



**NMHH**

**National Media and Infocommunications  
Authority • Hungary**

# **THE STATE OF OPEN INTER- NET IN HUNGARY IN 2023**

Annual report for the period between 1  
May 2022 and 30 April 2023

30 June 2023



## Table of contents

<b>1. HUNGARIAN REGULATIONS ON THE OPEN INTERNET .....</b>	<b>3</b>
<b>2. MONITORING THE IMPLEMENTATION OF THE EU REGULATION .....</b>	<b>4</b>
2.1. Contractual and commercial conditions .....	4
2.2. Restrictions of end-user rights .....	6
2.2.1. Restricting use of subscriber terminal equipment.....	6
2.2.2. Prohibition of tethering .....	6
2.2.3. Sanctions on media content from Russia .....	7
2.3. Performance of internet access services .....	7
2.3.1. Traffic management measures .....	7
2.3.2. Presentation and evaluation of the NMHH's measurement results.....	9
2.4. Specialised services.....	14
2.5. Assessment of how transparency requirements governing ISPs have been implemented .....	14
2.6. Complaints handling on Open Internet issues.....	15
2.7. Other NMHH activities related to net neutrality .....	16
2.7.1. Results of the NMHH's annual market research .....	16
2.7.2. Results of the social listening research .....	22
2.7.3. Official communication on the phase-out of zero-rated offers .....	23
<b>3. SUMMARY OF THE STATE OF OPEN INTERNET IN HUNGARY FOR THE REPORTING PERIOD .....</b>	<b>24</b>

# 1. HUNGARIAN REGULATIONS ON THE OPEN INTERNET

The basic rules on open internet are laid down in *Regulation (EU) 2015/2120 of the European Parliament and of the Council of 25 November 2015 laying down measures concerning open internet access and amending Directive 2002/22/EC on universal service and users' rights relating to electronic communications networks and services and Regulation (EU) No 531/2012 on roaming on public mobile communications networks within the Union* (hereafter referred to as the 'EU Regulation').

The basic principle of the open internet regulation is that end-users have the right to access and distribute information and content of their choice, to use and provide applications and services of their choice, and to use terminal equipment of their choice, via their internet access service, regardless of the location of the end-user or service provider, or the location, origin or destination of the information, content, application or service.<sup>1</sup>

These rights create obligations on the part of service providers. In particular, they are required to treat internet traffic without discrimination, blocking, slowing down or prioritization, regardless of the application or service it is connected to and regardless of its origin or destination, except for reasonable traffic management measures.<sup>2</sup>

In addition to the EU Regulation, the regulation on open internet in Hungary includes

- NMHH Decree no. 22/2020 (XII. 21.) on the detailed rules of electronic communications subscription contracts (hereinafter referred to as: the Electronic Communications Decree), which requires service providers supplying internet access services to provide access to their internet services for subscribers and users in the quality specified in their general terms and conditions and individual subscriber contracts;
- NMHH Decree no. 13/2011 (XII. 27.) on the requirements for the quality of electronic communications services in relation to protecting subscribers and users, and on the authenticity of billing which requires all fixed and mobile internet access providers to undertake and specify certain quality requirements (indicators) determined in the decree.

The application of the EU Regulation is supported by the Body of European Regulators for Electronic Communications (BEREC) Guidelines on the application of the EU Regulation<sup>3</sup> (hereinafter referred to as the 'BEREC Guidelines'). The BEREC Guidelines follow the structure of the EU Regulation and provide explanations and criteria for interpretation to help clarify the content of the obligations contained in the EU Regulation. Even though not an EU legal act and not binding, the BEREC Guidelines have a major impact on the application of the law by NRAs. In fact, the EU Regulation itself states that NRAs must take the utmost account of the relevant BEREC Guidelines.<sup>4</sup>

As the national regulatory authority, the National Media and Infocommunications Authority (hereinafter referred to as 'NMHH' or the 'Authority') ensures that end-users can effectively exercise their rights and that the rules on providing open internet access are respected by service providers.

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<sup>1</sup> Article 3(1) of the EU Regulation

<sup>2</sup> Article 3(3) of the EU Regulation

<sup>3</sup> BoR (22) 81 BEREC Guidelines on the Implementation of the Open Internet Regulation, 09 June 2022

<sup>4</sup> EU Regulation, Recital (19)

The NMHH monitors and the developments concerning the regulations on the open internet in Hungary and checks compliance with the relevant rules. The Authority prepares an annual report on its activities and significant national developments in accordance with the requirements of the EU Regulation, taking into account the provisions of the BEREC Guidelines. Both the European Commission and the NMHH publish the annual reports on their websites<sup>5</sup>.

## **2. MONITORING THE IMPLEMENTATION OF THE EU REGULATION**

The NMHH performs its official duties in relation to the open internet in accordance with the supervisory powers stipulated in Act C of 2003 on Electronic Communications (hereinafter: Electronic Communications Act).

Apart from the supervision checks contained in its annual supervisory plan, the NMHH also carries out unscheduled inspections in justified cases, –on the basis of notifications or its own observations – on whether service providers are in compliance with the rules on open internet.

In the period under review, the NMHH monitored market developments by checking the websites and advertisements of service providers, by carrying out spot checks of the General Terms and Conditions (hereinafter referred to as the 'GTC') of mobile and fixed internet access providers with the largest number of subscribers and their amendments, and by acting on specific cases brought to its attention. The results are summarised by the NMHH in the chapters below.

### **2.1. Contractual and commercial conditions**

In the reporting period, the Authority inspected the open internet aspects of contractual and commercial terms primarily in terms of the zero-rating offers most favoured by mobile service providers as well as plans with unlimited data quotas. This business model was already present in the domestic market before the entry into force of the regulation on open internet and was used by a large number of subscribers.

Initially, some service providers offered “first generation” zero-rated offers, which were characterised by the fact that, after using up the data allowance included in the base tariff, the zero-rated services remained available to subscribers under the original terms, whereas access to other services was either slowed down or cut off. By the start of the reporting period, these plans had already disappeared from the domestic market following supervisory action by the Authority.

Some service providers introduced new types of (“thematic”) zero-rated offers to the market in 2017 and 2018. In these offers, the service provider provided a separate, unlimited data quota for certain types of content, services and applications, but this was only available until the general data allowance included in the tariff was exhausted in the given billing period. In its judgments of 2 September 2021<sup>6</sup>, the Court of Justice of the European Union (hereinafter referred to as the ‘CJEU’) clarified that zero-rated tariff options that distinguish between data traffic related to different content, applications and services on the basis of a business decision by the internet access provider are incompatible with the obligation to treat all traffic equally under the EU Regulation.

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<sup>5</sup> The implementation report is published both in Hungarian and English. However, for the purpose of official proceedings the Hungarian version is considered to be authoritative.

<sup>6</sup> C-854/19 – Vodafone, C-34/20 – Telekom Deutschland, C-5/20 – Vodafone

Based on the responses of service providers to NMHH's enquiries, most of the players in the mobile internet access market offered a tariff or additional option including zero-rating in the spring of 2022. The service providers have indicated that they would not enter the market with a new zero-rating offer following the ruling of the Court of Justice of the European Union, but they need a sufficient transitional period to phase out the current offers and modify or terminate existing subscription contracts.

Following the publication of BEREC's revised Guidelines in June 2022, the need for a unified regulatory response in the market has become apparent as service providers failed to take substantive action to address the situation in spite of repeated warnings from the Authority. In September 2022, in order to ensure compliance with EU law, the NMHH required service providers to

- amend the description of affected offers and delete any terms that mention the zero-rating as an advantage within 15 days of the administrative decisions becoming definitive;
- cease selling all zero-rated offers by 15 November 2022;
- amend all relevant subscriber contracts, including GTCs and individual subscriber contracts, by 31 March 2023, to remove all zero-rated elements that are in breach of the prohibition of non-discrimination.

In the reasoning of the decisions, the NMHH also laid out its view that, in the event of a unilateral amendment of a contract by the service provider to phase out zero-rated offers, the subscriber concerned has the right to terminate the contract with immediate effect if the changes to the contractual conditions are not exclusively favourable to the subscriber.

