allow for analysis. However, due to time constraints, not all indicators could be checked thoroughly at that initial stage, and therefore some indicators were not analysed and included in the preliminary paper of 26 February.

The preliminary analysis considered only total revenue data, including revenue share from packages/bundles. The two derived metrics presented in the preliminary analysis, with respect to revenues were (i) average intra-EU fixed revenues per minute and (ii) average intra-EU mobile revenues per minute. Subsequent to the preliminary analysis, additional information on revenues (specifically concerning bundles) was checked and verified.

It should be noted that intra-EU revenue shares from packages/bundles were estimated by operators according to their own methodology, which can be different from one operator to another. Moreover, BEREC does not have information on how revenues from bundles are allocated by operators.

Regarding outpayments, despite receiving a relatively complete dataset from a significant number of NRAs, BEREC excluded this data from the preliminary analysis, as it had yet, due to time constraints, to be thoroughly verified. For this supplementary analysis, BEREC has

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<sup>12</sup> The European Commission removed relevant markets of publicly available international telephone services provided at a fixed location for residential customers (relevant market 4 in 2003 Recommendation (2003/311/EC)) and for non-residential customers (relevant market 6 in 2003 Recommendation (2003/311/EC)) from the list of relevant markets in 2007 in its revised Recommendation on relevant markets (2007/879/EC). The reason was that these markets were no longer found susceptible to ex ante regulation and standard market forces (possibly accompanied by application of competition law) were deemed to be prospectively working. No reassessment changing this conclusion has been made since.

conducted a detailed verification of the data on outpayments, and an analysis on outpayments per minute is included below.

Additionally, the preliminary analysis, published on 26 February did not include an analysis of SMS data, as BEREC made the decision to initially focus on the matter of voice traffic. For this supplementary analysis, a thorough assessment of the SMS data was conducted and the results of that analysis are presented in the next chapter of this paper.

Finally, it should be noted that additional country data, not presented in the preliminary analysis are now presented in this supplementary analysis. The overall trends/results presented in the preliminary analysis would not have been significantly affected by this additional country data.

## **4. Supplementary statistical analysis**

As set out in chapters 2 and 3 above, BEREC developed several derived metrics based on the responses to its December 2017 questionnaire, and published some of those derived metrics in its preliminary analysis of intra-EU calls.

In light of some additional data received, as well as further verification and analysis of the data conducted by BEREC, the following is a supplementary analysis of intra-EU calls (and SMS). The analysis presented below is based on data provided by a subset of the 26 NRAs that have responded to the BEREC questionnaire circulated to NRAs in December 2017.

As in the preliminary analysis, BEREC cautions that no inference or extrapolation should be made for those countries not included in the analysis overall, and nor should inference be made for those countries whose data is not presented in the individual analyses set out in either the preliminary analysis or in this supplementary analysis.

### **4.1. Revenues**

In BEREC's preliminary analysis of intra-EU calls, only total revenue data was considered, and an analysis of average intra-EU fixed revenues per minute and average intra-EU mobile revenues per minute was presented.

The information on revenues (including information on out of bundle revenues) submitted by NRAs (having been collected from operators) was verified by BEREC subsequent to the publication of the preliminary analysis. Regarding the intra-EU calls revenue share from packages/bundles, the allocation was estimated by operators and forwarded to BEREC by NRAs.



The analysis presented here covers:

- Out of bundle revenues versus total revenues for, depending on the year, 5 countries for fixed networks, between 2016 and 2017<sup>13</sup>.
- Out of bundle revenues versus total revenues for, depending on the year, 4-6 countries for mobile networks, between 2013 and 2017<sup>13</sup>.

As well as a significant number of quantitative questions, in its December 2017 questionnaire, BEREC also asked the operators a set of qualitative questions with respect to their respective retail markets. The data which BEREC has gathered show that, in most countries, there are fixed and mobile offers with specific add-ons or specific bundles, which include cheaper intra-EU calls, available.

Indeed, 24 out of 26 respondents indicated that operators provide such offers to consumers. The other two respondents noted that national operators do not provide such offers or do so for the business sector only.

In addition, some operators have offers that have international calls included as part of the subscriptions or have the same prices as domestic off-net calls. Other operators have the option of a package on top of the subscription, including minutes to a number of destinations, including within the EU.

On average, the proportion of intra-EU calls included in bundles is higher in fixed networks than in mobile networks. For ten countries, more than 50% of total intra-EU minutes originating in fixed networks were included in bundled offers. In the case of mobile networks, these proportions are lower still, only exceeding 30% in four countries. Moreover, countries where bundles have become the most popular offers, international calls are part of the bundle in fixed and mobile networks (i.e. “free” international calls, including intra-EU destinations) which can change the behaviour of consumers resulting in an increase of international fixed traffic, as they are perceived to be cheaper.

As already stated in BEREC’s preliminary analysis, the most difficult data for operators to provide to NRAs (and subsequently to BEREC), as part of the original data collection exercise, was data on intra-EU revenues and outpayments.

The questionnaire included separate indicators for revenues; (i) total revenues, comprised of revenues from calls included in bundled offers with other services as well as those outside bundles, and (ii) revenues from out of bundle intra-EU calls.

