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Subject: Response to the consultation on zero-rating and similiar practices in Portugal

This document has been co-drafted by:



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 Bits of Freedom, The Netherlands



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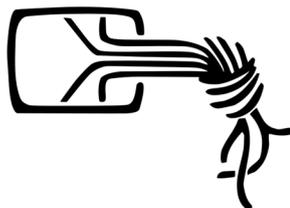
Hermes, Italy



Open Media, Canada



X-Net, Spain



Chaos Computer Club, Germany



IT-Pol, Denmark



FITUG, Germany



Dear Sir or Madam,

Thank you for the opportunity to respond to the Consultation of ANACOM's draft decision on zero-rating and similar practices of three mobile operators¹ in Portugal. We appreciate that ANACOM has decided to take action against the three operators in question and understand the difficult position in which the regulator finds itself.

The organisations undersigning this document support ANACOM's correct appraisal of the Telecom Single Market provisions on technical discrimination (Article 3(3)) and the Roaming Regulation as amended by the Telecom Single Market Regulation. However, we find ANACOM's interpretation of Articles 3(2) and 3(1) of the Regulation takes insufficient account of consumer and citizen rights and the rights of Content and Application Providers. We also believe that insufficient attention has been given to the necessary preconditions of a functioning internet ecosystem, the protection of which is the aim of the Regulation (Recital 1). In this submission we provide evidence on the effects of the commercial practices under assessment of this draft decision which we hope will bring ANACOM to a different conclusion on the admissibility of the offers in question. In particular, the existence of offers involving differential pricing and zero-rating of specific applications materially negatively impacts end-users' (both consumers' and Content and Application Providers') choice. ANACOM's suggestions as to methods to mitigate these impacts are insufficient to protect end-users' rights under Article 3(1) of the Regulation. Regulatory intervention with respect to such offers is necessary.

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The Influence of Differential Pricing and Zero-Rating on End-User Choice

In paragraph 81 of its decision, ANACOM argues that an objective assessment of the impact of offers with zero-rating or differential pricing characteristics on the consumers' choice is impractical or impossible due to an inherent subjectivity of usage patterns of individual users. However, this interpretation of the meaning of end-user choice is not adequate in light of the purpose of the Regulation.

From the perspective of a user of a particular application, a zero-rating or differential pricing offer effectively modifies the application. Relevant applications require access to the mobile internet in the form of mobile data, making the availability of mobile data a necessary component of the functionality of a service. From a consumer perspective, it is therefore not only relevant whether he or she can

1 MEO, NOS and Vodafone



access the mobile internet, but also at what price. The price for mobile internet thus determines essential characteristics of the service, e.g. how long a consumer can use a certain application.

Zero-rating or differential pricing offers tie the price of the provision of a service over the IAS operators' network to specific applications, unlike offers where the pricing of the provision of the IAS is granted equally independently of the application accessed. In particular where the differential pricing of the IAS only concerns specific applications (as opposed to a general class of services), consumers find themselves in the position that only these applications are offered at a reduced price or entirely predictable price (only the – usually flat – price of the service itself with no variable fee due to the transmission of the data in the case of true zero-rating). Studies going back to the 1970s show that consumers are apprehensive to the costs the use of a telecommunication service might incur and prefer predictable pricing.² Therefore, on a basic level, zero-rating offers reduce end-user choice by their nature, regardless of how much general data volume might be included in the offer. This is reflected in paragraph 42 of the BEREC Guidelines on the Implementation by National Regulators of European Net Neutrality Rules³ which stipulates that this type of zero rating offer creates an economic incentive to use certain applications instead of competing ones.

Crucially, in its assessment ANACOM has not taken into account the price of the various types of data volumes. We identified these conditions for the case of MEO's Smart Net offers for all general and application-specific data volumes. Our findings reveal stark differences between applications: access to partner applications of MEO is sold at the far lower price of 0,70 €/GB compared to access to all non-partner applications which ranges from 1,33 €/GB up to 53,98 €/GB.⁴ In several cases, access to the applications of the IAS provider itself is uncapped without a surcharge (zero-rated), which gives them the strongest competitive advantage.

Even if consumers can correctly assess their usage profile and the overall cost the use of their preferred services might incur, zero-rating offers would still materially impact end-user choice where the end-users are Content and Application Providers. This is because a consumer can only assess his or her usage profile at the time of entering a contract with the IAS provider. However, in context of the Regulation's aim to protect the ecosystem of the internet, user choice must be understood to include the potential *future choices* of consumers. Any application-specific data volume or zero-rating creates an inability or disincentive for consumers to change their usage profile, which severely impacts the opportunity of Content and Application Providers to provide new and innovative services. As such, the Regulation not only aims to protect the freedom of choice of consumers between services, but also the *level playing field* between Content and Application Providers, which is fundamentally tilted by all differentially priced or zero-rating offers where that offer distinguishes between particular applications.

