ANACOM

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REPORT ON OPEN INTERNET

MAY 2022 TO APRIL 2023

Contents

1. Executive Summary

(TSM[1] Regulation) lays down, *inter alia*, common measures at European Union (EU) level concerning open Internet access and makes National Regulatory Authorities (NRAs) responsible for ensuring compliance with these measures. In this context, the present report reflects Autoridade Nacional de Comunicações (ANACOM)'s control during the period from 01.05.2022 to 30.04.2023, in compliance with article 5 of the TSM Regulation.

In the scope of actions undertaken by this Authority, it is important to highlight the process of monitoring and evaluating zero-rating and similar offers, based on the rulings of the Court of Justice of the European Union (CJEU) and the guidelines of the Body of European Regulators for Electronic Communications (BEREC) on this matter. This process led ANACOM to determine, on 01.03.2023, the cessation of zero-rating and similar offers, which failed to comply with the legal framework in force.

During the reporting period, ANACOM continued to carry out a number of supervisory and control activities, namely the monitoring of information published by Internet access services providers (ISPs), both on their websites and in their contracts, as well as the analysis of complaints related to the provision of the Internet access services (IAS). Also noteworthy in this regard is the publication of relevant statistics in the field of the IAS and the Internet ecosystem itself, as well as the conduct of several studies evaluating the performance of electronic communications services and the levels of GSM, UMTS and LTE radio coverage of mobile communication systems at the national level.

ANACOM also monitored, from an open Internet perspective, the application by ISPs of EU sanctions against Russia related to content blocking, in the light of the sanctions introduced during the period in question.

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[1] Telecoms Single Market.

2. Regulatory framework

The TSM Regulation aims to establish common rules to ensure access to the open Internet, through fair and non-discriminatory treatment of traffic in the provision of the IAS and the protection of end-users' rights in relation to such provision.

It should be noted that the TSM Regulation, in its article 3(1), provides that end-users have the right to access and distribute «*information and content, use and provide applications and services, and use terminal equipment of their choice, irrespective of the end-user's or provider's location or the location, origin or destination of the information, content, application or service, via their Internet access service*», and that this right may not be limited by commercial and technical agreements between ISPs and end-users (see paragraph 2 of the referred article).

The referred Regulation also establishes the obligation for ISPs to treat traffic equally in the provision of the IAS, «*without discrimination, restriction or interference, and irrespective of the sender and receiver, the content accessed or distributed, the applications or services used or provided, or the terminal equipment used*» (see article 3(3), first subparagraph).

While the TSM Regulation allows for the application of reasonable traffic management measures, as provided for in the second subparagraph of article 3(3), ISPs shall not «*block, slow down, alter, restrict, interfere with, degrade or discriminate between specific content, applications or services, or specific categories thereof, except as necessary, and only for as long as necessary*» to comply with the exceptions foreseen and justified under the TSM Regulation (see article 3(3), third subparagraph).

Without prejudice, ISPs may «*offer services other than Internet access services which are optimised for specific content, applications or services, or a combination thereof, where the optimisation is necessary in order to meet requirements of the content, applications or services for a specific level of quality*» (see article 3(5) of the TSM Regulation).

The provisions on the safeguarding of open Internet access, set out in article 3 of the TSM Regulation, are complemented by transparency measures to guarantee such access, as set out in article 4 of the referred Regulation.

Article 5(1) of the TSM Regulation requires NRAs to monitor and ensure compliance with articles 3 and 4 of the TSM Regulation, taking into account BEREC's open Internet guidelines[2]. To this end, NRAs are required to publish an annual report on such monitoring and findings, which must also be submitted to the European Commission and BEREC.

3. Supervision and application of the TSM Regulation in Portugal

3.1. Supervisory and enforcement activities carried out by ANACOM under article 5(1) of the TSM Regulation

This report highlights ANACOM's supervisory and enforcement activities with regard to the application of articles 3 and 4 of the TSM Regulation during the period from 01.05.2022 to 30.04.2023, with a focus on issues related to zero-rating and similar practices and transparency in ensuring open Internet access.

3.1.1. Zero-rating and similar practices

ANACOM has been monitoring zero-rating and similar offers over the years, given the increase of such offers at national level. Although most zero-rating offers are not "pure" as they do not make content and/or applications available for free, they could be considered as similar or having similar effects.