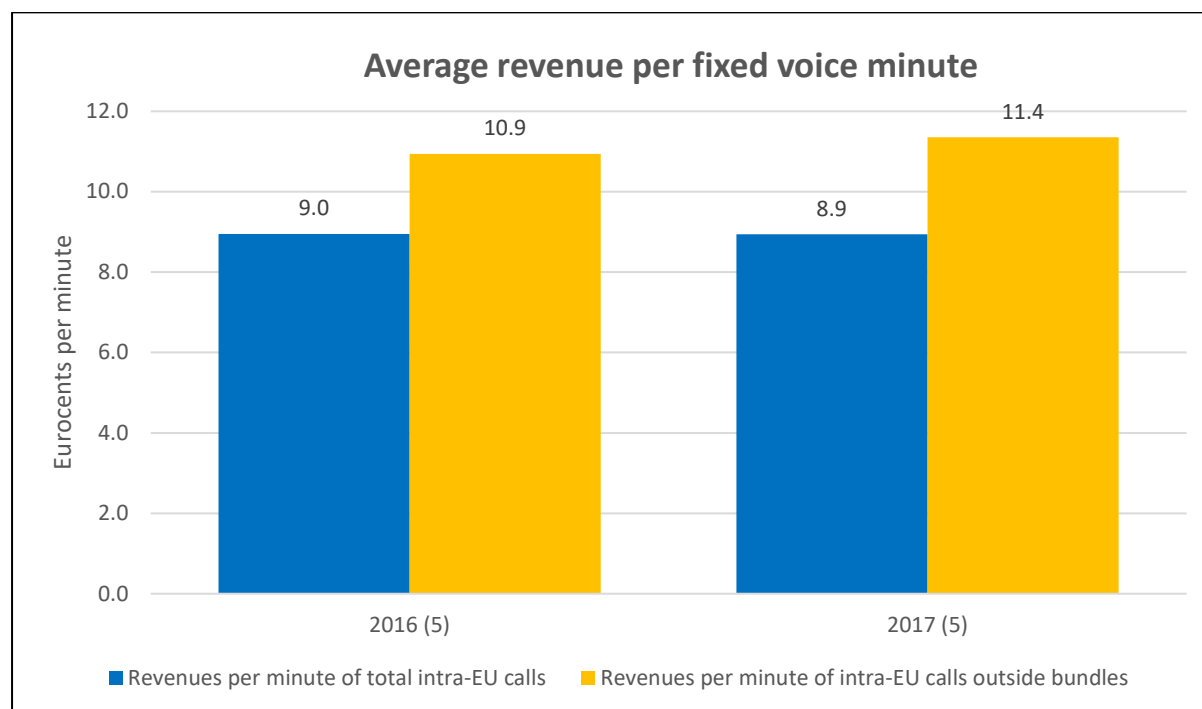
Given that limited country data is available for the years 2013-2015, with respect to average per-minute total revenues<sup>14</sup> for calls originated in fixed networks to EU (mobile or fixed)

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<sup>13</sup> For this analysis, BEREC uses data only from NRAs that provided data for both the revenues per intra-EU calls and revenues per intra-EU calls outside bundles, in order to provide a clear comparison of the two different revenues.

<sup>14</sup> The average per-minute total revenues for calls originated in fixed networks to EU (mobile or fixed) destinations result from the ratio: “Total Fixed Revenues from intra-EU Calls (estimate including revenue share from packages/bundles)” / “Total Actual Fixed Outgoing Minutes Intra-EU calls”.

destinations, including both out of bundle<sup>15</sup> and within bundle traffic, BEREC has chosen to present data only for 2016 and 2017.



**Figure 1: Average revenue per fixed voice minute (Year, # countries)**

The limited data indicates that the average revenues per-minute outside bundles are considerably higher than average total intra-EU revenues (i.e. revenues from bundles and outside bundles) per-minute. The key results of this specific analysis are:

- In 2016, based on a limited sample of data from five countries<sup>16</sup>, the average revenues per-minute outside bundles was 10.9 €cents/min and the average total intra-EU revenues 9 €cents/min.
- In 2017, based on a limited sample of data from the same five countries as above, the average revenues per-minute outside bundles was 11.4 €cents/min and the average total intra-EU revenues 8.9 €cents/min.
- That is to say that the average revenues per fixed voice minute outside bundles were 27% higher than total intra-EU calls revenues.

The per-minute revenues from calls out of bundles (in cases where international calls are not included in the bundles) are higher than the total per-minute revenue (including calls inside and outside bundles).

<sup>15</sup> The average revenues per-minute for fixed network out of bundle intra-EU calls result from the ratio: "Fixed Revenues from intra-EU calls (only from minutes outside packages/bundles)" / "Actual Fixed Outgoing Minutes Intra-EU calls outside package/ bundle (included in the monthly fee)".

<sup>16</sup> Countries considered: HU, LV, MT, SK, and SI.

This is to be expected, and is also the case for national calls or any other service, as bundled offers usually have a cheaper per-unit price.

Indeed, bundles include international calls (and therefore, intra-EU) at the same monthly fee (i.e. for “free”)<sup>17</sup>, which result in a lower price per-minute compared to the per-minute price of a regular tariff for international calls.

When analyzing these figures, it should be noted that intra-EU revenue shares from bundles were estimated by operators according to their own methodology,<sup>18</sup> which can be different from one operator to another; namely that the traffic considered outside the bundle may include not only international calls but also value added calls.

Other data collected by BEREC indicates that, for 2016 and 2017, when taking additional countries (10) into account (i.e. including countries which were not able to provide a split between revenues per intra-EU fixed calls and revenues per intra-EU fixed calls outside bundles), the average per-minute total revenue for intra-EU fixed calls are similar to the analysis presented above (i.e. 10.9 Eurocents per minute). The same findings can also be drawn if more countries (9) are considered for the average revenues outside bundles (15.2 Eurocents per minute).

It should be noted that smaller operators, who were not included in the data collection (for reasons already set out above), might specialise in offers for low-cost international calls. This, of course, has an impact on the average revenues per-minute, i.e. they might be overestimated.

The limited data available indicates that the average revenues per-minute outside bundles are considerably higher than the average of the total intra-EU revenues also for mobile networks.

Figure 2 below illustrates the same derived metric, as explained above for fixed networks, for the revenues from calls originated in mobile networks to EU (mobile or fixed) destinations.

The key results for this specific analysis are:

- In 2016, for six countries, the average revenues per-minute outside bundles was 18.7 €cents/min and the average total intra-EU revenues 14.9 €cents/min.
- In 2017, based on a limited sample of data from 5 countries<sup>19</sup>, the average revenues per-minute outside bundles was 27.2 €cents/min and the average total intra-EU revenues 18.2 €cents/min.

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<sup>17</sup> With respect to bundles with a flat rate (with no additional charges depending on the international calls consumption).