ANACOM considers the possibility of affording Content and Application Providers the opportunity to have their applications become part of differential pricing or zero-rating offers of IAS providers as a remedy to the restriction of their end-user rights.

2 Odlyzko, Andrew: The history of communications and its implications for the Internet. (2000) Available online at: <http://www.dtc.umn.edu/~odlyzko/doc/history.communications0.pdf>

3 http://berec.europa.eu/eng/document_register/subject_matter/berec/regulatory_best_practices/guidelines/6160-berec-guidelines-on-the-implementation-by-national-regulators-of-european-net-neutrality-rules

4 See Annex1 for the detailed comparison of MEO's data volume prices.

First, we note that where (in the case of the MEO SmartNet offers) this opportunity appears to formally exist, it does not appear to be genuine. In addition to the opportunity only having appeared in the form of a contact e-mail address in the fine-print of the offer shortly before the publication of ANACOM's draft decision⁵, to our information, requests by Content and Application Providers of relevant categories submitted to this address have been simply ignored.

Furthermore, offers whereby a certain class of applications are zero-rated in general still do not sufficiently respect the rights of Content and Application Providers according to Article 3(1) of the Regulation. Such offers require complex technical identification criteria in order to detect traffic which is to be zero-rated or otherwise differentially priced. Content and Application Providers have to continuously cooperate with IAS providers to keep their services identifiable, are restricted in the technological choices they make as they have to be compatible with the technical conditions of the zero-rating or differential pricing programmes. Also, legal and administrative burdens are placed on Content and Application Providers as they have to enter into contracts which represent significant barriers to participation in such offers. Such barriers to market entry or dangers of market exit of Content and Application Providers cannot be shouldered by SMEs, particularly where they aim to offer their services in several EU/EEA countries. The protection of the adequate participation of exactly these actors is however the goal of the Regulation; it is the essence of the ecosystem of the internet, which until the emergence of offers with differential pricing or zero-rating offered equal access to consumers essentially regardless of the service provider's economic status, size, and relationship to the IAS provider.

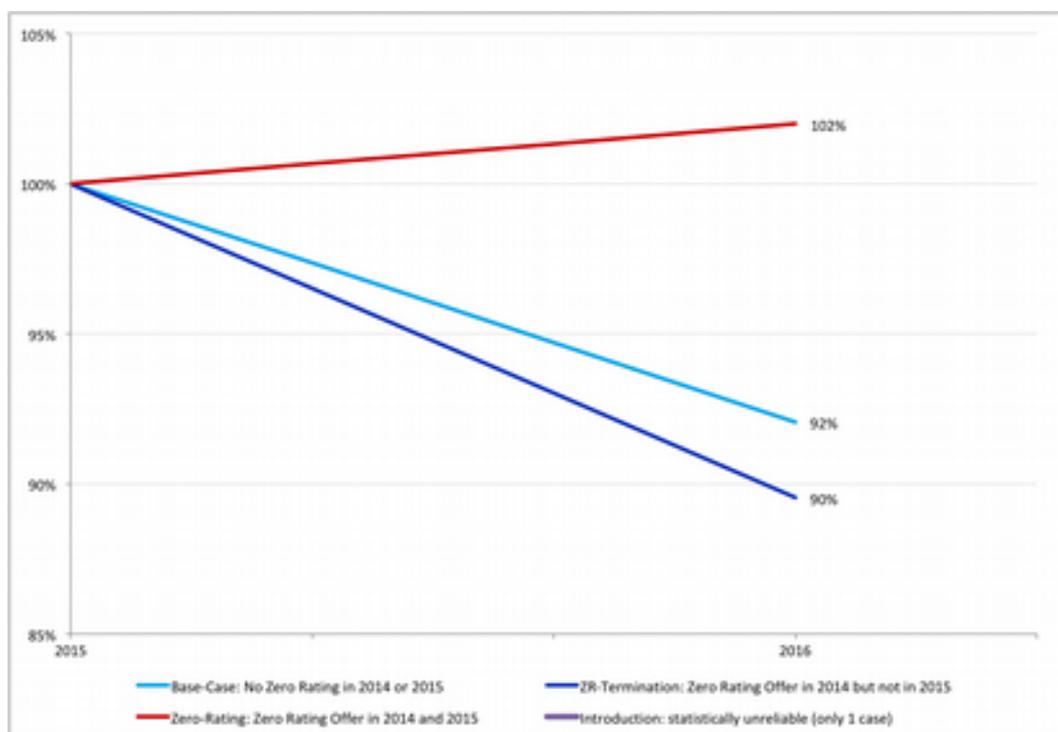
Finally, zero-rating offers are likely to have negative impacts on user choice in the entire market. ANACOM notes in paragraphs 83 to 85 of the draft decision that the emergence of zero-rating offers has not precluded a general rise in average traffic allowance in mobile IAS offers. However, ANACOM fails to consider this development in the context of an appropriate counterfactual scenario. Based on data on mobile IAS offers provided by the European Commission⁶ for the years 2015 and 2016, and data provided by ReWheel⁷ on the existence of zero-rating offers in particular markets, we provide analysis based on a regression model⁸ which shows a statistically significant 10% difference in the rate of change of the price for data volumes between EEA markets with and without zero-rating offers in these years. As such, the existence of zero-rating offers per se can be seen to materially reduce end-user choice both for consumers and Content and Application Providers, restricting their ability to try out or provide new applications not explicitly considered in any differentially priced or zero-rating offers.