With regard to these offers, it should be noted that on 02.09.2021, the CJEU adopted three rulings, in which it concluded that offers with zero-rating characteristics are inherently incompatible with article 3(3) of the TSM Regulation, as they are incompatible with the general obligation to treat traffic equally, without discrimination or interference. Following the publication of these rulings, BEREC revised, on 14.06.2022, its guidelines on open Internet, which now provide, in line with the Court's understanding, that «*the general obligation to treat all traffic equally is not limited to technical traffic management practices but also applies to commercial practices of the ISP such as differentiated pricing. Hence, it*

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[2] The BEREC guidelines were first published in August 2016, revised in June 2020 and most recently in June 2022.

also includes unequal treatment by way of zero tariff options and similar offers»[3] (see paragraph 49).

Given the evolution of the regulatory framework at European level, ANACOM considered that its [decision of 03.07.2018](link)[4] would be insufficient to comply with rules on open Internet access in the current context, as the judgement of incompatibility with the applicable legal framework that arose from it was limited to some traffic management measures associated with certain zero-rating and similar offers. In this context, on 01.03.2023, ANACOM approved the [decision on zero-rating and similar offers in Portugal in the context of the open Internet](link). It should be noted that this decision was preceded by a prior hearing of interested parties and a general consultation that ran from 08.11.2022 to 29.12.2022[5].

ANACOM considered that zero-rating and similar offers fall within the type of offers mentioned in the CJEU rulings, and consequently in the revised version of the BEREC guidelines, as they involve differentiated treatment of traffic, and concluded that they are incompatible with the TSM Regulation, in particular with article 3(3) thereof. As a result, ANACOM determined the cessation of zero-rating and similar offers that failed to comply with the applicable regulatory framework, establishing a transitional period for this purpose.

In this decision, ANACOM ordered the cessation of zero-rating and similar offers, which failed to comply with article 3(3) of the TSM Regulation, as they discriminated on commercial grounds between traffic related to zero-rated applications and other traffic:

a) within 20 working days of the date of publication of the final decision, in the case of offers available for new subscriptions;

b) within 90 working days of the publication of the final decision, in the case of contracts in progress, without prejudice to the possibility for end-users of zero-rating and similar offers with contracts with a loyalty period to maintain these offers, if they so wished, under the conditions applicable until the end of this period.

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[3] The general obligation to treat all traffic equally is not limited to technical traffic management practices, but also applies to the commercial practices of ISPs, such as price differentiation. It therefore includes differential treatment through zero tariff options and similar offers.

[4] On zero-rating and similar offers in Portugal.

[5] The respective [draft decision on zero-rating and similar offers in Portugal in the context of the open Internet](link) was approved on 08.11.2022.

ANACOM also requested ISPs to provide detailed information on the changes made to the respective offers, in the case of contracts in progress, as well as the information they have made available to end-users, within 90 working days of the date of publication of the final decision.

ANACOM also stressed the importance of safeguarding the rights and interests of users in the context of the changes to be made by ISPs to commercial offers in order to ensure compliance with the obligation to treat traffic equally, minimising any possible impact of these changes. In this context, ANACOM recommended that ISPs make greater volumes of data available for general Internet access, at least equivalent to the total volume of data available to users in zero-rating and similar offers, without increasing prices.

Following a request for clarification from some ISPs on the application of the decision of 01.03.2023, ANACOM approved, on 11.05.2023, a clarification on the determination provided for in ANACOM's decision on zero-rating and similar offers in Portugal. As part of this clarification, ANACOM stressed that the concern that led to the provision allowing end-users to maintain the offers under the current conditions until the end of the loyalty period was aimed at ensuring that end-users would not be harmed by the changes introduced following ANACOM's decision.

In this context, ANACOM highlighted that whenever such changes are in accordance with the recommendation included in the decision, which provides for the availability of greater volumes of data for general access to the Internet, at least equivalent to the total volume of data that users currently have available, without an increase in prices or changes to the other terms and conditions, the spirit of the decision is safeguarded. In these circumstances, the context which determines that end-users may maintain the zero-rating and similar offers under the conditions in force until the end of the contract loyalty period, does not apply.