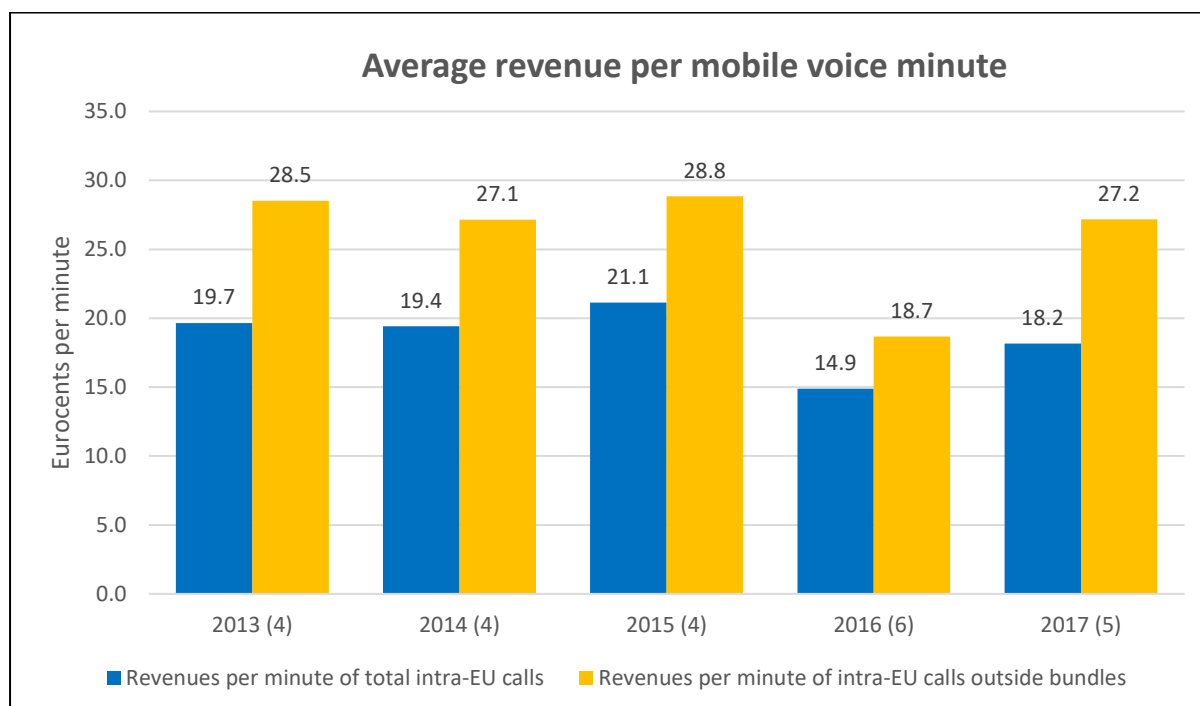
<sup>18</sup> Most operators did not provide exact information on how the allocation of revenues from bundles was made.

<sup>19</sup> Countries considered: DK, EL, HU, MT, and SK.

- That is to say that the average revenues per mobile voice minute outside bundles<sup>20</sup> were 50% higher than average total revenues<sup>21</sup> (i.e. revenues from bundles and outside bundles) per-minute.

As is the case for fixed voice revenues, the data indicates that there is a clear gap between revenues from outside bundles and total revenues per intra-EU mobile calls.

BEREC would reiterate the point, with respect to the revenue data (in and out of bundles) provided by operators/NRAs, that no evolution inference should be made, since data for different countries is included across the years of the analysis.



**Figure 2: Average revenue per mobile voice minute (Year, # countries)**

## 4.2. Outpayments

In its December 2017 questionnaire, BEREC requested data on outpayments, covering termination and transit costs<sup>22</sup>, according to the definition included in the questionnaire. The

<sup>20</sup> The average revenues per-minute for mobile network out of bundle intra-EU calls result from the ratio “Mobile Revenues from intra-EU calls (only from minutes outside packages/bundles)” / “Actual mobile Outgoing Minutes Intra-EU calls outside package/ bundle (included in the monthly fee)”

<sup>21</sup> The average per-minute total revenues for calls originated in mobile networks to EU destinations result from the ratio “Total mobile Revenues from intra-EU Calls (estimate including revenue share from packages/bundles)” / “Total Actual mobile Outgoing Minutes Intra-EU calls”

<sup>22</sup> Not including costs of origination for a call. Collecting these costs would be, from a methodological point of view, more demanding since these markets are not regulated and operators might not have separate accounts on origination. In addition, the requested data did not include joint and common costs (e.g. sales and billing) due to the difficulties in consistently identifying and reporting these figures.

data provided by operators to their respective NRAs (and submitted to BEREC) exhibited inconsistencies, which required additional investigation and validation by BEREC.

This additional assessment was performed by BEREC subsequent to the publication of the preliminary analysis of intra-EU calls on 26 February. BEREC has concluded that, in light of this assessment, the outpayments data submitted by (up to) 10 NRAs for fixed networks and (up to) 8 NRAs for mobile networks can now be published in this supplementary analysis.

As presented in the preliminary analysis, most intra-EU calls made from landlines are to other landlines (on average more than 70%), and most intra-EU calls made from mobile phones are to other mobile phones (on average more than 80%).

Therefore, outpayments per minute originating on fixed networks are predominantly dependent on fixed termination rates (FTRs) and those originating on mobile networks are largely dependent on mobile termination rates (MTRs). The recent BEREC Report on Termination Rates at the European Level<sup>23</sup> indicates that in July 2017 the lowest FTR simple average of European Union incumbents stands at 0.2190 Eurocents per minute.

The MTR simple average at the EU level stands at 0.8795 Eurocents per minute and the weighted average at EU level is 0.9079 Eurocents per minute. Figure 3 below shows the average outpayments (termination rates and transit costs) per minute for calls originating on fixed networks (1.14 Eurocents per minute in 2017) and calls originating on mobile networks (1.33 Eurocents per minute in 2017). These averages are based on a subset of countries whose data BEREC considers to be of sufficient quality for publication.

An interpretation of this analysis over the period of the analysis may not be entirely straightforward, given that the number of countries included in the calculation varies over time.

However, a general decrease in outpayments per minute over the period of the analysis seems plausible, since termination costs are considered to account for a significant portion of outpayments, and decreasing termination rates (as highlighted in BEREC's biannual review of Termination Rates at the European Level) could lead to lower outpayments.