5 We could verify by means of the Internet Archive that this e-mail address has appeared between 19 February 2018 and 28 February 2018: <http://web.archive.org/web/20180219213451/https://www.meo.pt/internet/internet-movel/telemovel/pre-pagos>

6 <https://ec.europa.eu/digital-single-market/en/connectivity>

7 http://research.rewheel.fi/insights/2016_aug_premium_zero_rating/

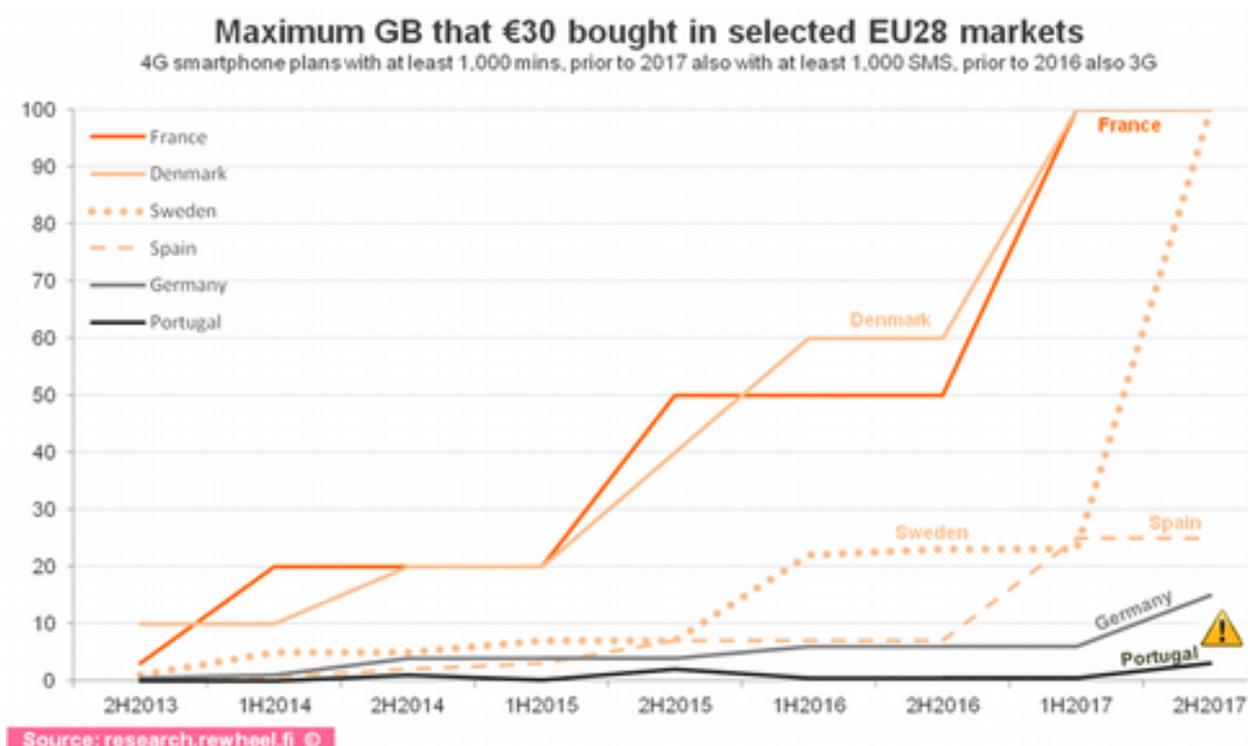
8 See Annex 2 for a detailed explanation of the mathematical model.



The situation in Portugal should also not be analysed in a vacuum. According to the assessment of ReWheel of how much data volume can be bought in EU countries for EUR 30, Portugal ranks 24th out of the 28 EU member states.⁹ In paragraph 83 of its draft decision, ANACOM notes an increase in data volumes despite the emergence of differential pricing offers in 2016, yet Vodafone launched its first differential pricing offer already in January 2015¹⁰ where such an increase was not observed. The data of ReWheel suggests that the recent increase in general data volume in Portugal merely follow is the wider European trend, albeit late and to a much lower degree:

9 <http://research.rewheel.fi/prices/country/>

10 <https://press.vodafone.pt/2015/01/05/vodafone-da-mais-musica-menos-conversa-em-todo-o-lado-com-o-spotify-premium/>



Additionally, we have conducted an analysis of the availability and affordability of data volumes in the EEA¹¹ based on the latest dataset of the European Commission from 2016.¹²

Firstly, we calculated the mean data volume included in all offers for each country. Secondly, we calculated the price per GB for each offer in each market and calculated the mean of the price per GB for each market in €(PPP)/GB.