The service providers appealed against the decisions. In their appeals, they stated that the obligations imposed would be implemented within the deadline set by the NMHH and challenged only the NMHH's interpretation of the law on the right to terminate. The decision of the President of the NMHH adopted in the second instance upheld the decisions. One service provider has further appealed to the administrative court. The legal proceedings in this case are still ongoing.

The service providers reported that they have complied with the obligations set out in the decisions in that they have not sold any zero-rated offers after 15 November 2022 and their existing subscriber contracts have not included zero-rated tariffs since 31 March 2023. However, while inspecting the GTCs, the NMHH found that certain service providers still apply zero-rated tariff options for data traffic that involves measuring the speed of the internet access service and for using their own customer service application. These offers are still under examination.

In the course of its compliance monitoring, the NMHH found that certain service providers had not properly notified their subscribers about the unilateral modification of their contracts, in which the service providers eliminated zero-rated applications. The NMHH launched proceedings against those service providers that did not provide adequate notification about the amendment of the contract, and thus did not provide adequate information on the substantive content of the amendment and the rights of the subscribers (in particular, the right to terminate the contract). In the course of the regulatory proceedings, the service providers offered commitments to remedy the infringement, which, in the NMHH's view, were suitable for ensuring the enforcement of subscribers' rights in relation to unilateral contract amendments. Therefore, the NMHH did not apply sanctions in these cases.

## **2.2. Restrictions of end-user rights**

The Hungarian national regulations – in addition to the directly applicable provisions of the EU Regulation – contain the basic rights of subscribers and other end users, while the Electronic Communications Decree specifies the compulsory content elements of subscriber contracts.

In the reporting period, the NMHH investigated compliance with the rules on end-user rights associated with the open internet by monitoring their GTCs, and also focused on the individual cases.

### **2.2.1. Restricting use of subscriber terminal equipment**

During the reporting period, the Authority inspected the practice of providers of internet access services regarding subscriber terminal equipment, mainly by analysing the GTCs.

Under Preamble 5 and Article 3(1) of the EU Regulation, end-users have the right to use the Internet access service with the terminal equipment of their choice. Providers of internet access services are not allowed to impose restrictions on the use of terminal equipment in addition to those imposed by manufacturers or distributors of the terminal equipment, therefore any restriction imposed by the service provider is inconsistent with the requirements of the EU Regulation.

In relation to the right to use terminal equipment of the end-users' choice, the Authority did not identify any infringements of the open internet rules during the reporting period. However, given the importance of this issue, the Authority will continue to monitor and ensure compliance with Article 3(1) for both mobile and fixed services.

### **2.2.2. Prohibition of tethering<sup>7</sup>**

Closely related to the previous section examining free choice of terminal equipment, the Authority monitors whether service providers limit internet sharing in itself or by restricting the right to free choice of terminal equipment.

In the reporting period, the NMHH carried out an audit following a notification to identify practices of service providers that raised the suspicion of a prohibition on sharing. A notification received by the Authority stated that a particular service provider had entered into a contract with Apple Inc., with the result that, on Apple phones upgraded to iOS 15.0.2, the hotspot functionality of the phone was only available over IPv6, thus reducing the number of devices that could be connected. In the course of the inspection, the NMHH established that the circumstances described in the notification had indeed existed for a period of time. However, the findings revealed that this was not the result of an action taken by the internet access provider, but was due to an operating system update released by Apple. The service provider was informed of the issue and took steps to remedy the situation, which was finally resolved with a new operating system update released by Apple.

However, as in previous years, some service providers GTCs still include a section providing that the datalink and the amount of data downloaded may not jeopardise the proper functioning of their network, and that service providers may take preventive or corrective measures resulting in slower or restricted traffic to prevent network overloads or network crashes, or to ensure the continuity of other subscriber services. Although such conditions do not in themselves constitute a breach of the open internet rules, if they make it impossible in practice to share internet access, they may constitute a violation.

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<sup>7</sup> Tethering: connection of a device without internet access to another device with an internet connection (e.g. mobile phone or tablet), and sharing internet access this way.

For the above reasons, the Authority does not plan to carry out a comprehensive investigation into tethering, but will continue to monitor the contractual conditions and practices of service providers.

### **2.2.3. Sanctions on media content from Russia**

In the context of the ban on the distribution and transmission of content broadcast by certain Russian state-linked media providers, imposed as part of the sanctions packages against Russia to prevent the spread of disinformation and propaganda in the course of the Russian aggression against the Ukraine, the NMHH continued to monitor whether electronic communications service providers were complying with the rules. It also answered questions on the subject and informed service providers carrying out activities under its supervision about their obligations.<sup>8</sup>

As in the previous reporting period, the Authority experienced cooperation on the part of the service providers. It has reported on the developments in response to the European Commission's questionnaire on the follow-up of sanctions and has actively participated in the related activities of the BEREC Open Internet working group.

In relation to the restrictive measures, the Authority received one notification (in autumn 2022) concerning the unavailability of certain Russian news portals on the network of a domestic internet access provider. The NMHH informed the petitioner about the legal requirements, including the obligations imposed on service providers to comply with EU regulations which are directly applicable in all Member States, and that no circumstances had arisen in relation to these obligations that would justify the initiation of supervision proceedings on the basis of the notification.

## **2.3. Performance of internet access services**

The Authority used a number of different methods to assess the quality parameters of the internet access services offered by internet service providers. Given that the previous years' comprehensive inspections did not reveal significant or systemic irregularities, the Authority focused on general monitoring in this reporting period, complemented by investigating complaints received from end-users. In addition, the Authority used the results of crowd-sourced measurements performed by the users in its broadband measurement system—described in detail in subsection 2.3.2 of the report—to check whether the actual quality of service experienced by subscribers fulfills the service quality commitments, in particular download and upload speeds, undertaken by the service providers in their offers.

### **2.3.1. Traffic management measures**

Based on Article 3(3) of the EU Regulation, when providing internet access services, providers of those services should treat all traffic equally, without discrimination, restriction or interference, independently of its starting or endpoint, content, application or service, or terminal equipment. The use of “reasonable traffic management measures”, as defined in the EU Regulation, is allowed in order to maintain adequate quality of service and to ensure compliance with the subscription contract. Interventions beyond this can only be made in exceptional cases, specifically listed in the EU Regulation.

The investigations on the use of traffic management measures is summarised below, broken down to several sub-sections:

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<sup>8</sup> [https://nmhh.hu/cikk/238099/Tajekoztatas\\_az\\_Europai\\_Unioban\\_terjesztési\\_tilalom\\_ala\\_eso\\_orosz\\_kotodesu\\_szervezetek\\_altal\\_nyujtott\\_tartalmakkal\\_kapcsolatban](https://nmhh.hu/cikk/238099/Tajekoztatas_az_Europai_Unioban_terjesztési_tilalom_ala_eso_orosz_kotodesu_szervezetek_altal_nyujtott_tartalmakkal_kapcsolatban)

### **2.3.1.1. Different levels of priority in data traffic**

The NMHH monitors whether service providers apply different levels of priority in the provision of the internet access service. The objective is to assess whether the service provider apply any discrimination between traffic generated by different end-users or terminal equipment in terms of the access to the various services, applications or content, and if so, what is the objective reason for this.

During the reporting period, the Authority did not become aware of any practices by service providers that raised suspicions of a breach related to the priority levels.

Although the prioritisation applied by service providers did not violate the provisions of the EU Regulation, the Authority shall continue monitoring it in the future.

### **2.3.1.2. Management of traffic congestion**

Given that in the event of congestion, the EU Regulation<sup>9</sup> allows service providers to temporarily take measures other than reasonable traffic management measures, the Authority also monitors separately the practices of service providers in managing congestion.

During the reporting period, the Authority did not become aware of any practices by service providers that raised suspicions of a breach related to the management of traffic congestion.

Although the practice of service providers did not violate the provisions of the EU Regulation, the Authority shall continue to monitor it in the future.

### **2.3.1.3. Application-independent traffic management measures**

Application-independent traffic management measures can be used to manage traffic without deep packet inspection and analysis of the traffic by the service provider. From a certain perspective, a significant portion of the measures applied in the course of managing network congestion examined in the previous chapter are also considered application-independent measures, but the case of congestion was analysed separately by the NMHH due to its exceptional nature, and therefore significance.