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<sup>23</sup> [http://berec.europa.eu/eng/document\\_register/subject\\_matter/berec/reports/7524-termination-rates-at-european-level-july-2017](http://berec.europa.eu/eng/document_register/subject_matter/berec/reports/7524-termination-rates-at-european-level-july-2017)

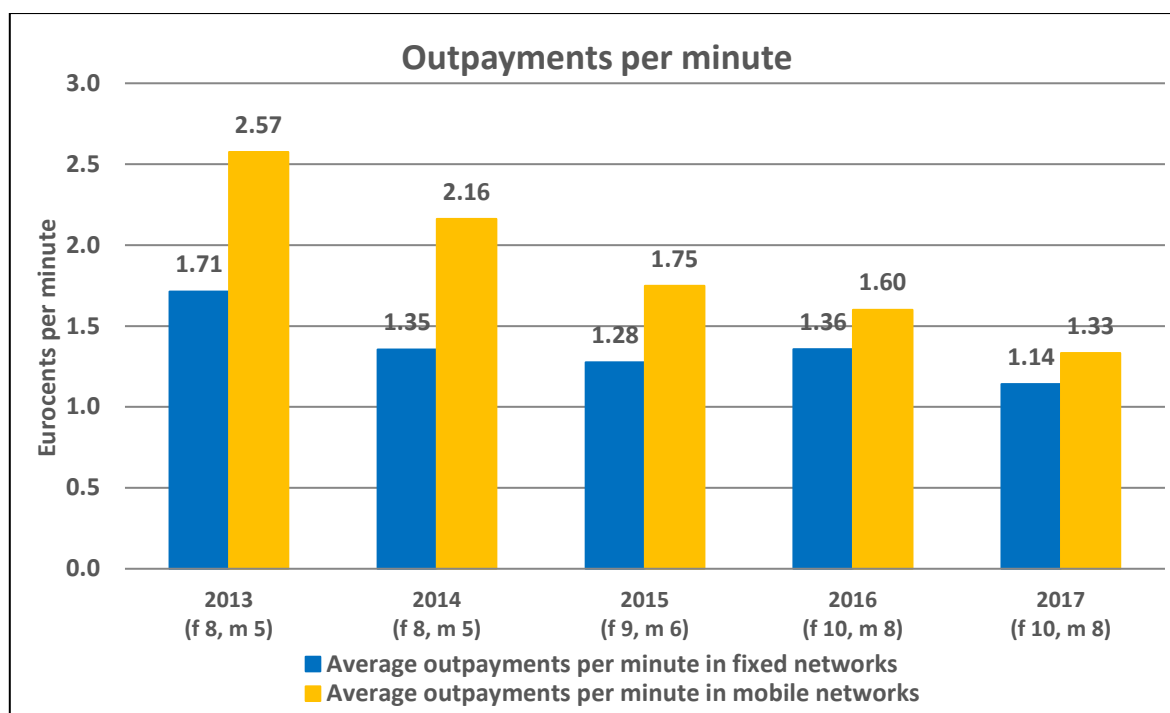


Figure 3: Outpayments per minute (Year, # countries for fixed (f) and mobile (m) networks)<sup>24</sup>

As mentioned above, outpayments include both termination and transit costs. However, it must be noted that outpayments are not the total costs that an operator has to bear. In addition to the termination and transit costs, operators also have costs for setting up a call (origination) and other costs that are also of relevance; for example (though not limited to), costs for billing, sales, marketing, and customer care. These cost categories can also be summed up as joint and common costs.

Unfortunately, at this time, BEREC does not collect any data on the level of these costs for this analysis. In contrast to termination, origination is not regulated; therefore, it is not part of the cost analysis conducted by NRAs and operators might not have separate accounts on origination.

It becomes still more difficult to assess common and joint costs (such as sales and marketing costs) since this information is confidential, is not shared by operators, and largely depends on the individual strategy employed by a given operator.

However, in June 2016, the European Commission provided an assessment<sup>25</sup> of cost for originating a call on mobile networks, when assessing the costs of providing wholesale roaming services in the EEA. This assessment, based on a cost-modelling approach, shows

<sup>24</sup> Countries considered for fixed networks: 2013: CZ, PT, LV, EL, SK, NL, PL, HR; 2014: CZ, PT, LV, EL, SK, NL, PL, HR; 2015: CZ, PT, LV, EL, SK, NL, PL, HR, FR; 2016: CZ, PT, LV, EL, SK, NL, PL, HR, FR, MT; 2017: CZ, PT, LV, EL, SK, NL, PL, HR, MT, SI. Countries considered for mobile networks: 2013: PT, LV, EL, SK, NL; 2014: PT, LV, EL, SK, NL; 2015: PT, LV, EL, SK, NL, FR; 2016: PT, LV, EL, SK, NL, FR, BG, IT; 2017: MT, LV, EL, SK, NL, FR, BG, IT.

<sup>25</sup> Commission Staff Working Document: Report from the Commission to the European Parliament and the Council on the review of the wholesale roaming market, 15 June 2016, page 51.  
<https://publications.europa.eu/en/publication-detail/-/publication/14ca558e-330b-11e6-969e-01aa75ed71a1>

origination costs on mobile networks vary from one EU country, and could reach up to around 2 €cents/min.

Thus, it should be noted that outpayments for termination and transit are only a part of the total costs and cannot be used as a proxy for the cost of providing intra-EU calls.

### 4.3. SMS

While BEREC requested data on intra-EU SMS in its December 2017 questionnaire, for reasons already set out above, BEREC did not present any analysis of intra-EU SMS in its preliminary analysis.

However, in light of additional validation of the data provided, subsequent to the publication of the preliminary analysis, the following section presents an analysis of the intra-EU SMS data submitted by NRAs to BEREC.

Figure 4 below presents an analysis of intra-EU SMS as a percentage of all SMS over the five year period from 2013 to 2017. This derived metric<sup>26</sup> is based on data from a comparatively large set of countries, which increases over the period of the analysis<sup>27</sup>.