While the lowest priced offer is a good value to illustrate the competitiveness of a market, the median is to be preferred when looking at offers aimed at the average citizen as it is more resilient towards individual outliers. We therefore focus on median values in this analysis.

Offers for tablets and laptops include considerably more data volume (median of ~ 6 GB) than those for handheld devices (median of 1 GB). Compared to other EEA countries, the former equates to a decent 7th place, which stands in stark contrast to the sobering 21st place for handheld devices. Only two countries in the EEA offered lower mean volumes, making Portugal one of the least supplied mobile data markets in the EEA.

11 Liechtenstein is not included in our analysis as it was not included in the dataset of the European Commission.

12 See Annex 3 for a further explanation of the methodology.



Mean Data Volume (MB/month)		
Handheld offers* 2016		
1	Finland	Unlimited
2	Sweden	4,608
3	Ireland	3,328
4	Austria	3,072
5	Denmark	3,072
6	Norway	3,072
7	Luxembourg	2,560
8	Estonia	2,048
9	Italy	2,048
10	Lithuania	2,048
11	Poland	2,048
12	United Kingdom	2,048
13	Belgium	1,792
14	Croatia	1,792
15	Czech Republic	1,536
16	Germany	1,536
17	Romania	1,536
18	Spain	1,536
19	Malta	1126,4
20	Latvia	1075,2
21	Bulgaria	1,024
22	Cyprus	1,024
23	France	1,024
24	Iceland	1,024
25	Netherlands	1,024
26	Portugal	1,024
27	Slovakia	1,024
28	Slovenia	1,024
29	Hungary	542
30	Greece	307,2

Mean Data Volume (MB/month)		
Tablet and Laptop offers* 2016		
1	Finland	Unlimited
2	Latvia	15,360
3	Poland	11,264
4	Slovenia	10,240
5	Austria	9,216
6	Ireland	7,168
7	Denmark	6,144
8	Malta	6,144
9	Norway	6,144
10	Portugal	6,144
11	Slovakia	6,144
12	Sweden	6,144
13	Estonia	5,632
14	Croatia	5,120
15	France	5,120
16	Greece	5,120
17	Hungary	5,120
18	Iceland	5,120
19	Italy	5,120
20	Romania	5,120
21	United Kingdom	5,120
22	Czech Republic	4,608
23	Lithuania	4,608
24	Bulgaria	4,096
25	Germany	3,072
26	Belgium	2,250
27	Spain	2,048
28	Cyprus	1,024
29	Luxembourg	1,024
30	Netherlands	1,024

* 0 MB Offers excluded

Source: Calculations based on "Mobile Broadband Prices in Europe 2016" EU Commission report



In terms of price per GB, Portugal ranks similarly underwhelmingly. To mitigate distortions, we differentiate between offers for laptops/tablets - which do not include any voice or messaging units - and handheld offers. For this reason we also analysed offers including devices separately.

The results for all three categories are equally unfavourable for Portugal as it ranks 3rd, 4th and 5th from last respectively in comparison to other EEA markets. With a median price of more than 100 €(PPP) per GB for handheld offers, costs in Portugal are dramatically higher than in most other countries. Offers for laptops/tablets are equally prejudicial in comparison to other markets, but remarkably cheaper than handheld offers. This is either due to very expensive voice and messaging services or, more likely, an excessive pricing of data for handheld devices, which could indicate weak competition.

In summary, we can conclude that the options for mobile data aimed at average consumers is significantly worse for citizens of Portugal than for the population of other EEA countries.



Mean Data price (€(PPP)/GB)**		
Handheld offers* 2016		
1	Finland	- €
2	Denmark	7,92 €
3	Austria	10,87 €
4	Sweden	12,39 €
5	Lithuania	14,60 €
6	Italy	15,73 €
7	Norway	17,61 €
8	Luxembourg	18,20 €
9	Ireland	20,77 €
10	Poland	20,83 €
11	United Kingdom	22,70 €
12	Estonia	28,66 €
13	France	33,82 €
14	Germany	43,88 €
15	Croatia	44,93 €
16	Romania	51,06 €
17	Latvia	52,03 €
18	Iceland	52,08 €
19	Slovenia	52,65 €
20	Belgium	66,94 €
21	Netherlands	69,03 €
22	Czech Republic	75,10 €
23	Spain	84,12 €
24	Slovakia	85,24 €
25	Bulgaria	88,52 €
26	Malta	92,10 €
27	Portugal	101,38 €
28	Cyprus	147,82 €
29	Hungary	202,48 €
30	Greece	567,68 €