During the reporting period, the Authority did not become aware of any practices by service providers that could give rise to suspicions of non-compliance with the rules of the EU Regulation. The Authority considers it appropriate to continue to carry out periodic inspections to ensure compliance.

### **2.3.1.4. Application-dependent traffic management measures**

Application-dependent traffic management measures and technological solutions like DPI<sup>10</sup> can detect specific content, applications or services within the data traffic investigated, so they may be particularly suitable for interventions by the service providers violating open internet access.

During the reporting period, the Authority did not become aware of any practices by service providers that could give rise to suspicions of non-compliance with the rules of the EU Regulation. The Authority will continue to monitor the use of application-dependent traffic management measures.

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<sup>9</sup> point (c) of the third subparagraph of Article 3(3) of the EU Regulation

<sup>10</sup> Deep Packet Inspection



### 2.3.2. Presentation and evaluation of the NMHH's measurement results

In 2012, the NMHH launched its "SZÉP"<sup>11</sup> project to gain an accurate picture of the quality parameters of Hungarian broadband internet access services in the field and thereby facilitate the performance of its regulatory tasks. The objectives of the measurement system have expanded over time. For example, the project now aims to help end-users make informed choices about both service providers and services, helping to boost competition in the telecommunications market and ensure that end-users have access to better quality services.

As part of the project, in 2015 the NMHH deployed an interactive system publishing the results of its measurements of certain quality indicators for internet access services and open internet parameters at <https://szelessav.net>.

The development of the system has continued ever since. In the reporting period it has become possible to measure the high-speed internet access services that have meanwhile appeared on the market. Through a browser, the system can currently measure up to 3-4 Gbps in up- or download speeds. The capabilities of the server side are much greater. In the near future, increasing demand for measuring speeds of 10Gbps or more is expected. This is why the Authority has implemented multi-host measurement, whereby the system is able to measure much higher speeds by synchronised simultaneous measurement on multiple clients connected to the same network termination point.

As networks evolve and speeds increase, the latency of transmission and its fluctuations are becoming more important. Just think of a stuttering video call, slow web browsing or a game that keeps on lagging. This highly annoying phenomenon is seen only on heavily loaded networks. The problem is called buffer bloat, which is caused by the failure or misconfiguration of network devices. This can be detected by measuring the delay in both the down and up directions on the network under load. We are planning to introduce this in the future, to help users have an even better internet experience.

The NMHH is examining both mobile and fixed access in the context of the enforcement of open internet rules.

Most of the measurements in connection with mobile networks are carried out by mobile measurement stations (installed in vehicles) of the Authority, which check the coverage and the download and upload speeds of the networks for each technology throughout the whole country. In addition, the "Mobile Neutrality" measuring system checks the different tariff plans of service providers according to a pre-set programme, by probing the openness of the different ports and the quality of service.

Measurements related to fixed-line networks, are either taken interactively by users via a web browser, or they are carried out by measurement boxes installed at fixed locations, which measure the actual quality of fixed internet access services on an hourly basis, and allow for comparison with the values contained in the respective tariff plan of the subscriber's choice.

Given that the EU Regulation prescribes much stricter requirements regarding different speeds for fixed internet access services, and that measurement results related to fixed-line networks are, by their nature (same measuring point, constant conditions, measurement results related to specific plans), more suitable for use as a basis for comprehensive analyses, the Authority will henceforth use these results to make statements about service quality below.

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<sup>11</sup> Project Broadband

Over the past year, the NMHH performed long-term measurements (at hourly intervals for several months) using fixed measurement instruments installed at 294 measurement locations at fixed access points. Figure 1 shows the geographical distribution of the measurement points and the order of magnitude of the number of measurements.

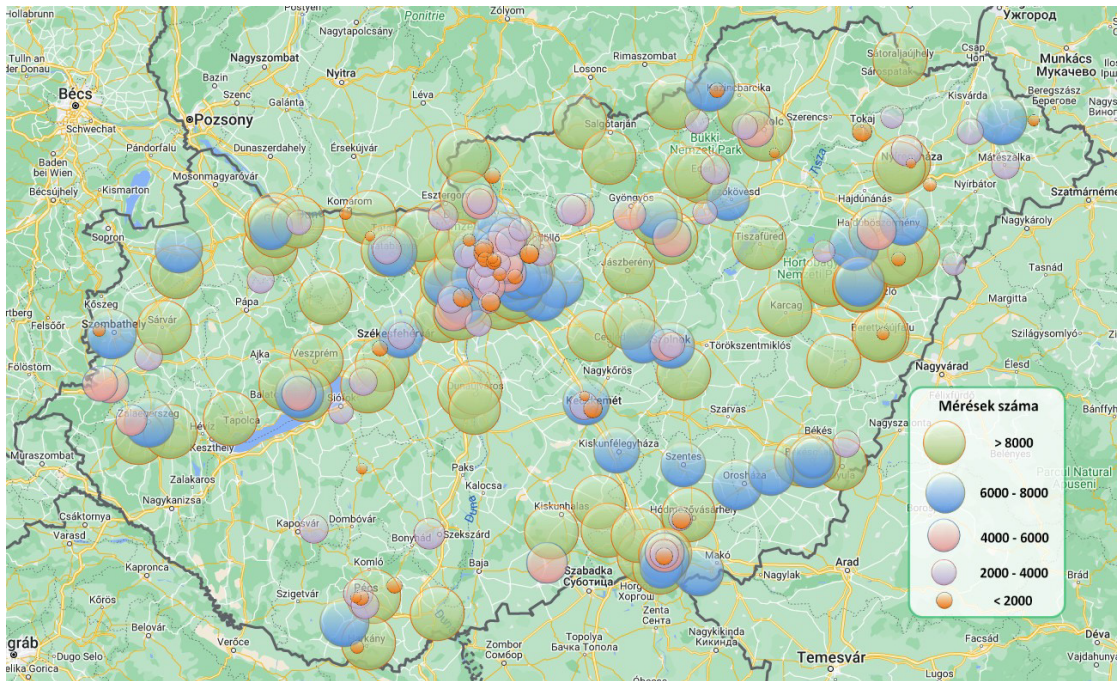


Figure 1: Spatial distribution of fixed measurement points and number of measurements in 2023

The measurements involved 119 tariffs by 34 service providers.

The number of pre-programmed measurements is mainly influenced by the number of measurement points in operation and requested by the users, which often exceeds the available quantity that can be installed. The fixed measurement points perform measurements continuously and automatically, so the number of measurements does not fluctuate significantly. The number of measurements made by measuring boxes in the reporting period was essentially the same as in the previous period.

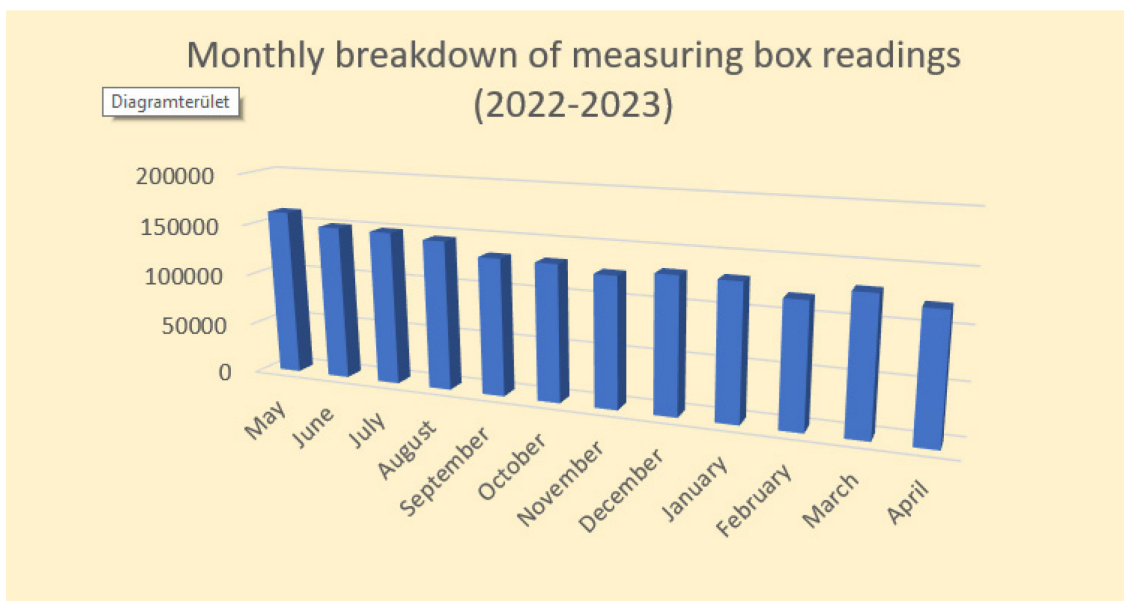


Figure 2: Monthly breakdown of measurement numbers using measuring boxes in 2022-2023 (Source: NMHH's broadband measurement system)

Service providers offer a wide range of packages, with a wide range of speeds. These speeds often show significant variation even between packages using the same technology. Considering the number of service providers, technologies and plans with the number and distribution of measurement points, the measurement results cannot be considered representative. In general terms, the results highlight the following:

- Similar to last year's report, and based on the results of this year's hardware measurements, the Authority analysed how the actual download and upload speeds of fixed internet access services develop compared to the figures offered in the contract (see Table 1).