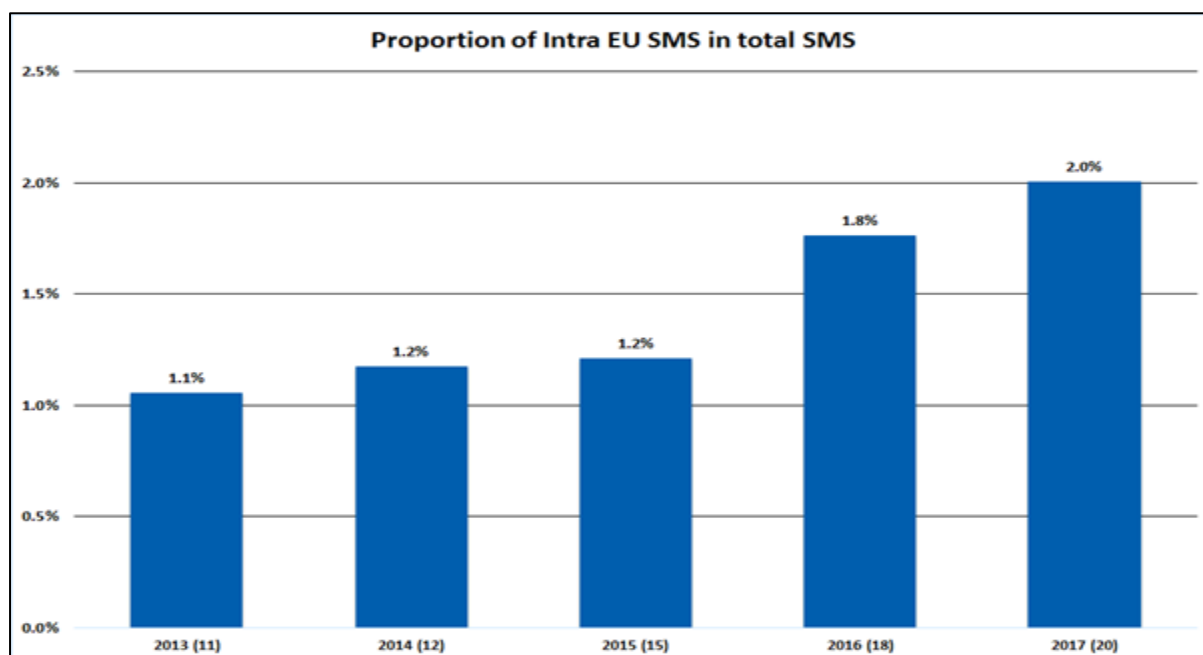


Figure 4: Intra-EU SMS as % of total SMS.

Essentially, despite a better dataset over time, the data indicates that, across Europe, intra-EU SMS volumes represent, on average, a small fraction ( $\leq 2\%$ ) of all SMS volumes on an annual basis. The apparent increase, in 2016 and 2017 particularly, must be qualified by

<sup>26</sup> Simple average of intra-EU SMS proportion in each country.

<sup>27</sup> 11 in 2013, 14 in 2014, 15 in 2015, 18 in 2016, and 20 in 2017, which represent all the answers received.

stating that the data for 2016 and 2017 includes countries with a high proportion of intra-EU SMS<sup>28</sup>.

The data also show a rather significant heterogeneity between Member States. For instance, in 2017, the range of this metric, across 20 Member States, is 0.2%-12.8%.

Figure 5 below shows the proportion of intra-EU SMS (as a percentage of total SMS) and the same derived metric for intra-EU fixed voice minutes and intra-EU mobile voice minutes (as percent of total volumes).

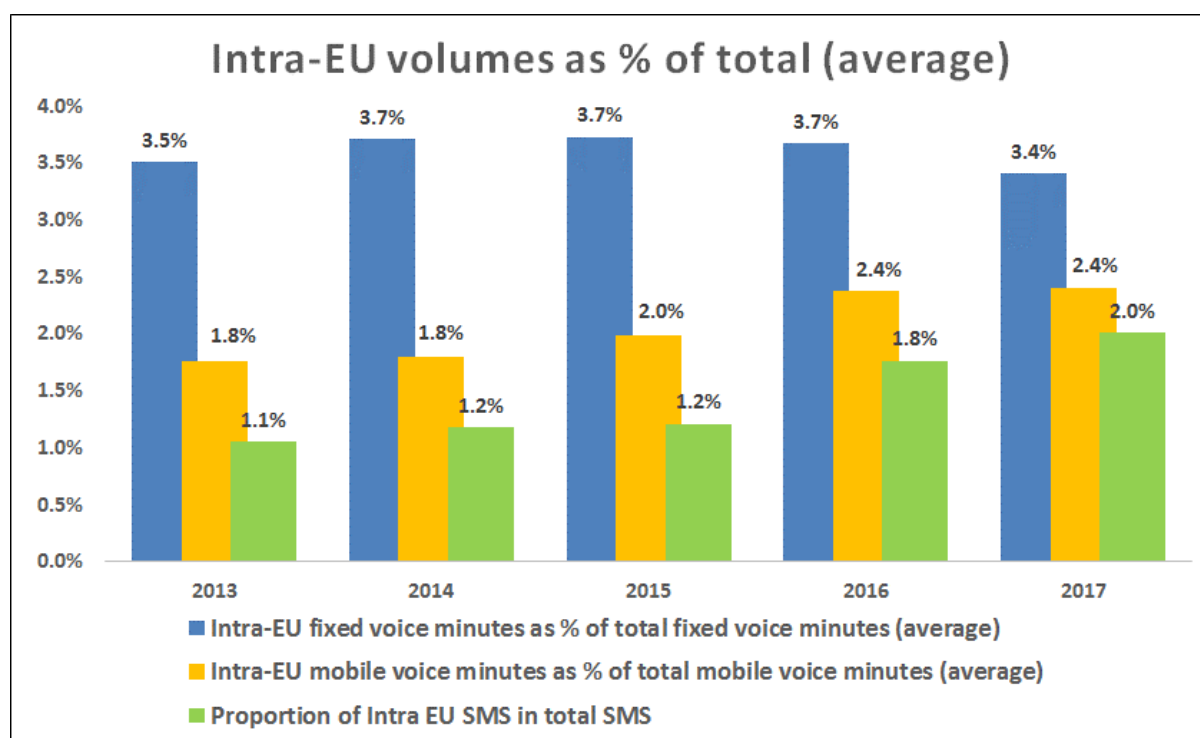


Figure 5: Intra-EU volumes % of total volume

Finally, with respect to the SMS data submitted to BEREC, Figure 6 below presents a year-on-year analysis of the average revenue per intra-EU SMS between 2013 and 2017. This derived metric is based on data from a very small sample of 3 countries, between 2013 and 2016, and just 4 countries for the 2017<sup>29</sup> analysis.