Mean Data price (€(PPP)/GB)**		
Handheld offers* 2016 (offers with phone excluded)		
1	Finland	- €
2	Austria	9,11 €
3	Denmark	10,48 €
4	Lithuania	14,16 €
5	Norway	15,92 €
6	Italy	18,60 €
7	Sweden	20,01 €
8	Poland	20,19 €
9	Luxembourg	21,46 €
10	United Kingdom	26,54 €
11	Estonia	30,07 €
12	France	34,11 €
13	Ireland	35,79 €
14	Romania	38,06 €
15	Germany	41,63 €
16	Croatia	52,54 €
17	Latvia	53,62 €
18	Spain	59,52 €
19	Iceland	60,81 €
20	Belgium	72,74 €
21	Slovenia	76,01 €
22	Czech Republic	77,35 €
23	Netherlands	83,63 €
24	Malta	89,28 €
25	Slovakia	92,02 €
26	Portugal	109,16 €
27	Hungary	208,58 €
28	Cyprus	209,48 €
29	Bulgaria	232,54 €
30	Greece	283,53 €

Mean Data price (€(PPP)/GB)**		
Laptop and Tablet offers* 2016		
1	Finland	- €
2	Latvia	1,20 €
3	Poland	1,54 €
4	Austria	1,55 €
5	Sweden	1,64 €
6	Estonia	1,89 €
7	Italy	2,41 €
8	Iceland	2,47 €
9	Denmark	2,62 €
10	Lithuania	3,52 €
11	France	4,55 €
12	Slovenia	5,14 €
13	Romania	5,69 €
14	Bulgaria	6,86 €
15	Germany	8,25 €
16	Norway	9,10 €
17	Czech_Republic	9,28 €
18	Slovakia	10,56 €
19	Belgium	12,46 €
20	Malta	12,65 €
21	Spain	13,03 €
22	United_Kingdom	14,73 €
23	Luxembourg	18,73 €
24	Greece	20,98 €
25	Ireland	21,51 €
26	Hungary	23,23 €
27	Netherlands	27,95 €
28	Portugal	31,47 €
29	Croatia	59,63 €
30	Cyprus	73,87 €

*Offers with OMB are excluded

** 0,00€/GB for Unlimited

Source: Calculations based on "Mobile Broadband Prices in Europe 2016" EU Commission report



Case-by-Case Assessment of Offers

One important criterion in the assessment of commercial practices and agreements given by both the Telecom Single Market Regulation itself as well as the BEREC Guidelines on its implementation is the market positions of the IAS providers and the Content and Application Providers involved. The IAS providers mentioned in ANACOM's draft decision hold a combined market share of 95.1% in Portugal¹³. All of these providers have entered into commercial agreements with Google and Facebook which themselves hold a dominant share of several crucial markets in the European internet economy. Competitors of Google or Facebook would therefore face significant market entry barriers. It is particularly important to take this context into account as Recital 7 of the Regulation indicates that national regulators and other competent authorities be empowered to intervene when agreements or commercial practices would result in the undermining of the essence of the end-users' rights. Read in conjunction with the BEREC Guidelines' references to competition law, it would be relevant for the competition authority to assess the impact of zero-rating offers in the Content and Application Providers market.

Additionally, paragraph 48 of the BEREC Guidelines characterises price differentiation between individual applications to be more harmful than the price differentiation of a class of applications and draws the conclusion that this practice could undermine the goal of the Telecom Single Market Regulation, which is itself a criterion in the case by case assessment.

For the assessment of whether a commercial practice materially reduces end-user choice, the availability and affordability of general data volumes is seen as a strong factor by the Guidelines. As mentioned and detailed in the Annex, data volumes are almost nowhere else in the EEA scarcer than in Portugal. Very low general data volumes, combined with high prices materially exacerbate the limitations of the consumers' right to access services of their choosing and the right of Content and Application Providers to reach their customers via an IAS without entering into commercial agreements.

We urge ANACOM to properly analyse each of these offers according to all criteria outlined by the Guidelines for such case-by-case assessments. It is our opinion that intervention by ANACOM is necessary in order to satisfy its enforcement obligation under the Regulation.

Class-Based Differential Pricing or Zero-Rating

In paragraph 86 of the draft decision, ANACOM asserts that the possibility of Content and Application Providers to request inclusion in differential pricing offers or of users to suggest applications to be included to the IAS provider would ensure fair and non-discriminatory treatment of traffic and ensure end-user rights. However, the process by which this inclusion or suggestion should happen is questionable. None of the service providers - of which we know they have requested inclusion in MEO's Smart Net offer - have received a response for several weeks. There are no published contractual conditions (not even basic information such as whether such participation comes at a

13 <https://www.anacom.pt/render.jsp?contentId=1424802>

formal fee), and no information on whether each participant is offered the same conditions in the first place.

The current list of partner applications certainly suggests that only incumbent Content and Application Providers are deemed eligible. Other IAS providers in Europe with similar offers have taken steps to give their sign-up procedures the appearance of inclusive and non-discriminatory treatment of service providers by documenting the sign-up procedure and publishing technical requirements¹⁴.