At the end of the period referred to in point a) above, ANACOM carried out a preliminary analysis of the offers available on the websites of the most representative ISPs on the market and did not identify any zero-rating or similar offers marketed on these channels, without prejudice to the so-called specialised services. In this respect, it is important to note that most of the new offers in force at the time had a higher volume of data, but also a higher

price, compared to the zero-rating and similar offers identified in the ANACOM decision[6]. However, ISPs have granted some benefits in some tariffs, such as an additional traffic volume for a certain period of time or a discount on the monthly fee for the first month(s) after subscription. Notwithstanding the conclusions of this analysis, a detailed assessment will still be made of the enforcement of ANACOM's decision with regard to new subscriptions in the various sales channels of ISPs.

It should also be noted that the period referred to in point b) above ends on 14.07.2023, i.e. on a date subsequent to the publication of this report, and therefore an effective assessment of the ongoing and/or implemented changes to contracts in progress, also taking into account the information that ISPs must send to ANACOM in this regard, will be conducted later by this Authority.

3.1.2. Transparency

3.1.2.1.   Contractual information

As part of the transparency measures to guarantee access to the open Internet, ISPs are required to include specific information about the IAS in the contracts that include this service, as provided for in article 4(1) of the TSM Regulation. Accordingly, the contracts of the four most representative ISPs on the market (MEO, NOS, NOWO and VODAFONE) were analysed.

With regard to the estimated impact of traffic management measures on the quality of the IAS, on the privacy of end-users and on the protection of their personal data, in accordance with the provisions of article 4(1)(a) of the above-mentioned Regulation, it is noted that ISPs provide some information in this area, although in most cases this information is insufficient and unclear.

With regard to the information provided on the impact of volume limitation, speed and other quality of service parameters, as required by article 4(1)(b) of the Regulation, it was found that some ISPs do include such clauses in their contracts, but in some cases the information on the impact is insufficient and in others it is missing.

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[6] It should be noted that this price difference reflects, to some extent, the regular annual price update carried out by ISPs, in this case for 2023.

With regard to the impact that the services referred to in article 3(5) to which the end-user subscribes[7] may in practice have on the IAS provided, it was found that the provisions of article 4(1)(c) of the TSM Regulation are met for most ISPs, as these providers provide specific information on this aspect in the contracts.

In addition, it was found that, in all the contracts analysed, ISPs included clauses relating to the different download and upload speeds/throughput referred to in article 4(1)(d) of the TSM Regulation, including an explanation of the meaning of each of the terms in question.

With regard to the "*remedies*" available to users to react to differences between the actual performance of the IAS provided and the one advertised or stated in the contracts (see article 4(1)(e) of the TSM Regulation), it was found that in some contracts such information is insufficient and unclear, and no provision is made for a specific, transparent and simple mechanism for handling complaints related to the IAS.

In these circumstances, ANACOM will take measures within its powers to address the situations observed.

3.1.2.2.   Information published on the websites of the ISPs

Within the scope of the supervisory and enforcement actions carried out with regard to transparency, the continued monitoring process of the information published on ISPs websites should also be highlighted.

In this respect, it should be noted that, in 2022, ANACOM continued the process of monitoring the obligations to guarantee open Internet access in terms of transparency, in particular with regard to the information on the different transmission speeds (download and upload), in fixed and mobile networks, provided on the websites of smaller ISPs, with a greater focus on new ISPs.

This monitoring has been based namely on the collection of information from ISPs, consultation of the respective websites and, where necessary, subsequent interaction with

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[7] Services other than Internet access services which are optimised for specific content, applications or services, or a combination thereof, where the optimisation is necessary in order to meet requirements of the content, applications or services for a specific level of quality.

the providers concerned, and it has been found that several providers have made adjustments to their websites.

3.2. Complaints relating to non-compliance with the TSM Regulation

As in previous years, ANACOM has monitored complaints about electronic communications services sent directly to it by users.

Based on the complaints received between May 2022 and April 2023, it is important to note a decrease in the total number of complaints about electronic communications services submitted directly to ANACOM (-17.5%) compared to the same period of the previous year. It is also worth noting the significant decrease in the number of complaints concerning IAS (-54.3%) during this period.