The data indicates that, year-on-year, there is a clear difference between revenues from outside bundles<sup>30</sup> and revenues per intra-EU SMS<sup>31</sup> (including outside bundles and inside

<sup>28</sup> BEREC notes that the proportion of the intra-EU SMS stays around the same level as in the years 2013-2015 (i.e. 1.2% - 1.3%) when considering the same panel of countries for 2016-2017.

<sup>29</sup> For this analysis, BEREC uses data only from NRAs that provided data for both the revenues per intra-EU SMS and revenues per intra-EU SMS outside bundles, in order to provide a clear comparison of the two different types of revenue.

<sup>30</sup> The average revenues per intra-EU SMS out of bundle result from the following ratio: "Revenues from intra-EU SMS (only from minutes outside packages/bundles)" / "Number of outgoing SMS Intra-EU calls outside package/bundle"

<sup>31</sup> The average per-SMS total revenues result from the following ratio: "Total Revenues from intra-EU SMS (estimate including revenue share from packages/bundles)" / "Total Number of outgoing SMS Intra-EU calls"



bundles revenues). In 2017, the average revenues per intra-EU SMS outside bundles are 52% higher than the average total revenues per intra-EU SMS.

Additional data submitted to BEREC indicates that, when taking into account more countries<sup>32</sup> (7), i.e. those who were only able to provide the SMS total revenue, the average total revenue per intra-EU SMS are similar to the figures below (approximately €0.11 for 2017).

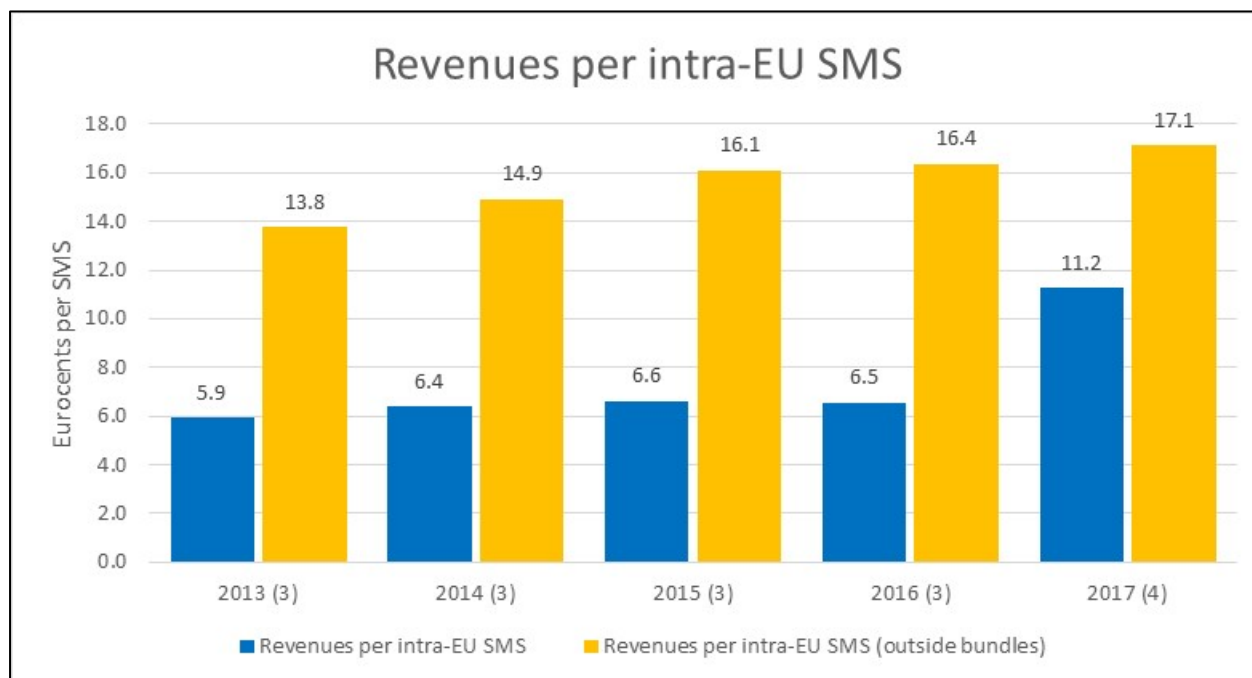


Figure 6: Analysis of average SMS revenues from 2013 to 2017 (year # countries)

#### 4.4. Regulators' and operators' responses to qualitative questions

The responses to the qualitative questions asked of operators in BEREC's December 2017 questionnaire are summarised, in general, in this section of the supplementary analysis. It should be reiterated that BEREC does not infer or draw conclusions based on the information presented in this section, merely to present the responses submitted.

##### 4.4.1. Substitution of traditional intra-EU calls by alternative options

In chapter 2 above, this paper briefly refers to evidence of substitution of traditional intra-EU calls by OTT alternatives. There was a very limited response to this question with some limited evidence provided<sup>33</sup>.

One NRA, while not presenting survey evidence, commented that increasing international networking together with decreasing international traffic on traditional mobile/fixed networks

<sup>32</sup> 6 countries for the years 2013-2015; 7 countries for 2016; 9 countries for 2017.

<sup>33</sup> In this regard, it should be noted that not all NRAs are empowered to collect data from OTT providers. The Framework Directive only ensures that NRAs are granted the power to request data from electronic communications providers. This issue, as further explained in the short paper BEREC views on information gathering powers BoR (17) 92, is not fully solved by the proposed Code.

must mean that the alternative options are increasingly used and substitute the traditional intra-EU calls.

