**Potential Role of NRAs in the Phase-out of 3G Networks**

Hungarian experience: the NetreFel! (GetOnline!)Programme





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# Introduction: the rationale and objectives of NRA involvement

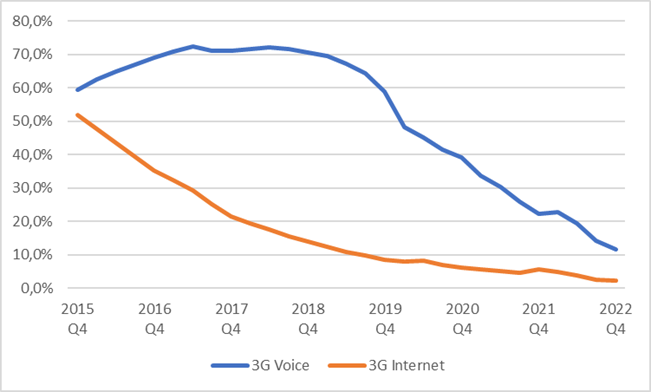
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| **The Hungarian National Media and Infocommunications Authority (NMHH) has played an active role in the preparation of the phase-out of 3G technology in Hungary, seeking to ensure that the interests of operators, users and public authorities are equally taken into account in the process.**  **Through its regulatory, coordination, communication and support role, the Authority has contributed substantially to the full phase-out of 3G services in Hungary, which is expected to be among the first in Europe, by the end of 2023, taking maximum account of the interests of users.**  **The period leading up to the phase-out of 3G services saw a significant modernisation of the Hungarian residential handset base, to which the NMHH's involvement has made a significant contribution. The number of 2G handsets used by the population has fallen by more than 25%, the number of 3G handsets by more than 50% and 3G handsets carrying data traffic have virtually disappeared.**  **The HUF 5 billion (appr. 13 million EUR) device trade-in programme was open for more than a year and 120,000 people took advantage of the support. The communication efforts of the NetreFel! (GetOnline!) programme and the device trade-in programme played a major role in ensuring that no consumer complaints were registered with either the operators or the authorities about the lack of 3G service.** |

This paper reviews the **general experience and specific tools** of the NRA's engagement, hoping to provide useful input for the **informed planning and successful implementation** of further programmes of similar complexity, requiring the **coordination of the interests and aspirations of public authorities, market and government actors as well as residential and business users**. From an international perspective, we hope that by sharing our experience we can **also support the preparations of countries still at the early stages of the 3G phase-out process.**

In Hungary, the 3G phase-out started **in 2019, when MNOs first notified the NMHH that they planned to phase out 3G in the 3-5 years ahead.** Their technical justification, in line with the Authority's strategic objectives, was that **freeing up 3G spectrum would significantly increase spectrum efficiency and speed up the roll-out of 5G networks**, as well as reduce MNOs' operating costs. In autumn 2019, the **NMHH launched a pre-decision project** to thoroughly **explore**

* how the **role of 3G networks in voice and data traffic** has changed over the last 3-5 years;
* what are the **main benefits and risks of 3G phase-out** for MNOs, residential, business and government users, and state actors;
* how 3G switch-off may affect specific consumer and user groups and **how to prepare them for the expected changes**;
* what **phase-out scenarios** can be expected based on international experience and the plans of MNOs operating in Hungary;
* what is a **realistic timetable and timeframe for** the3G phase-out;
* **what role should the regulator play in** the process.

Fig. 1 Share of voice and data traffic on 3G networks, 2020-2022



*Source: NMHH mobile market reports*

**Analysis of the traffic data showed that**

* **data traffic** on 3G networks **fell steadily and significantly between 2015 and 2020** (from 50% to below 10%);
* **voice traffic followed the same trend with a slight delay** (from 2018).

So, at first sight, the support by NMHH of accelerating the phase-out of 3G services **seemed** clearly in **line with market developments.**

**The consumer groups** primarily concerned by 3G switch-off **and the main challenges for each target group have** been identified by the NMHH[[1]](#footnote-1):

* **3G device owners with a mobile internet data plan:** after switch-off, they will no longer be able to use mobile internet;
* **3G owners without a mobile internet data plan:** after the switch-off, they will no longer be able to subscribe to mobile internet;
* **3G M2M users:** for services with higher data traffic requirements, 2G networks cannot guarantee service continuity, so a new 4G/5G-enabled device and SIM card will be required.

Based on data collected from MNOs, the **share of 3G phones in the total number of active mobile handsets in Hungary was around 8%** (around 1 million handsets). Almost **two thirds of** these handsets (**around 650,000) were connected to a residential subscription,** and within this group around **150-200,000 residential handsets were carrying mobile data traffic in** early 2020.