Download speed range offered (advertised)	Offered download speed achieved								
	in 90%in at least the following % of measurements			in 80%in at least the following % of measurements			70%in at least the following % of measurements		
	90%	80%	70%	90%	80%	70%	90%	80%	70%
Up to 10 Mbps	53,85	61,54	69,23	69,23	84,62	84,62	76,92	84,62	84,62
Up to 11–30Mbps	64,00	76,00	76,00	84,00	88,00	88,00	84,00	88,00	88,00
Up to 31–100Mbps	73,33	76,67	76,67	76,67	80,00	83,33	86,67	86,67	93,33
over 100 Mbps	77,11	80,60	82,59	83,58	86,57	89,05	88,06	90,05	92,54

Table 1: Ratio of achieving offered download speed (in % relative to number of monitoring locations) — 2023 data

- The results show that the situation in the 0–10 Mbps speed range has deteriorated significantly since last year, with download and upload speeds measured on the access points falling further below the maximum speeds offered by service providers. For a more balanced interpretation of the results, it should be pointed out that the share of such tariff plans is already low and is steadily decreasing (3.7% of the total in the reporting period), meaning that they are no longer dominant among the tariff plans. This process is expected to continue in the coming years as additional networks will be built and the existing ones upgraded. A future objective could be to ensure that, in parallel with the development of electronic communications networks, these tariff plans are phased out completely by service providers, in line with EU objectives.

- In the 11–100 Mbit/s speed range, compliance values have not changed significantly, while in the speed range above 100 Mbit/s, the improving trend of previous years continued, thanks to the development of high-speed networks.

- The providers were able to ensure a stable service on the measured network sections.

- Figure 4 shows the evolution of the robustness and resilience of networks. The difference between average download speeds during the early morning, low-traffic and busy hours has continued to decrease over the past period, from 3% last year to less than 2% on weekdays and public holidays. At the same time, compared to last year, when the figures for working days and public holidays were changing in correlation, network loads on weekends decreased, while network availability increased. This can be explained partly by pandemic-induced network developments and partly by user habits returning to earlier dispositions.

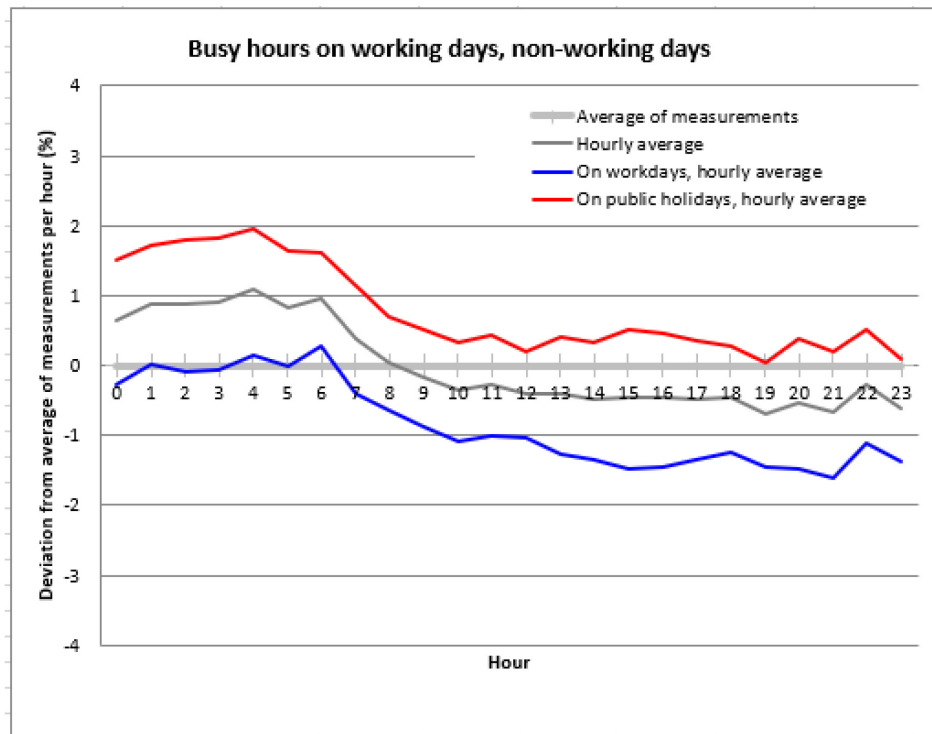


Figure 3: Daily distribution of fixed internet access speeds in relation to average download speeds in 2023

- Figure 4 details the share of measurements where download speeds reached those contractually offered, broken down by technology.

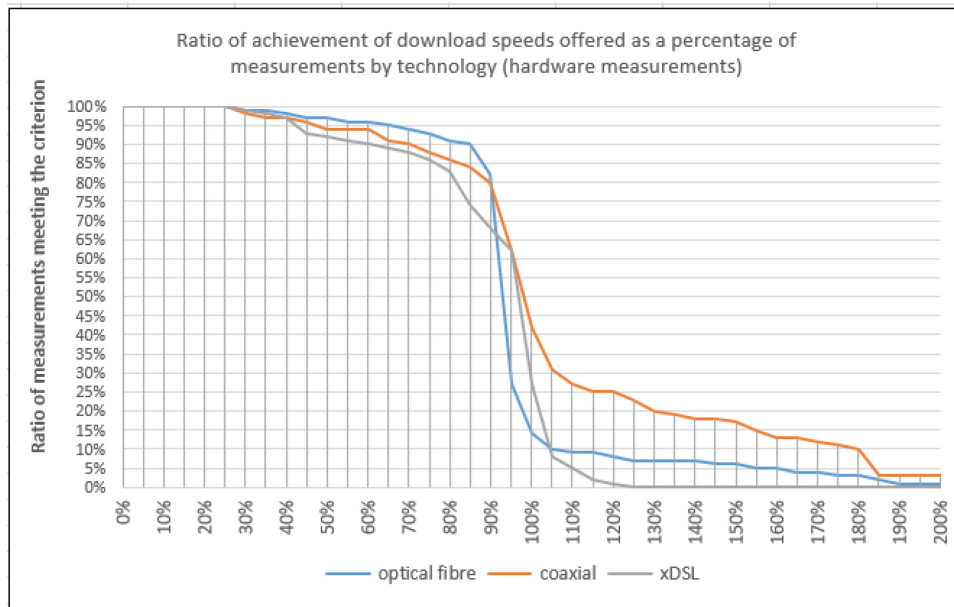


Figure 4: Achievement of download speeds by technology in 2023

- The figure shows that, in at least 85% of the measurements carried out, more than 75% of the contracted maximum speed was made available over xDSL, more than 80% over coaxial and more than 88% over fibre. While these results are down from last year's 90% figure – regardless of technology –, they are still very promising, given the limitations of xDSL technology.

It is also worth noting that the number of measurements taken via browser remained high in the reporting period, with low periodic fluctuations, which shows the popularity of the service.