The administrative and technical burdens of sign-up procedures to differential-pricing and zero-rating offers have been documented in the proceedings of the Canadian regulator CRTC in a case concerning an offer by the IAS provider Videotron (the offer was ultimately prohibited by the Regulator.)¹⁵ Such sign-up procedures require continuous cooperation with all IAS providers with which a service provider has entered into such an agreement, legal expertise in the law of every country in which there is an IAS provider with an offer of this type in order to understand the contractual conditions entered into. Entering into such contractual relations entails financial risks. A common provision is for example for the service provider to assume liability of wrongfully billed data volume due to misidentification of traffic.

Hence, Content and Application Providers will be limited in the number of such agreements they can enter into. Such conditions redound to the advantage of larger IAS providers and larger Content and Application Providers, such as Google or Facebook, and are therefore contrary to the aims of the Regulation, which seeks to protect the ecosystem of the internet as an engine of innovation. Not even a formally non-discriminatory differential pricing or zero-rating programme could meet the criteria of the Regulation not to materially limit end-user rights, but the exclusive nature of the partner selection in the offers under assessment even more so fails to pass this requirement.

In paragraph 89 of the draft decision, ANACOM assesses situations where applications provided to the IAS provider itself are zero-rated and suggests further evaluation on the influence of such commercial practices on user choice and the continued functioning of the internet as an ecosystem for innovation. However, in paragraph 90 ANACOM denies significant influence based on a comparison of the market positions of these services with the market position of competing service providers like Google. This assessment does not take into account the nature of service innovation on the internet.

The full record of innovation in the internet in the past decades shows that new services emerge at the very fringes, in small companies that benefit from the low market entry barriers that characterise the internet.¹⁶ However, in their status as small companies they face significant competition not just by the market leaders, but also other market participants. Therefore, in light of the aim of the Telecom Single Market Regulation to “guarantee the *continued* functioning of the internet ecosystem as an engine of innovation”¹⁷, an assessment of the influence of exclusive offers that give preferential treatment to selected applications cannot be based on the market position of market leaders like

14 See Vodafone Pass <https://www.telekom.de/hilfe/mobilfunk-mobiles-internet/mobiles-internet-e-mail/streamon/streamon-partner-werden> or StreamOn of Deutsche Telekom <https://www.telekom.de/hilfe/mobilfunk-mobiles-internet/mobiles-internet-e-mail/streamon/streamon-partner-werden>

15 See Québecor Média(CRTC)4nov2016-2 and https://openmedia.org/sites/default/files/tnc_crtc_2016-192_final_reply_of_openmedia_final.pdf

16 See Internet Architecture and Innovation, Barbara van Schewick, 2010 MIT Press

17 See Recital 1



Google, but must be based on the influence on the market entry barriers or market exit risks of Portuguese start-ups.

We therefore encourage ANACOM to prohibit the commercial practices under consideration based on Article 3(2) of the Regulation. Should ANACOM decide to do so, ANACOM's decision could outline remedies for IAS providers. A solution in line with consumer benefit is to convert existing accounts with data volume for specific applications into data volume usable as general-purpose data volume. Thereby, all restrictions of the rights of Content and Application Providers would cease immediately and IAS providers would not incur any increased network load.

Additional Remarks

In paragraph 100 of the draft decision, ANACOM asserts that application-specific data volume or zero-rated access is always sold in conjunction with general data volume. We would like to highlight the fact that MEO's pre-paid offers "Start"¹⁸ and "Flex"¹⁹ include no data allowance, but are presented on MEO's website with a very visible offer to buy the application specific data volumes of the "Smart Net" packages or the free of charge and zero-rated services MEO Go, MEO Cloud and MEO drive. Only in the fine-print, a potential customer can find that any use of online services outside of Smart Net triggers additional cost of EUR 1,99 for a "daily rate" of a few MB.²⁰ This incentivises the user to only use the application-specific data volumes of "Smart Net".

We welcome that in paragraphs 102 and following of the draft decision ANACOM gives guidance to IAS providers on how to align their products with the legal requirements. One additional option that could be suggested is to offer a low-bandwidth mode that is enabled once the general data allowance is exhausted. For example, the German operator O2 offers mobile internet services with this property, where transmission speeds are reduced to 1 Mbit/s once the monthly data cap is reached.

18 <https://web.archive.org/web/20180323001724/https://www.meo.pt/telemovel/tarifarios/pre-pagos/start>

19 <https://web.archive.org/web/20180323001729/https://www.meo.pt/telemovel/tarifarios/pre-pagos/flex>

20 See Annex1 for the detailed comparison of MEOs' volume prices.



Annex

Annex 1

Type	Tariff	Datavolume (GB)	price (€)	€/GB
prepaid	daily rate *	0,25	€ 1,99	€ 7,96
	daily rate **	0,06	€ 1,99	€ 33,17
	S	0,2	€ 2,80	€ 14,00
	M	1	€ 3,30	€ 3,30
	L	3	€ 4,00	€ 1,33
postpaid	S	0,5	€ 14,99	€ 29,98
	M	1	€ 22,99	€ 22,99
	L	3	€ 32,99	€ 11,00
	XL	30	€ 59,99	€ 2,00
	S***	0,5	€ 26,99	€ 53,98
	M***	1	€ 35,99	€ 35,99
	L***	3	€ 59,99	€ 20,00
	XL***	30	€ 69,00	€ 2,30
Smart Net	Messaging, Social, Video, Music, E-Mail & Cloud	10	€ 6,99	€ 0,70
	MEO	∞	€ -	€ -
* according to the website for all pre-paid offers				
** accordign to the customer portal with credentials for a "flex" contract				
*** without minimum contract period of 24 months				