With regard to the reasons for these complaints, it can be noted that the most frequently reported reason is failures in the fixed IAS, which accounts for 53% of the complaints about Internet access. The second most common reason is related to the speed of fixed Internet access (around 35% of IAS complaints), a decrease of 75% compared to the same period last year. It should also be noted that there was only one complaint relating to traffic shaping.

3.3. Main results of the assessment of the technical parameters carried out in the framework of the TSM Regulation implementation

3.3.1. NET.mede

ANACOM continues to provide users with the NET.mede measurement tool, which allows users to test certain IAS performance parameters from a computer, smartphone or tablet. These tests can be carried out via a web browser or an application available for Windows, macOS, Android and iOS systems.

On the one hand, the web browser test can measure download/ upload speeds, as well as latency and jitter. On the other hand, the NET.mede application allows for a more complete test, measuring other indicators such as packet loss and web page load. The aggregated

results of the tests performed by NET.mede users, whether via the web browser or the application, are published online on the [NET.mede website](#).

As in previous years, ANACOM monitored the quality of the IAS during the period covered by this report, taking into account the results of tests carried out by NET.mede users, and published four quarterly reports and an annual report. It should be noted, however, that due to the voluntary and non-random nature of the tests and the impossibility of controlling the specific motivations of users for carrying out the tests, the results presented cannot be extrapolated to all Internet users in Portugal, as the necessary statistical representativeness of this group cannot be guaranteed. In addition, the test results are dependent on the Internet speeds contracted by these users and other factors affecting them.

Nevertheless, it should be noted that, in 2022, 743 thousand tests on the speed of Internet access were performed via NET.mede, which means that an average of 2035 tests were carried out per day. However, there was a 39% decrease in the number of tests compared to 2021 (473 thousand fewer tests). Approximately 67% of the tests were carried out on national fixed accesses identified as residential (498 thousand), 24% on national mobile accesses (176 thousand) and 7% on non-residential fixed accesses (53 thousand tests).

From the results of the tests carried out in NET.mede in 2022, it should also be noted that in half of the tests (median):

- the download speed was 108 Mbps or more for fixed residential accesses and 15 Mbps or more for mobile accesses;

- the upload speed was 72 Mbps or more for fixed residential accesses and 7 Mbps or more for mobile accesses;

- the latency was 13 milliseconds (ms) or less for fixed residential accesses and 37 ms or less for mobile accesses.

Compared to the previous year, there was an improvement in the median results for residential fixed accesses, with increases in download speeds (+37%) and upload speeds (+63%). The exception was the median latency, which remained the same as in 2021. For mobile accesses, there was an improvement in all the median results analysed compared to the previous year, with an increase in download speeds (+53%) and upload speeds (+45%)

and a decrease in latency (-10%). This evolution may reflect, among other things, the subscription of users to offers with higher speeds in the case of fixed accesses, and the completion of tests on the 5G network in the case of mobile accesses.

Finally, it is important to mention that a project is being developed to implement an automatic mechanism for collecting information on mobile coverage (date, location, ISP, type of network and signal level) through the NET.mede application, which requires the user's consent. The ultimate aim of this project is to allow the statistical processing of the data collected and the eventual dissemination of information on mobile network coverage by ANACOM.

3.3.2. GSM, UMTS and LTE mobile service performance and coverage assessment studies

Over the years, ANACOM has evaluated the user experience in terms of the accessibility of voice and data services. In order to assess the performance of data services, ANACOM carries out mobile Internet connection speed tests on the most representative operators on the market, through NET.mede,.

In this context, it is important to note that during the period covered by the report, ANACOM carried out and published several studies evaluating the performance of mobile services and GSM, UMTS and LTE coverage in different municipalities, both on the mainland (Vila Viçosa, Vila Velha de Ródão, Arruda dos Vinhos, Sabrosa, Macedo de Cavaleiros, Vila Nova de Poiares, Manteigas, Évora, Grândola, Góis, Ferreira do Alentejo, Viana do Alentejo, Fornos de Algodres, Resende, Almodôvar, Alcácer do Sal, Avis, Abrantes, Sines, Melgaço, Mação, Castelo Branco, Santiago do Cacém, Montemor-o-Novo, Odemira, Pinhel, Tabuaço, Oliveira de Azeméis) and in the islands of Madeira (Funchal, Câmara de Lobos) and the Azores (Madalena do Pico, Lajes do Pico, São Roque do Pico, Vila Franca do Campo, Santa Cruz da Graciosa, Lagoa). In addition to these studies, tests were also carried out on the performance of electronic communications and the 2G, 3G, 4G and 5G radio coverage levels of the mobile communications systems on São Jorge Island, Serra da Estrela and the Douro river.