Fig. 2 Distribution of active mobile devices by network capability and subscription type, 2020 Q1 (thousands)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Type of device** | **Residential**  **subscription** | **Business subscription** | **Total** | |
| **thousands** | **%** |
| **2G** | 1830 | 776 | **2606** | **22%** |
| **3G** | 652 | 371 | **1023** | **8%** |
| **4G** | na | na | **7914** | **65%** |
| **5G** | na | na | **14** | **0%** |
| **not identifiable** | na | na | **523** | **4%** |
| **Total** | na | na | **12086** | **100%** |

*Source: based on data provided by MNOs at the request of NMHH, 2019-2020*

Fig. 3 Distribution of 3G devices with active SIM cards by subscription type and usage type (thousands)

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Residential subscription** | **Business subscription** | **Total** |
| **Voice traffic only** | 652 | 371 | **1023** |
| **Also mobile data traffic** | 169 | 128 | **297** |

*Source: NMHH data request, 2019-2020*

The main finding of the **M2M segment** study was that the **majority** (nearly three quarters) of the **approximately 1 million active M2M devices had a 2G SIM card.** Theshare of M2M devices with **3G SIM cards was estimated at around 20%** (250-280 thousand),while the combined **share of 4G/5G devices was less than 10%.**

Fig. 4 Number of active M2M SIM cards of different types (thousands)

|  |  |  |
| --- | --- | --- |
| **SIM type** | **Total** | |
| **thousands of pieces** | **%** |
| **2G** | 927 | 72,37% |
| **3G** | 269 | 21,00% |
| **4G** | 59 | 4,61% |
| **5G** | 26 | 2,03% |

*Source: NMHH data request, 2019-2020*

Another important feature of the M2M market was that the **majority (around 80%) of SIMs with 2G or 3G capability were used in online cash registers.[[2]](#footnote-2)** Nevertheless, preliminary studies have shown that **3G switch-off does not entail serious fiscal risks**: no replacement of the SIM card (and with it the entire cash register) is necessary for service continuity, as the data traffic of cash registers is so low[[3]](#footnote-3) that it can be served **by 2G networks after 3G switch-off.** Nevertheless, in the longer term, the migration of this segment to 4G/5G will be an important task to **maintain service continuity and to cope with the possible partial or complete switch-off of 2G network**s.

**Preliminary studies have identified positive impacts in addition to the expected consumer inconvenience in the affected user segments:**

* the 3G switch-off will provide additional **spectrum for** existing newer technologies (4G/5G) and, depending on the time of the switch-off, MNOs may also use parts of the spectrum **for the development of their 5G networks**;
* MNOs **will be able to operate their networks more cost-effectively** after 3G switch-off, which could mean more resources for technological improvements;
* the phase-out of 3G **will upgrade the Hungarian digital infrastructure**, supporting the positive economic and social effects of digital transformation.

**Against this background, the NMHH considered it desirable to support the phase-out of 3G services as soon as possible, recognising that it could contribute to**

* **increased consumer welfare** by providing higher quality infrastructure at value for money;
* **effective market competition** by ensuring that MNOs can operate efficiently and innovatively under stable financial conditions;
* **reaching public policy objectives** by supporting the roll-out of high bandwidth mobile internet services to more users;
* **achieving the NMHH'**s **strategic objectives for** efficient spectrum management and flexible spectrum policy.

**Based on these considerations, at the beginning of 2020, the NMHH decided to support the 3G phase-out process with a variety of instruments to strengthen the digital ecosystem in Hungary, to enforce consumer protection aspects, to increase the efficiency of MNOs and to help the better use of the frequency spectrum.**

At this early stage of the preparations, it was also decided that the **use of communication tools is relevant in all user segments** (such as businesses using M2M devices or individuals with 4G-enabled devices but not using mobile internet), while the **justification for the device trade-in support programme** should **only be assessed for residential 3G device users.**

Fig. 5 Summary of tools of NRA involvement



# Communication s strategy and tools

|  |
| --- |
| **One of the NMHH's key strategic objectives is to protect consumers and, as part of this, to prepare them for the changes expected in the communications and media markets. Effective communication that is easy to understand and reaches as many of the target audience as possible is essential to enable consumers to prepare for technological change. Two specific challenges were faced in designing a communications programme to support the inevitable phase-out of 3G services:**   * **most consumers do not have technical knowledge or technological information about the network capabilities (2G/3G/4G/5G) of the mobile phone or M2M device they use, and therefore may not realise that they are affected by 3G phase-out;** * **basically, a message with a negative content means the "*phasing out", "switch-off" or "termination" of* a network, technology or service, which can create uncertainty and fear in users.** |

## Strategic considerations

Based on the above considerations, it was decided early on in the process that 3G switch-off communications **should** not be **positioned in** isolation, but rather **as part of an umbrella programme of digitisation (NetreFel!), focusing on mobile internet and smart devices,** in which the future phase-out of 3G is only one of the arguments for choosing 4G and 5G devices, which are much more suitable for mobile internet**.**

**This solution was supported by the fact that**

* **developing digital competences has** been a clear policy objective for decades;
* the COVID crisis has shown that **digital tools can help people stay connected**, **work and learn**;
* **there are no known interests that oppose the** spread of digitalisation.