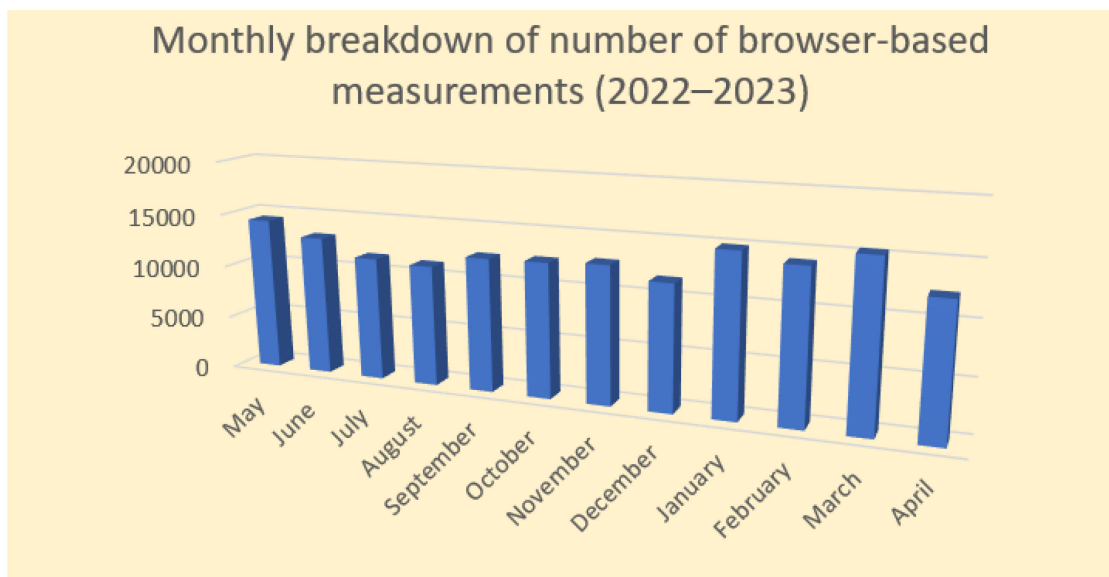


Figure 5: Monthly breakdown of number of measurements via browser 2022–2023 (Source: NMHH's broadband measurement system)

By the results of the measurements carried out by the NMHH metering system it can be concluded that domestic fixed internet access services are reliable and stable, and speed-related quality indicators are consistent.

## **2.4. Specialised services**

Service providers are free to provide services on their networks that are optimised for content and applications that require higher quality of connection than that provided by standard internet access services. Such special (or specialised) services include, for example, Voice over LTE (VoLTE), which provides HD-quality voice services over the mobile network in parallel with data traffic, or IPTV, which is a TV service over broadband.

During the reporting period, the NMHH did not carry out a comprehensive audit of specialised services, but monitored market and technological changes on the basis of the GTCs of the providers of specialised services.

When looking at the activities of fixed-line service providers, it can be established that they ensure a higher priority for the aforementioned specialised services than for the internet access service in terms of bandwidth, while also ensuring the normally available download and upload speeds for the internet access service even when such specialised services are used together. Mobile service providers consider the VoLTE service they offer to be an extension of their basic voice service, not a separate service. The VoLTE technology may be provided with any tariff plan/service. In addition to the suitability of the network, the VoLTE capability of the device used by the customer is a prerequisite for use.

## **2.5. Assessment of how transparency requirements governing ISPs have been implemented**

The NMHH continuously monitors the changes in contractual terms and conditions of internet access services. During this, it checks, among other things, how service providers incorporate in their contractual terms and conditions and procedures the mandatory requirements stipulated in Article 4 of the EU Regulation, and what steps they take to enforce them.

The purpose of this continuous monitoring is to ensure that the contracts related to internet access services include all information relevant to subscribers in an unambiguous, understandable and comprehensive manner to facilitate subscribers' decision making.

Below we briefly present the current situation regarding transparency requirements.

The EU Regulation requires certain information to be made available in an easily understandable and accessible format to ensure transparency. The aim is to help subscribers make an informed choice between different service providers and tariff plans. The law obliges service providers to make the [szelessav.net](http://szelessav.net) application easily accessible from the service providers' own websites.

With regard to internet access services, the speeds corresponding to the individual subscriber tariff plans can be considered one of the most important quality of service factors. This is the quality parameter that is understandable even for a layman subscriber, and is therefore easily comparable.

The use of quality indicators other than speed values is currently voluntary. The significance of these indicators will greatly increase in the near future due to the emergence of services and applications the use of which will require the fulfilment of other quality parameters (e.g. in the case of special services) in addition

to the appropriate upload and download speeds. As a result, it is expected that more quality indicators will be used than before to meet the competition.

In previous years, the experience of supervision has shown that the use of additional quality parameters over and above speed values is not wide-spread, and the end-users have not been adequately assisted in interpreting them. In general, service providers tend to include in their GTCs only the mandatory quality targets set forth by the currently effective regulation. In practice, this means they only indicate speed values.

Although there is currently no dedicated legal consequence for failure to meet these additional quality indicators in national law, even if the service provider has made a commitment to do so, this may be introduced at a later stage.

## **2.6. Complaints handling on Open Internet issues**

In accordance with Article 4(1)(e) of the EU Regulation, service providers must make legal remedies available to subscribers in the event of any continuous or regularly recurring discrepancy between the actual performance of the internet access service regarding speed or other quality of service parameters and the performance indicated in the subscriber contract.

End-users can make complaints about the application of the open internet rules as per the general complaints procedure. Service providers are required to have compliant and established complaint management procedures incorporated in the GTC, meaning that these are known to subscribers.

Under the national regulation currently in force, the service provider is required to respond on the merits of the written complaint by the consumer within 30 days from the date the complaint is received.

The service provider's practice and intervention relevant to the enforcement of open internet access may also be detected by end users in the form of a network or service quality fault. Handling of faults is governed by different rules from complaint handling. Thus, the service provider is required to register, acknowledge and investigate the fault report to the subscriber. If the fault is real and it falls within the scope of the service provider, it must be corrected. The period from the reporting to the elimination of the fault shall not exceed 72 hours. Immediately, but within 24 hours of resolving the fault, the service provider shall notify the subscriber about the resolution, and register the means and time of said notification.

Thus, the subscriber can report any issue (including faults, as described above) to the service provider, which then investigates the issue. If the subscriber does not agree with the response received, or believes that the service provider is not performing as per the provisions of the subscriber contract, the subscriber may refer the case to a court as per the dispute resolution procedure specified in the contract, or, in the case of subscribers who qualify as consumers, can seek assistance via alternative dispute resolution (the Mediation Board). If the service provider fails to investigate the complaint or violates the laws pertaining to the subscriber's legal relationship, the subscriber filing the complaint may also request the NMHH to initiate a supervisory procedure.

During the reporting period, the NMHH carried out an official inspection on the basis of the end-user notification described in section 2.2.2. regarding the infringement of the EU Regulation's rules, and received no other requests or notifications.

Based on the above, there is no systemic problem with respect to the enforcement of open internet rules and the regulation in force can cope with the issues encountered. At the same time, end-user feedback are useful to the Authority in drawing attention to service providers' offers that may raise suspicions of breaches of net neutrality rules, and therefore the Authority will continue to closely monitor these.

## 2.7. Other NMHH activities related to net neutrality

The Authority has also carried out other non-regulatory activities in the field of open internet regulation, which complement and complete the picture of the market.

In this context, the NMHH processed the relevant results of the annual internet market research conducted among subscribers and users, while it also had social listening research conducted on the opinions of the general public on the open internet. In addition to the above, the NMHH has also taken an active role in providing information to subscribers in the context of the elimination of zero-rating.

### 2.7.1. Results of the NMHH's annual market research

The NMHH conducts surveys among Hungarian households and Internet users on an annual basis. In the household survey, 3,200 households are visited in person by interviewers, who ask questions about their use of and opinions on communications equipment and services. The internet user survey involves 4,000 internet users aged 16 and over who complete an online questionnaire about their internet usage habits.

#### Main results of the 2022 NMHH market surveys

- Fixed internet penetration has continued to grow, with three quarters of households subscribing to home internet. The penetration of mobile internet on smartphones will soon catch up with home internet, thanks to the dynamic growth of recent years. Around 85% of households access one of these services and 65% access both. The third type of internet subscription, large screen mobile internet, has been stable at around 6-8 percent in recent years.