In a nationally representative survey commissioned in 2017 by RTR, the Austrian NRA, 40% of respondents indicated that they preferred to use OTT services than traditional telephony for international calls.

Furthermore, a Belgian Consumer Survey conducted by Ipsos in 2017 showed that, irrespective of age, 34% of consumers who make international calls exclusively use free online tools and another 28% use free online tools and traditional telco services in parallel. It is expected that web-based international calls will further gain importance in the near future: growing up to 45% for exclusive use and 35% for use in parallel with telecoms.

#### **4.4.2. Differentiation of prices by destination or network**

While, in general, the evidence of this is mixed, some evidence of differentiation in prices by destination, as well as by network has been provided by operators and NRAs across the 26 responses to BEREC's questionnaire.

One specific example of differentiation by destination is with respect to the Nordic countries. One Nordic country-based operator noted that prices differ for calls between Nordic countries and the rest of the EU.

One NRA provided comment, in general on the situation in its country, that there are special plans and prices for the countries with the highest mutual traffic (neighbouring countries) but generally all EU countries are in the groups with the lowest price for international calls and SMS.

#### **4.4.3. Add-ons, bundles and specific offers**

The matter of add-ons and bundles has been commented on in section 4.1 above. In general, the responses received from operators, and provided to BEREC by NRAs, shows that add-ons and bundles is the typical type of offer provided by operators to consumers.

With respect to special offers, operators, in their responses to the qualitative questionnaire<sup>34</sup> indicated that it is practically impossible to distinguish to what extent volumes of traffic activity, using such special offers, go to either EU mobile or EU fixed networks.

#### **4.4.4. Distribution of traffic volume among customers**

Regarding the extent to which operators can provide information on the distribution of intra-EU traffic volumes among their customers, the responses to the question were limited, and there were very few positive responses.

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<sup>34</sup> Question 5 in the questionnaire asked operators if they have specific offers for intra-EU calls, and if volumes split between calls to EU mobile and to EU fixed networks can be provided.

However, one operator noted a strong assumption that few (mainly business) customers are responsible for a considerable amount of international traffic. Another operator was able to provide a clear analysis of the distribution of international (as opposed to intra-EU specifically) voice and SMS traffic, suggesting that, for example, 1% of customers consume 54% of total international calls, 2.5% of customers consume 78%, and 5% of customers consume 93% of international calls.

Other operator responses were as follows:

- Approximately 15% of users generate approximately 70% of the intra-EU volume.
- 96% of the intra-EU mobile voice calls is used by 30% of the consumers.
- For intra-EU fixed voice services 80% of the volume is used by 12% of the consumers.

## 5. Findings of the supplementary analysis

On 26 February 2018, BEREC published a preliminary analysis of intra-EU calls. In that paper, BEREC indicated that it would continue to review and assess the data that it had collected in light of its December 2017 questionnaire circulated to NRAs and national fixed and mobile operators. The current paper is BEREC's supplementary analysis of intra-EU calls, based on an additional period of analysis on the data submitted by NRAs to BEREC.

While BEREC has received responses from 26 NRAs, it is necessary to clearly state that the level of detail and data quality in the responses that NRAs received from operators is not consistent throughout, and therefore the findings in this paper should not be interpreted as a Europe-wide analysis, rather this paper should be considered as a presentation of data and derived metrics for a subset of countries whose data was verified and considered to be of good quality by BEREC.

This paper includes an analysis (in light of additional information being checked and verified) of out of bundle revenues, not presented in the preliminary analysis. In addition, the supplementary analysis has involved a detailed verification of data on outpayments, and an analysis on outpayments is included.

Additionally, the preliminary analysis, published on 26 February did not include data on SMS, as BEREC made the decision to initially focus on the matter of voice traffic. For this supplementary analysis, a thorough assessment of the SMS data was conducted and the results of that analysis are presented in the current paper.

According to the supplementary analysis conducted by BEREC, **on average, the proportion of intra-EU calls included in bundles is higher in fixed networks than in mobile networks. For ten countries, more than 50% of total intra-EU minutes in fixed networks were included in bundled offers. In the case of mobile networks, these proportions are lower still, only exceeding 30% in four countries.**

In addition, the data indicates that, year-on-year, the average revenues per-minute outside bundles are considerably higher than the average total revenues (i.e. revenues from bundles

and outside bundles) per-minute. This is to be expected and is usually the case for any service, since bundled offers usually have a lower per-unit price. **In 2017, average revenues per minute outside bundles in fixed networks were 27% higher than average total revenues (i.e. revenues from bundles and outside bundles) per-minute. For mobile networks, in 2017, based on a limited sample of data from 5 countries, the data suggests that, on average, revenue per voice minute outside bundles was 50% higher than average total revenues (i.e. revenues from bundles and outside bundles) per minute.**

Regarding outpayment, the analysis estimates that the **average outpayments per minute for calls originating on fixed networks is 1.14 Eurocents per minute in 2017** while, for **calls originating on mobile networks, the average outpayments per minute is 1.33 Eurocents per minute in 2017**. These averages are based on a subset of countries whose data BEREC considers to be of sufficient quality for publication. A general decrease in outpayments per minute over the period of the analysis seems plausible, since termination costs are considered to account for a significant portion of outpayments, and decreasing termination rates could lead to lower outpayments.

For SMS, the data indicates that, across Europe, **intra-EU SMS volumes represent, on average, a small fraction ( $\leq 2\%$ ) of all SMS volumes on an annual basis**. The data also show a rather significant heterogeneity between Member States. For instance, in 2017, the range of this metric, across 20 Member States, is 0.2%-12.8%.

In addition, the SMS data indicates that, year-on-year, there is a clear difference between revenues from outside bundles and revenues per intra-EU SMS (including outside bundles and inside bundles revenues). **In 2017, revenues per intra-EU SMS outside bundles are 52% higher than revenues per intra-EU SMS.**

Regarding the qualitative questions asked of NRAs and operators by BEREC, with respect to intra-EU calls, the responses received indicate that there is – at least some - evidence of substitution towards OTT-services. Some clear examples of price differentiation were provided, in terms of differentiation of prices by destination and/or network. In addition, it seems clear from the responses that while special offers for intra-EU calls are not an obvious trend across Europe, add-ons and bundles are far more common.