ANACOM then met with the mayors of several municipalities to present the results of the studies carried out by the Authority on the quality of service of mobile networks.

ANACOM also conducted an [assessment of the performance of mobile services and GSM[8], UMTS[9], LTE[10] and NR[11] coverage on nine railway routes of CP Intercidades service] (through a test campaign carried out between 03.04.2022 and 26.07.2022). In terms of the data service, the study concluded that the overall performance was reasonable, with a test success rate (tests started and completed) of 85%, although there are parts of the sections where the data service degrades to the point of failure. It should also be noted that the tests recorded reasonable average download and upload speeds of over 80 Mbps and 15 Mbps respectively. However, the variability of the results is quite high, with maximum download and upload speeds of 1074 Mbps and 147 Mbps respectively, and minimum speeds of 0.1 Mbps (both download and upload).

3.4. Assessment of the continuous availability of non-discriminatory IAS

As in previous years, ANACOM has monitored a number of indicators relating to the IAS, in order to ensure the continuous availability of non-discriminatory IAS with a level of quality that reflects technological progress, as provided for in article 5(1) of the TSM Regulation.

3.4.1. Level of use of the SAI

The number of Internet accesses at a fixed location continued to grow, reaching around 4.5 million at the end of the first quarter of 2023, 152 thousand more accesses (5.7% more) than in the same quarter of the previous year.

It should be noted that this growth is mainly due to fibre-based accesses, which increased by 9.3% and represent about 64.4% of total accesses (3.4 p.p. more than in the previous year), as shown in Table 1. On the other hand, the accesses on other technologies recorded a decrease compared to the first quarter of 2022, namely ADSL accesses, which decreased by 2.7% of total accesses (1.8 p.p. less).

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[8] Global System for Mobile communications – 2nd generation mobile communications system (2G).

[9] Universal Mobile Telecommunications System – 3rd generation mobile communications system (3G).

[10] Long Term Evolution – 4th generation mobile communications system (4G).

[11] New Radio – 5th generation mobile communications system (5G).

Table 1 – Number of Internet accesses at a fixed location, by type of access

	1Q2022	1Q2023	Variation (%) 1Q2022 / 1Q2023
Fibre optic access (FTTH)	2 651	2 896	9.3%
% of total	61.0	64.4	3.4 p.p.
Cable modem accesses	1 192	1 183	-0.3%
% of total	27.4	26.3	-1.1 p.p.
ADSL accesses	234	162	-2.7%
% of total	5.4	3.6	-1.8 p.p.
Mobile networks at fixed location	262	247	-0.6%
% of total	6.0	5.5	-0.5 p.p.
Total Internet accesses at fixed location	**4 347**	**4 499**	**5.7%**

Unit: thousands of accesses; %; p.p.

Source: ANACOM

Note: The totals and variations shown may not correspond to the figures in the table due to rounding and/or missing categories.

It should also be noted that there was an increase in the number of users of mobile Internet access services, which reached 9.8 million at the end of 1Q2023, as shown in Table 2, representing about 74% of total mobile accesses with effective use (up 3.5 p.p. year on year). This increase is the result of both an increase in the number of IAS users via PC/tablet/pen/router (+17.3%) and an increase in the number of mobile Internet users (+6.8%).

Table 2 – Mobile Internet users

	1Q2022	1Q2023	Variation (%) 1Q2022 / 1Q2023
Mobile accesses with effective use of mobile Internet service (excluding M2M)	9 242	9 834	7.5%
(of which) PC/tablet/pen/router	656	711	17.3%
(of which) mobile phone	8 586	9 167	6.8%

Unit: thousands of users; %.