Annex

1: Calculation of data volume prices for offers of MEO



Annex 2

In order to calculate the influence of zero-rating offers on prices of mobile internet offers we used a multiple regression model with an ordinary least squares (OLS) estimator. This allows us to calculate the average change in prices between 2015 and 2016 and measure the influence of availability of zero-rating offers on this change.

Method

We used a standard multiple regression model with an OLS estimator to test for the influence of zero-rating offers. The null hypothesis is represented by the following statement: “The availability of zero-rating offers in 2014 and/or 2015 in a country’s market has no influence on the change of price of mobile internet offers between 2015 and 2016.”

Since most offers include a minimum term of contract with fixed prices, we expect to see possible changes to market prices due to the availability of zero-rating offers to occur no earlier than one year after their entry into market. Based on our data, we can thus correlate the change of availability of zero-rating offers between 2014 and 2015 with the change of prices between 2015 and 2016.

Although the cheapest offer in a market does not necessarily include zero-rating of services, it is the best benchmark for competitors and thus a driver of market prices.

To measure the availability or change in availability of zero rating offers, we use three variables (ZR_to_ZR15, NoZR_toZR15, ZR_to_NoZR15). Starting from the base case, that no zero-rating offer is available in 2014 and 2015, the variables represent the following cases:

- ZR_to_ZR15: Zero-rating offer available in 2014 and 2015
- NoZR_toZR15: No zero-rating offer available in 2014 but available in 2015
- ZR_to_NoZR15: Zero rating-offer available in 2014 but non available in 2015

With these variables we constructed the following linear regression model:

$$y = \alpha + \beta_1 \cdot \text{ZR_to_ZR15} + \beta_2 \cdot \text{NoZR_toZR15} + \beta_3 \cdot \text{ZR_to_NoZR15} + \varepsilon,$$

whereby

- α is the mean change in prices without the influence of zero-rating offers in the base case with no zero-rating offer in 2014 or 2015 describes, and
- ε represents random noise in our data.

Data

The EU Commission published consecutive reports in 2015 and 2016 collecting all available mobile internet offers in EU28 countries, Norway, Iceland, Japan, Korea, Turkey and the USA.²¹ The reports classify these offers according to OECD methodology in 15 (2015) and 18 (2016) baskets with different data sizes²² and determine the cheapest offer for each basket in each country.

From these reports we calculated the change in price of the cheapest offer between 2015 and 2016 in every EU member state, as well as Iceland and Norway.

We referenced these numbers with the availability of zero-rating offers in the years 2014 and 2015 based on a report from ReWheel.²³ This dataset is more extensive than the collection of zero-rated websites in the EU Commission report.²⁴

With 30 countries and 15 baskets each we are able to test our model on 450 observations.

The different cases are not equally often represented in the sample, as the following distribution shows:

- ZR_to_ZR15: 13 countries,
- NoZR_toZR15: 1 country (Cyprus),
- ZR_to_NoZR15: 8 countries,
- NoOZR_to_NoOZR: 8 countries.

This means that all 15 observations for the NoZR_toZR15-dummy derive from one country. Results for this variable thus do not represent the general case of introducing a zero-rating offer to a market but describe the particular case of Cyprus. We therefore cannot derive meaningful information for this case from our dataset.

21 EU Commission: Mobile Broadband prices (February 2015) <https://ec.europa.eu/digital-single-market/en/news/mobile-broadband-prices-february-2015>
Mobile Broadband Prices in Europe 2016 <https://ec.europa.eu/digital-single-market/en/news/mobile-broadband-prices-europe-2016>

22 OECD: Methodology for constructing wireless broadband price baskets
<https://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=DSTI/ICCP/CISP%282011%295/FINAL&docLanguage=En>

23 Rewheel „Zero-rated mobile apps in EU28 & OECD“ 2014, 2015, 2016; licensed non-public information

24 Mobile Broadband Prices in Europe 2016 <https://ec.europa.eu/digital-single-market/en/news/mobile-broadband-prices-europe-2016>



Findings

Source	SS	df	MS			
Model	.784198423	3	.261399474	Number of obs =	450	
Residual	23.8284747	446	.053427073	F(3, 446) =	4.89	
Total	24.6126732	449	.054816644	Prob > F =	0.0023	
				R-squared =	0.0319	
				Adj R-squared =	0.0253	
				Root MSE =	.23114	

Changel516	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
ZR_to_ZR15	.0993285	.0268181	3.70	0.000	.046623	.1520341
NoZR_toZR15	-.0851608	.0619338	-1.38	0.170	-.206879	.0365574
ZR_to_NoZR15	-.0252114	.0268181	-0.94	0.348	-.0779169	.0274942
_cons	.9205744	.0211004	43.63	0.000	.8791059	.9620429

Figure 1: - Regression estimates as calculated by Stata

Based on 450 observations the results indicate a general falling trend in prices per GB. The value “cons” shows the result for the constant factor α with a value of 0.920, representing an average price reduction of 8% between 2015 and 2016. With a standard error of 0.021, this result is highly significant (the 2-tailed p-value ($P>|t|$) is 0.000).