At this time, BEREC, having published two papers on the matter of intra-EU calls, does not intend to gather any further data on this matter. However, BEREC remains available to the EU institutions to provide technical inputs to the debates.

## Annex 1: Quantitative questionnaire on intra-EU calls

QUESTIONNAIRE ON INTRA-EU CALLS							
	Unit	2013	2014	2015	2016	2017 (estimate)	Comments
<b>FOR FIXED NETWORKS</b>							
Total number of domestic and intra-EU actual minutes in the year (a)	1000 minutes	0	0	0	0	0	
of which to fixed networks (F-F)	1000 minutes						
of which to mobile networks (F-M)	1000 minutes						
<b>Actual Outgoing Minutes Intra-EU calls</b>							
Within a package/ bundle (included in the monthly fee)	1000 minutes	0	0	0	0	0	
of which to fixed networks (F-F)	1000 minutes						
of which to mobile networks (F-M)	1000 minutes						
Outside package/ bundle (included in the monthly fee)	1000 minutes	0	0	0	0	0	
of which to fixed networks (F-F)	1000 minutes						
of which to mobile networks (F-M)	1000 minutes						
Total	1000 minutes	0	0	0	0	0	
of which to fixed networks (F-F)	1000 minutes	0	0	0	0	0	
of which to mobile networks (F-M)	1000 minutes	0	0	0	0	0	
<b>Revenues from outgoing intra-EU calls (Euros)</b>							
Revenues from intra-EU calls (only from minutes outside packages/bundles)	Euros	0	0	0	0	0	
Revenues from F-F intra-EU calls	Euros						
Revenues from F-M intra-EU calls	Euros						
Total Revenues from intra-EU Calls (estimate including revenue share from packages/bundles) (b)	Euros						
Estimate including revenue share from packages/bundles (Euros)	Euros						
If total revenues from intra-EU call are not available: Share of intra-EU calls in the revenue-mix of operators (%)	%						
<b>Total cost of outgoing intra-EU calls (Euros) (c)</b>							
of which cost of intra EU calls terminated in Fixed networks (outpayments)	Euros						
of which cost of intra EU calls terminated in Mobile networks (outpayments)	Euros						
<b>Subscribers (d)</b>							
Total Subscriber (as of 31 December)	1 subscriber						
Of which subscribers using intra-EU calls (e)	1 subscriber						
<b>FOR MOBILE NETWORKS</b>							
Total number of domestic and intra-EU actual minutes in the year (a)	1000 minutes	0	0	0	0	0	
of which to fixed networks (M-F)	1000 minutes						
of which to mobile networks (M-M)	1000 minutes						
<b>Actual outgoing Minutes Intra-EU calls</b>							
Within a package/ bundle (included in the monthly fee)	1000 minutes	0	0	0	0	0	
of which to fixed networks (M-F)	1000 minutes						
of which to mobile networks (M-M)	1000 minutes						
Outside package/ bundle (included in the monthly fee)	1000 minutes	0	0	0	0	0	
of which to fixed networks (M-F)	1000 minutes						
of which to mobile networks (M-M)	1000 minutes						
Total	1000 minutes	0	0	0	0	0	
of which to fixed networks (M-F)	1000 minutes	0	0	0	0	0	
of which to mobile networks (M-M)	1000 minutes	0	0	0	0	0	
<b>Revenues from outgoing intra EU calls (Euros)</b>							
Revenues from intra-EU calls (only from minutes outside packages/bundles)	Euros	0	0	0	0	0	
Revenues from M-F intra-EU calls	Euros						
Revenues from M-M intra-EU calls	Euros						
Total Revenues from intra-EU Calls (estimate including revenue share from packages/bundles) (b)	Euros						
Estimate including revenue share from packages/bundles (Euros)	Euros						
If total revenues from intra-EU call are not available: Share of intra-EU calls in the revenue-mix of operators (%)	%						
<b>Total cost of outgoing intra-EU calls (Euros) (c)</b>							
of which cost of intra-EU calls terminated in Fixed networks (outpayments)	Euros						
of which cost of intra-EU calls terminated in Mobile networks (outpayments)	Euros						
<b>Subscribers (d)</b>							
Total Subscriber (as of 31 December)	1 subscriber						
Of which subscribers using intra-EU calls (e)	1 subscriber						
<b>Total number of domestic and intra-EU SMS in the year (a)</b>							
Number of outgoing SMS Intra EU calls	1000 SMS						
Within a package/ bundle (included in the monthly fee)	1000 SMS						
Outside package/ bundle	1000 SMS						
Total	1000 SMS						
<b>Revenues from outgoing Intra-EU SMS (Euros)</b>							
Revenues from intra-EU SMS (only from minutes outside packages/bundles)	Euros						
Total Revenues from Intra-EU SMS (estimate including revenue share from packages/bundles) (b)	Euros						
Estimate including revenue share from packages/bundles (Euros)	Euros						
If total revenues from intra-EU SMS are not available: Share of intra-EU SMS in the revenue-mix of operators (%)	%						
<b>Total cost of outgoing intra-EU SMS (Euros) (c)</b>							
Subscribers using intra-EU SMS (f)	1 subscriber						

## Annex 2: Qualitative questionnaire on intra-EU calls

1 - Do you have any survey data on the substitution of traditional intra-EU calls by alternative options (OTT-services, call-by-call, dial-in numbers,...)? Please provide some details
2 - Do you differentiate intra-EU call prices for different EU destinations or is there one single price for all intra-EU calls?
3 - Do you differentiate prices between for intra-EU calls terminating in fixed or mobile networks?
4 - Do you have specific add-ons or specific bundles that include cheaper intra-EU calls?
5 - Do you offer specific offers for EU intra-calls (if yes, please describe them and provide the price and the related volumes splitted between calls to EU mobile and calls to EU fixed networks)
6 - Do you have any information on the distribution of the volume among customers ? (eg. 90% of the volume is used by 1% of the consumers)