Source: ANACOM

3.4.2. Residential penetration of IAS

At the end of the first quarter of 2023, the penetration rate of fixed broadband residential customers was 91.7 per 100 households, an increase of 3.2 p.p. compared to the same period of the previous year. Meanwhile, the penetration rate for mobile Internet access services users was around 95.3 per 100 inhabitants at the end of the first quarter of 2023, an increase of 6.7 p.p. compared to the previous year.

3.4.3. IAS availability

At the end of 2022, ultra-fast broadband accesses (i.e. download speeds above 100 Mbps) accounted for 89% of fixed broadband accesses, 2.8 p.p. more than the previous year and 11 p.p. more than three years ago. Fast broadband accesses (i.e. download speeds above 30 Mbps and below 100 Mbps) reached 7% of the total, the same as last year.

The maximum theoretical download speeds offered by residential fixed broadband ranged from 3 Mbps to 1 Gbps[12], with the minimum speed increasing compared to the previous year (256 Kbps in 2021). The main download speed used in 2022 was 200 Mbps (33%), followed by 500 Mbps (30%) and 100 Mbps (11%). There was a change in order between the second and third positions in 2021, where the second most contracted speed was 100 Mbps, followed by 500 Mbps.

The average download speed increased by 39% to 285 Mbps in 2021 (compared to 205 Mbps in the previous year).

For mobile phone Internet offers, traffic limits ranged from 50 MB to 100 GB, with the limits with the most subscribers being, in order of importance, 3 GB, 1 GB and 5 GB. For PC/tablet Internet offers, traffic limits ranged from 30 MB to 100 GB, with the limits with the most subscribers being, in order of importance, 7 GB, 100 MB and 30 GB. For both mobile phone Internet and PC/tablet Internet there were offers with unlimited traffic.

3.4.4. Use of OTT services

According to the report "Over-the-top (OTT) services - 2022", the proportion of Internet users who made voice or video calls over the Internet in Portugal increased to 81% in 2022. However, it should be noted that the annual growth in 2022 (+2 p.p.) was lower than in 2021 (+9 p.p.) and 2020 (+18 p.p.), which were years affected by the COVID-19 pandemic.

In 2022, Portugal was above the EU27 average (+9 p.p.) and ranked 8th in the use of OTT services. When considering the total number of individuals, and not just Internet users, the penetration of these services in Portugal would be 69% (+3 p.p. above the European average), ranking 13th in the EU27.

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[12] These are the theoretical maximum speeds advertised by service providers. Does not include add-ons.

It should also be noted that, in 2022, instant messaging was used by 92% of Internet users, 12 p.p. above the EU27 average, with Portugal ranking 7th in the EU27. In the same year, around 42% of Internet users subscribed to video streaming on demand services (+9 p.p. compared to 2020), with Portugal ranking 16th in the EU27. Reading news online, participating in social media, playing music online and Internet banking were other services with participation rates above 50% among Internet users in Portugal. While the use of social media and access to online information was significantly higher in Portugal than the EU27 average, e-commerce was more popular in the EU27 than in Portugal. In addition, it is worth noting that Internet banking was among the services analysed the one that grew most among Internet users in 2022 (+4 p.p.), even exceeding the EU27 average.