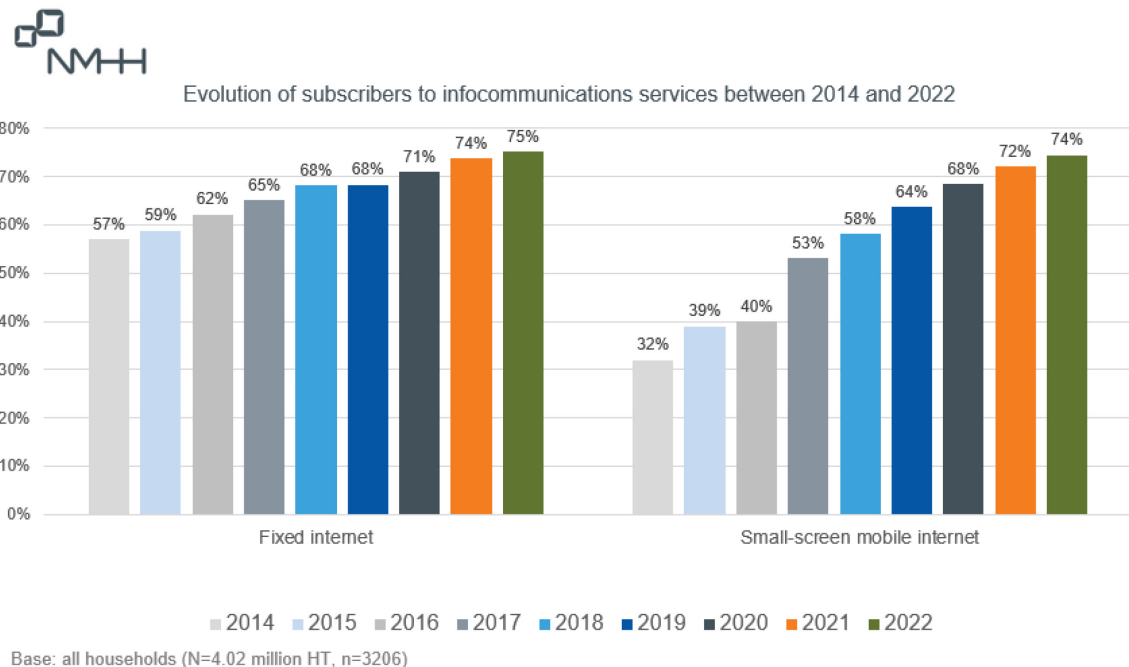


Figure 6: Use of Internet services (Source: NMHH Household Survey, 2022)

- In the context of subscriber awareness and the voluntary observation of the rules on transparency and information, the NMHH also examined the extent to which subscribers were aware of the terms

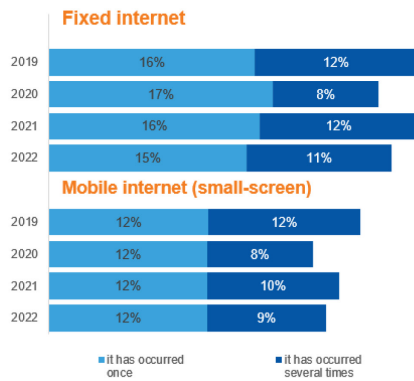


and conditions of their subscription contracts and whether they used them to answer any questions they had. Searching the GTCs was not so common for respondents, neither for fixed nor for mobile internet access services. Only 26% of fixed internet subscribers have tried to look up some information in the GTCs (2020: 25%, 2021: 28%) while for mobile internet subscriptions the figure is 21% (2020: 20%, 2021: 22%). Half of the subscribers had not done this, and another 30% or so could not remember if they had looked for anything.

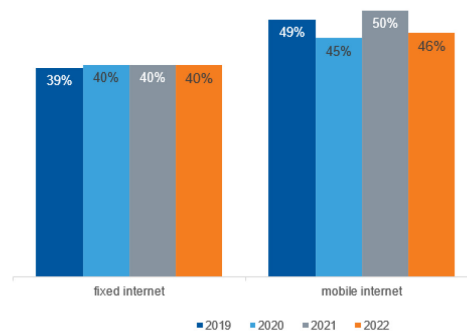
- Most of those who looked for information in the GTC found it (88% and 86%, respectively), although usually with some difficulty.



The user has tried to find information in the GTC



The information was easy to find in the GTC



Base: internet subscribers aged 16+, fixed: n=3570, N=6.3m, mobile: n=3021, N=5.3m; or those who searched for information in the GTC

Figure 7: Searching for information in General Terms and Conditions (Source: NMHH Internet Survey, 2022)

Around a quarter of subscribers sought information in their individual subscriber contracts. The search proved to be easy in only less than half of the cases. The majority of the others found what they were looking for, albeit with difficulty, and only a tenth of them were unsuccessful.

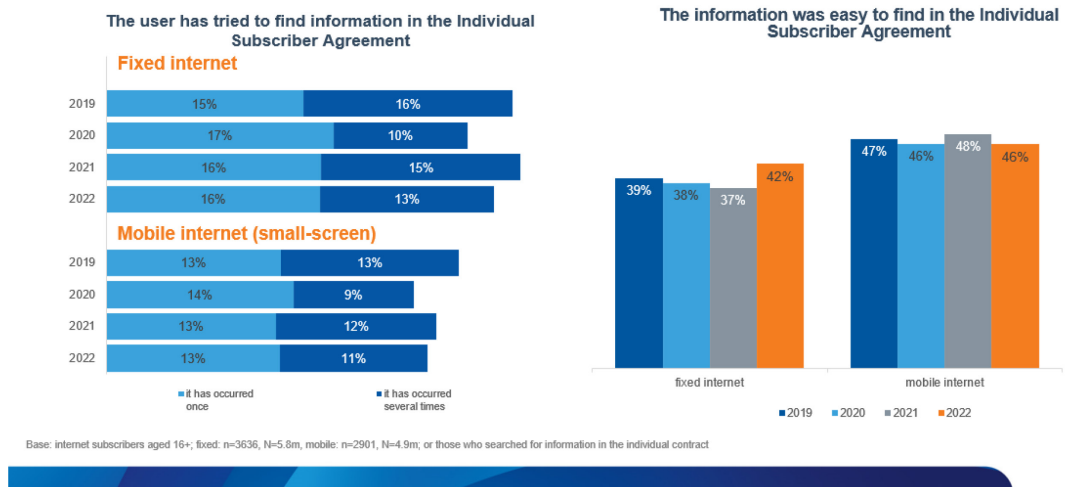


Figure 8: Searching for information in individual subscription contracts (Source: NMHH Internet Survey, 2022)

- The average satisfaction for both services ranged from 4 to 5 on a scale of 1 to 5 in all three years (in 2022: fixed internet – 4.3, small screen mobile internet – 4.4). The percentage of fully satisfied customers is still around 50% this year, but with a slight to larger decline in all three areas compared to 2021. Fixed internet subscribers in 2022 are slightly, but statistically significantly, less satisfied with the service than a year ago.
- Among those who use small-screen mobile internet, those with higher education and better financial situation are more satisfied with the service.

For both services, customers were least satisfied with the price. In the case of mobile internet, respondents previously gave a poor rating to the adequacy of the data included in their tariff plan. This year, this rating has improved significantly. Satisfaction with the quality of service (continuity, accuracy) also increased. This was the aspect where respondents were significantly less satisfied with the internet at home.