Due to the arguments mentioned above, we cannot derive any any meaningful information from the results of the NoZR_toZR15 variable.

In the case of a cessation of zero-rating offers in a country (ZR_to_NoZR15) the findings are not conclusive (p-value is at 0.348, well above a reasonable threshold of at least 0.05). Based on our dataset we can therefore deduce no statistically significant influence of a cessation of zero-rating offers on the change of price.

Markets with zero-rating offers in the two previous years (ZR_to_ZR15) however show statistically significant lower changes in prices than markets without. On average the price is 9.9% higher in the second year than it is in comparable markets without zero-rating offers. This translates into an average increase of prices by nearly 2 % in stark contrast to the reduction of price in markets without zero-rating offers.

Based on these findings we can reject the null hypothesis. We found that the availability of zero-rating offers coincides with prices being on average 9.9% higher than we would predict them to be without such offers present.

In summary, we have presented evidence that the prevalence of zero-rating offers has an adverse effect on falling consumer prices for mobile internet volumes. To further our understanding especially



regarding the effects of introducing zero-rating offers to markets, we intend to continue to monitor markets in the EU and test our results with newer and richer data sets as they become available. At the time of drafting of this submission, the EU Commission has released only the data on the European mobile telecommunications markets in 2015 and 2016., upon which our analysis is based.

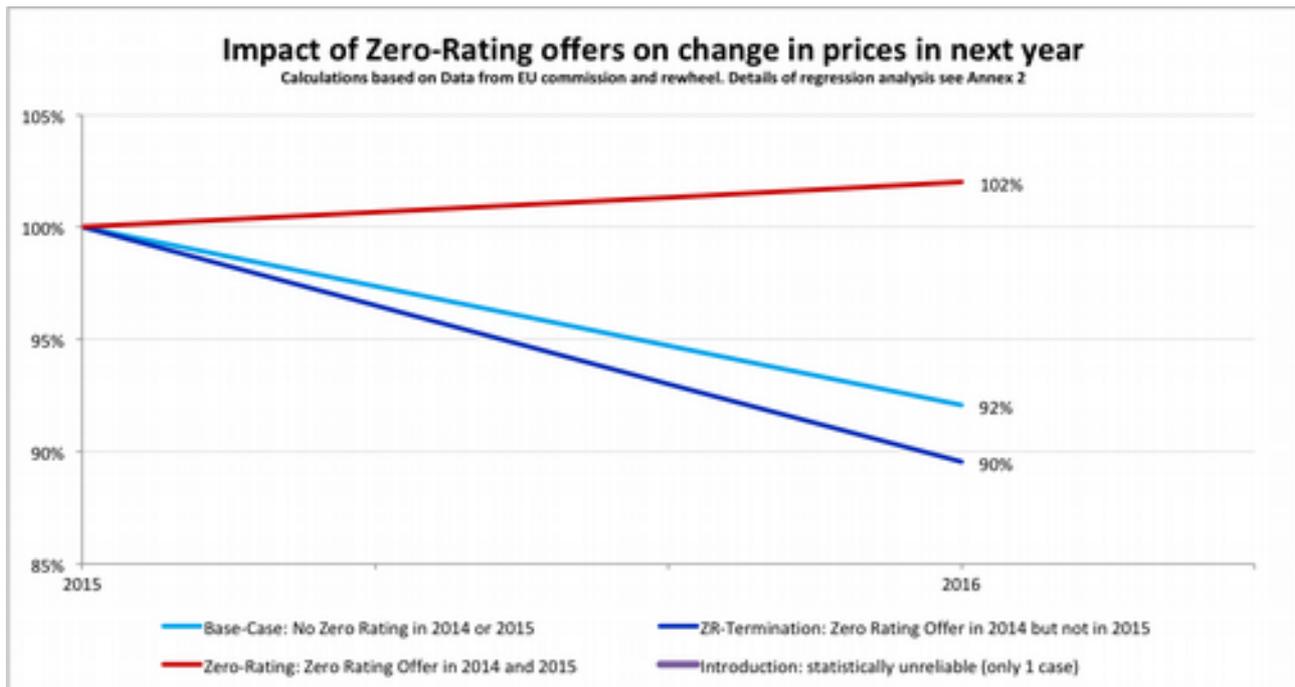


Figure 2: graphic presentation of regression results