Figure 1 – Use of other OTT services by Internet users
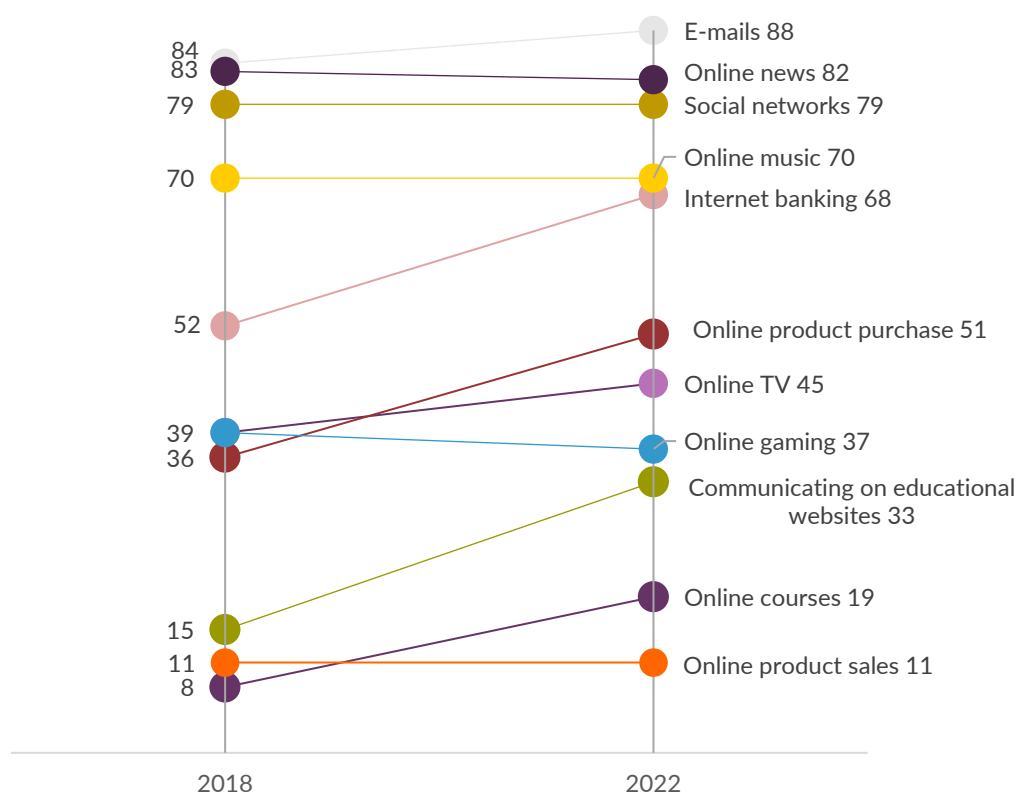
Unit: %.
Source: European Commission, *Information and Communication Technologies in Households and by Individuals* (2018, 2022).
Note: Individuals aged between 16 and 74 who have used the Internet in the last three months. Online news, online courses and communicating on educational websites: data in the 2018 column refer to 2019. Online music: data in column 2018 refer to 2020.

Younger individuals, those with a university education and students, were more likely to use OTT services, as was the case for the EU27 average. However, for some OTT services, the annual growth was higher for groups with lower usage, such as retired people and the elderly, both for voice and video calls over the Internet and for instant messaging.

3.4.5. Use of IoT equipment

The use of Internet of Things (IoT) equipment by households has increased in recent years, as shown in the [report "Use of IoT (Internet of Things)" - 2022](). In 2022, around 38% of individual Internet users had at least one device of personal use with Internet access (+8 p.p. compared to 2020), while 22% had at least one household device Internet access (+3 p.p. compared to 2020).

Looking at all individuals, not just Internet users, the penetration of devices for personal use with Internet access in Portugal would be 32% (+9 p.p. compared to 2020) and the penetration of household devices with Internet access would be 19% (+4 p.p. compared to 2020).

The most commonly used personal devices with Internet access were smart watches, fitness bands, glasses or headphones, GPS tracking equipment, clothing, shoes or accessories (33% of Internet users), which are also the items that increased the most since 2020 (+9 p.p.). Less expressive were cars equipped by the manufacturer with a wireless Internet connection (10%), medical and healthcare equipment (10%) and toys (2%).

Among the different types of household appliances connected to the Internet that were analysed, household appliances such as vacuum cleaners, refrigerators, ovens and coffee machines stand out, becoming the most used (10% of Internet users) and the ones that have increased the most since 2020 (+5 p.p.).

In 2022, Portugal was above the EU27 average in the use of IoT equipment for personal use. However, it was below the EU27 average for the use of IoT devices for household use among Internet users, except for household appliances.

Among users of Internet-connected devices, 21% reported having experienced some kind of problem with their use, pointing to «*difficulties in using the device*» (13%), followed by «*computer security or privacy problems*» (9%) and «*health or safety problems*» (2%).

On the other hand, in Portugal (67%), as in the EU27, «*no need to use*» was the main reason given for not using Internet-connected devices or systems. «*High cost*» (39%), «*concerns about computer security*» (31%), «*concerns about privacy and protection of personal data*» (29%), «*lack of compatibility with other devices or systems*» (26%), «*not knowing about the existence of these devices*» (22%), «*not knowing how to use them*» (20%) and «*concerns about people's health or safety*» (18%) were also mentioned.