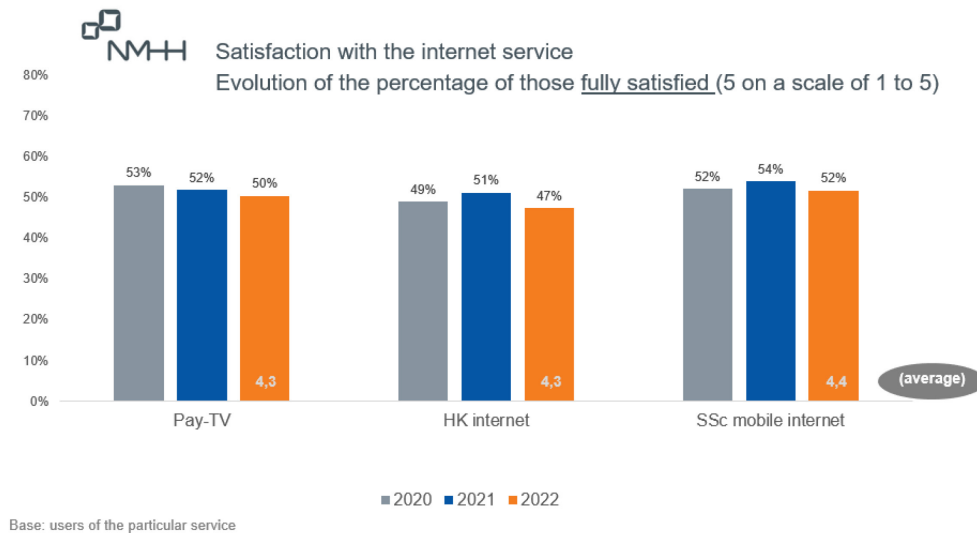


Figure 9: Percentage of customers fully satisfied with the internet service (Source: NMHH Household Survey, 2022)

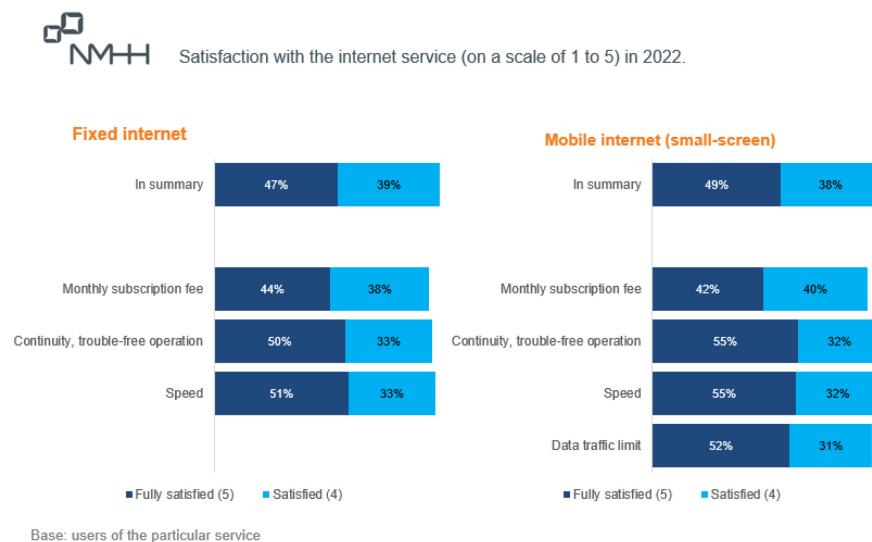


Figure 10: Satisfaction with mobile and fixed internet (Source: NMHH Household Survey, 2022)

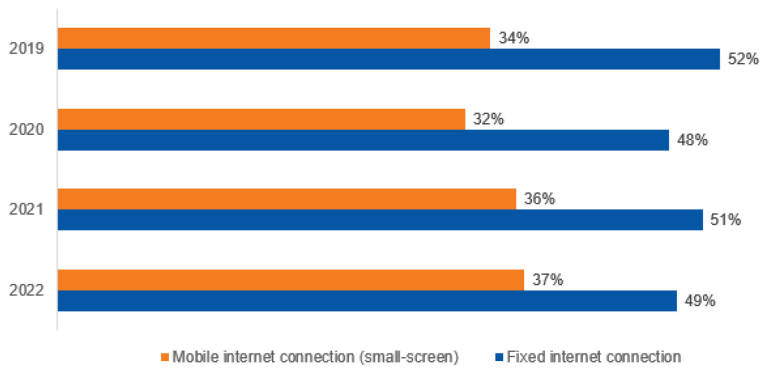
- Internet speeds were measured by half of fixed internet subscribers and more than a third of mobile internet subscribers. In this respect, there were no significant changes compared to 2021. People mostly use the fixed internet for activities that involve higher data traffic (e.g. watching movies, moving large files), where it is important to have the bandwidth promised by the service provider. This is probably why fixed internet speeds are checked more often than mobile speeds, although the proportion of people checking their mobile internet speeds has gradually increased over the last two years.

- In both cases, the speed measurement is more typical in case of men and more experienced internet users. Typically, it is the middle-aged groups with higher level of education that measure the speed of their fixed internet connection, while the speed of mobile internet connection tends to be measured more by young people, members of Generation Z and Generation Y.

- Subscribed download speeds are mostly provided by the service provider according to subscribers (fixed internet: 78%; mobile internet: 82%). Compared to last year's results, the proportion of people who are completely satisfied with their mobile internet speed has increased (from 31% to 34%).



**Have you ever wondered what the speed of your internet connection was and tested/measured it with a dedicated website or app?**

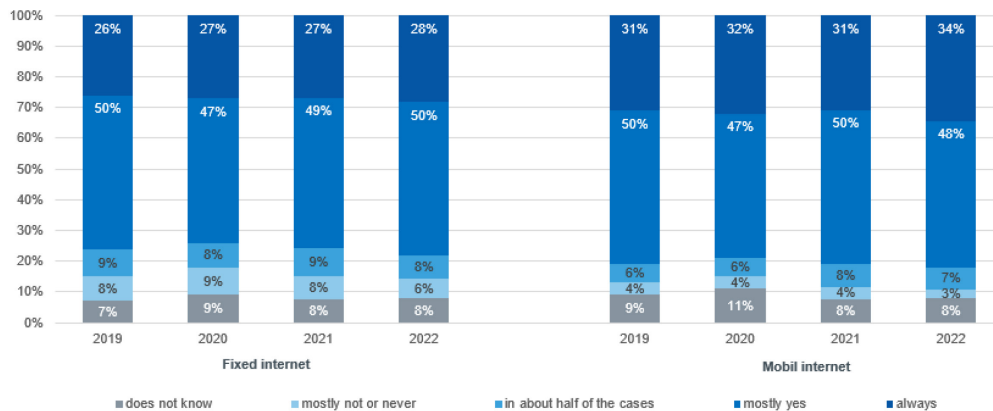


Base: internet subscribers aged 16+; fixed: n=3596, N=6.3m, mobile: n=3043, N=5.3m

Figure 11: Percentage of people monitoring their internet speed (Source: NMHH Household Survey, 2022)



**Do you find that your internet service provider does provide the appropriate download speed? (%)**



Base: internet subscribers aged 16+; fixed: n=3596, N=6.3m, mobile: n=3043, N=5.3m

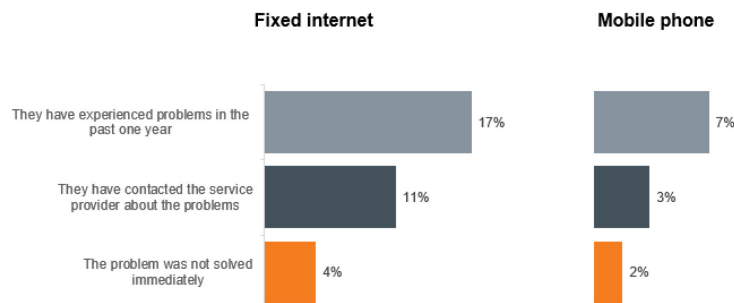
Figure 12: Measuring internet connection speed (Source: NMHH Internet Survey, 2022)

- 17% of fixed internet subscribers and 7% of mobile subscribers have experienced problems with their service in the past year. For fixed services, around 60% (9-10% of all subscribers) of those who detected a problem complained to their service provider, while in the case of mobile internet subscribers, less than half (3% of all subscribers) did so.

- In most cases the problems were solved almost immediately, but sometimes they required further enquiry or investigation. In the case of fixed internet, 3-4% of subscribers reported that their problem could not be solved immediately, whereas this was also lower for mobile internet (2%).



PROBLEM WITH THE SERVICE



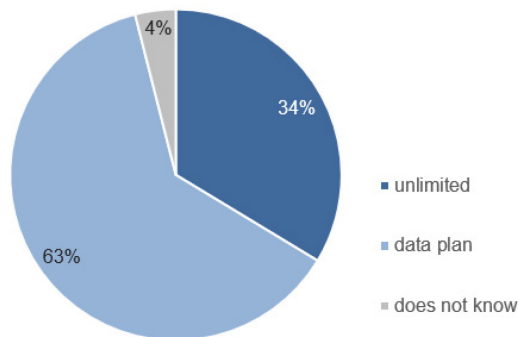
Base: users of the particular service

Figure 13: Problem detection for internet access services (Source: NMHH Household Survey, 2022)

- Tariffs with a fixed data contingent remain the most common type of subscription, and a third of mobile internet users said they use an unlimited mobile internet package. The proportion of unlimited tariff plans is significantly higher for those who do not subscribe to a fixed service.