3.5. Disclosure of the application of the TSM Regulation

In the context of disclosing the application of the TSM Regulation, it is worth highlighting the publication on the ANACOM website on 23.06.2022 of the new version of the BEREC Guidelines on Open Internet and the report on the public consultation on the draft amendment to the Guidelines (which ran from 15.03.2022 to 14.04.2022).

The publication on 30.06.2022 of the open Internet report for the period between 01.05.2021 and 30.04.2022 on the ANACOM website should also be mentioned.

3.6. Implementation of the TSM Regulation in the context of EU sanctions on Russia

In the previous annual report, ANACOM highlighted the adoption by the EU of sanctions and restrictive measures to be applied to Russia following its actions destabilising the situation in Ukraine, which led to the blocking of some Russian content[13].

Throughout 2022 and 2023, new packages of sanctions and restrictive measures were adopted. Table 3 summarises the implementing regulations adopted amending Regulation (EU) 833/2014, as well as the new entities added to the list of entities whose content is to be blocked, in addition to "Russia Today" and "Sputnik".

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[13] Restrictions imposed by Council Regulation (EU) 2022/350 of 01.03.2022 amending Regulation (EU) 833/2014. This Regulation is available at http://data.europa.eu/eli/reg/2022/350/oj.

Table 3 – List of entities whose content is to be blocked under EU sanctions

Regulations	Entities added to Annex XV to Regulation (EU) 833/2014
Council Implementing Regulation (EU) 2022/994 of 24.06.2022 implementing Regulation (EU) 2022/879	Rossiya RTR/RTR Planeta, Rossiya 24 / Russia 24, TV Centre International
Council Implementing Regulation (EU) 2023/180 of 27.01.2023 implementing Regulation (EU) 2022/2474	NTV/NTV Mir, Rossiya 1, REN TV, Pervyi Kanal
Council Implementing Regulation (EU) 2023/722 of 31.03.2023 implementing Regulation (EU) 2023/427	RT Arabic, Sputnik Arabic

Following the approval of these regulations and in the context of ANACOM's participation in BEREC, this Authority sent notices to ISPs requesting information on the domains and IP addresses blocked under these regulations, as it had done in the previous period.

4. Main conclusions

During the period from 01.05.2022 to 30.04.2023, ANACOM carried out a number of enforcement activities with a view to ensuring that ISPs comply with the rules on access to open Internet, in particular the provisions laid down in articles 3 and 4 of the TSM Regulation.

These actions include relevant work on zero-rating and similar offers. In this area, particular mention should be made of the approval, on 01.03.2023, of the decision on zero-rating and similar offers in Portugal in the context of the open Internet, in which ANACOM determined the cessation of zero-rating and similar offers, which failed to comply with article 3(3) of the TSM Regulation, as they discriminated, on the basis of commercial considerations, between traffic related to zero-rated applications and other traffic, as well as the corresponding clarification approved on 11.05.2023. In view of the deadlines set out in this decision, the process of analysing the enforcement of the ANACOM decision is underway.

In addition, ANACOM continued to monitor ISPs' compliance with the transparency measures provided for in article 4 of the TSM regulation, in order to ensure access to the open Internet, by analysing the contracts made available by the most representative providers on the market. As in previous periods, ISPs' websites were also monitored.

During the reporting period, ANACOM also monitored the evolution of the IAS, as well as OTT and IoT services, in order to ensure the continuous availability of non-discriminatory

IAS, with a level of quality that reflects technological progress, in accordance with the TSM Regulation. Where possible, ANACOM has published relevant information in this area, with a focus on studies on the performance and coverage of mobile services based on tests conducted by NET.mede.
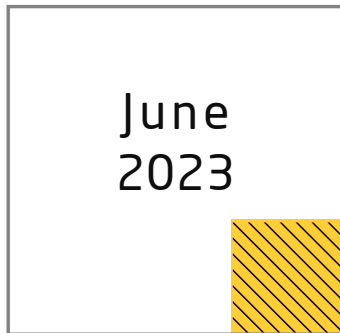
In the context of ANACOM's participation in BEREC, the Authority continued to monitor the enforcement of EU sanctions on Russia, from an open Internet perspective, and issued a number of requests for information to ISPs on this issue.

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