Evolution of mobile internet data packages



Base: mobile internet subscribers aged 16+: n=3042, N=5.3m

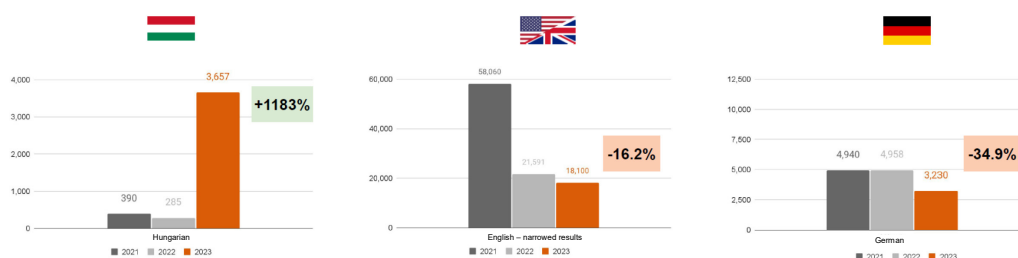
Figure 14: Use of unlimited packages (Source: NMHH internet survey, 2022.)

## 2.7.2. Results of the social listening research<sup>12</sup>

The NMHH carried out social listening research on net neutrality on a regular annual basis. Following the practice of previous years in analysing the results for the reporting period between 1 May 2022 and 30 April 2023. The data collection covered social media and web sources in the period under review, in Hungarian, English and German.

Main findings of the research:

- In line with the trend of previous years, the number of mentions of net neutrality / open internet continued to decrease in the reporting period in the German and English language areas, while the Hungarian language area saw a significant increase, as a result of the phasing out of zero-rated packages on 31 March 2023.

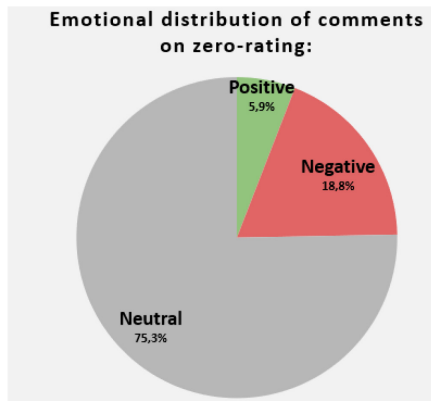


Source: PwC – 2023

In German-speaking territories, issues and news at European level tend to get a bigger reaction. The two most frequently mentioned topics were the phasing out of zero-rating and the demand by big tech companies for compensation for infrastructure costs incurred by Telco's (the so-called "fair share" debate). In English-speaking territories, the Twitter acquisition and the reinstatement of the US net neutrality rules received the most mentions.

- In Hungarian, news about the introduction of zero-rating generated 86% of the mentions, as well as all the peak mentions. These news stories provoked a strong reaction from readers, with a significant proportion of mentions (87.8%) coming in the form of Facebook comments. The comments showed that the majority of commenters either did not have precise information about the content of the change (~55%) or expressed dissatisfaction (~35%) with the phasing out of zero-rating.
- The vast majority of comments received (75.3%) are neutral, mostly dealing with the interpretation of the news on the phasing out of tariff plans, with unlimited mobile plans and with political/economic debates that are not relevant to net neutrality.

<sup>12</sup> Social listening is a procedure that identifies, collects, analyses and evaluates what has been published about a specific topic on the internet.



Source: PwC – 2023

The topic is not typically linked to the issue of the open internet and the NMHH. Mentions of the NMHH in connection to the open internet are mostly references to publications and research results made available by the Authority.

- Figures related to mentions of service providers were similar to last year. The bigger spikes in mentions were around non-operator specific topics, such as the abolition of telephone directories, a state-subsidised programme for exchanging older, non-4G capable mobile phones to more modern handsets and the phase-out of zero-rated offers.

Period under review 2021–2022	Period under review 2022–2023
Total mentions <b>2376</b>	Total mentions <b>1781</b>
Total deviation <b>~ 4m</b>	Total deviation <b>~ 2m</b>

Source: PwC – 2023

Here too, 71% of all mentions occurred in the form of comments. In several cases, comment chains resulted in spikes in mentions – typically related to content about the Twitter takeover.

- The sanctions against the Russian media have resulted in smaller spikes in mentions, with the majority of hits coming in the form of articles (~69%), the vast majority (72%) from websites, and no mention of the open internet.
- Open internet as a topic and its importance remain virtually unknown to the majority of the population.

### 2.7.3. Official communication on the phase-out of zero-rated offers

In the reporting period, the NMHH took an active role in raising consumer awareness and providing information, including in informing subscribers about the phase-out of zero-rated offers.

In the period under review, several news portals covered the phase-out of zero-rated offers. A number of articles were given eye-catching titles, trying to generate interest by announcing the end of eg free access to Facebook and other social media platforms. The NMHH considered it important to prevent the spread of misleading information and to inform consumers about the effects of the phase-out. Therefore, the NMHH

published a statement explaining the consequences of the elimination of the zero-rated offers, highlighting that the use of content, services and applications previously subject to the zero-rating will be charged against the subscriber's data plan, which may increase the monthly data use.

The NMHH also advised subscribers to monitor their service provider's notifications of unilateral contract amendments related to the phase-out of zero-rated offers and reminded them that they can terminate their subscriber contracts without any adverse consequences in case of unilateral contract amendments that are not particularly favourable to them, even if the contract is for a limited period of time and this period has not yet expired.

### **3. SUMMARY OF THE STATE OF OPEN INTERNET IN HUNGARY FOR THE REPORTING PERIOD**

The internet has become part of the most important basic infrastructure of society and the economy, and its key role is unquestionable in virtually all segments of our lives. Most EU Member States consider it a priority to avoid situations where ownership of the network infrastructure leads to exclusive control over the content and services transferred over the network. The importance of this has not diminished, but increased, with the growing role of platforms and large content providers, in an era of debates generated by the re-ordering of value chains on the internet. In addition to enforcing the rules, the role of public authorities is to monitor the changes in technology and markets on an ongoing basis. This will allow them to detect anomalies in due time that could not have been foreseen when the legislation was drafted. They can also often use their expertise and experience to contribute effectively to solving problems, even without having to use their public powers.

The monitoring, measurement and legal tools of the NMHH are appropriate for investigating and monitoring deviations from the provisions of the EU Regulation, and to take the necessary action and eliminate infringements in the event of any discrepancies detected.

In order to enforce the EU Regulation, the NMHH continued its multi-faceted activity during the reporting period. The key experiences of this are summarised below:

- In order to phase out zero-rated offers following the 2021 judgments of the CJEU, the NMHH took an active role by ordering internet access providers to stop commercial practices that violate the rules on the open internet and by supervising associated contract modifications. By the end of the first quarter of 2023, the existing zero-rated offers for social media, messaging apps, music and video streaming and games had disappeared from the market. The NMHH continues to monitor the tariff plans of service providers and is currently investigating the legality of zero-rated contract terms available on the market.
- No systemic problem could be observed concerning the enforcement of open internet access in Hungary. The number of end-user complaints brought to the knowledge of the NMHH is marginal, the experiences of subscribers in connection with the quality of service have shifted in a positive direction, and the market is characterised by services of improving quality.
- The NMHH's broadband measurement system is an important tool both for informing end-users and for monitoring the quality of internet access services. The results of the measurements carried out during the reporting period indicate that the fixed networks are operating at sufficient capacity, and the undertaken targets of the quality of service indicators are met in most of the measurements.



- The results of the NMHH's social listening research confirmed that the majority of the population is still unaware of the rules on open internet and their importance. The mandatory phase-out of zero-rated offers was also not linked to the issue of the open internet in the public consciousness. The NMHH expects that, in the future, new EU regulations (above all, the DSA/DMA) and the roll-out of 5G-based residential services will feature more prominently in the context of the public discussion around the open internet.