The NMHH decided to launch the NetreFel! umbrella programme in 2020, which **uses a combination of communication, NRA engagement and support** to help different consumer groups migrate to more advanced, higher-end devices with internet capabilities and mobile data subscriptions.

**In addition to the above, the NetreFel! programme was expected to**

* be **easy to understand and popular with** consumers**;**
* support the **creation of motivation**, **sensitisation and mobilisation of** those segments of the population which
  + surf the internet on **outdated** mobile technology (3G),
  + **cannot** (2G),
  + or **do not want to** use mobile internet (4G subscriptions without data plan) for the time being;
* inform people about which devices are and are not suitable for modern mobile internet use and the **main criteria for choosing a suitable mobile internet package**;
* be relatively **simple to implement**,
* be **credible to MNOs**, supporting their own efforts.

The basic communication narrative was therefore based on the premise that **3G phase-out fits into a process whereby** **each element of the digital ecosystem** (infrastructure, competences, market and public digital services) is **constantly evolving**, reaching new milestones. In this narrative, **the phasing out of 3G, an obsolete technology is one such milestone** that has passed (like black and white TV or two-stroke cars).

The **primary target group for the communication element of the NetreFel! programme** was citizens - typically older people - who have not yet entered the world of mobile internet. In this context, the project identified **two closely related target groups of consumers**: the elderly themselves **('seniors') and the 'helpers**' who support them:

* **"SENIORS"** (primary target group): people aged 65 and over who
  + do not use a modern mobile device, or
  + have one, but do not use it for mobile internet or
  + use the internet, but only over a WiFi connection (no data plan) or
  + surf the internet with a 3G-enabled device.
* **"SUPPORTERS"** (secondary target group): children, grandchildren and young neighbours of seniors who are more technologically aware and open-minded, and therefore willing to help seniors navigate the digital world, support them in decision-making, administration and technology change.

## The stages of communication

**The communication was divided into two main phases:**

* the period **prior to the announcement of the device trade-in programme** (Q1 2020 - Q4 2020 - Q4 21);
* the period **following the launch of the** **device trade-in programme** (Q4 2022 - Q2 2023).

**The main difference between the two phases was the scope of communication objectives:**

* **In the period prior to the launch of the device trade-in programme**, NetreFel! communications reached out to all handset users who were not using mobile internet. Accordingly, the **call-to-action** for each user profile at this stage was as follows:
  + **if you have a 4G smartphone but you don't use it for mobile internet,** start using it - get online! (*NetreFel*!);
  + **if you have a 3G smartphone** and you **use the internet,** switch to 4G/5G because you will get much better quality and faster internet access (and 3G will eventually be phased out by MNOs);
  + **if you don't use your 3G phone to surf the internet,** try a 4G phone and get online! (*NetreFel!*);
  + **if you use a 2G phone,** youprobably only use it for making calls - but if you want to try mobile internet, start with 4G and get online! (*NetreFel!);*
* **Following the announcement of the device trade-in programme, the above has been complemented with the main communication objective to encourage as many 2G/3G device owners as possible to participate in the programme.**

It was also important that **neither the fact nor the expected timing of the planned programme was disclosed** before the announcement of the device trade-in programme, as this could have encouraged affected users **to postpone spontaneous device replacements**, delaying the purchase of more advanced digital devices and making the support programme more expensive.

## The communication toolbox

**The NetreFel! programme used a variety of communication tools (stand-alone website, Facebook activities, display, press, media and online advertising, conferences, podcasts, influencers, public appearances, etc.) to raise awareness of the benefits of digital devices and services in general and the importance of replacing 2G and 3G phones in particular.**

### Public communication campaign

The **first communication event** linked to the 3G phase-out was an **NMHH press release timed to the 2020 Black Friday and Christmas shopping** period: '...*with a carefully chosen smartphone and mobile plan, even the pandemic lock-in is more bearable - so buy a mobile phone for your elderly relatives for Christmas'*.

The Communication pointed out that the **COVID epidemic has increased the demand for mobile data communications** beyond calls and SMS among people over sixty, but in many cases these needs cannot be met by the 2G and 3G phones used by the majority of older people. The NMHH has therefore recommended that, for devices bought as gifts for the elderly after that, everyone should now ensure that they choose 4G or even 5G devices with **more advanced technology and faster internet speeds,** and mobile subscriptions that meet their data needs.

In essence, the **NetreFel! communication campaign,** launched in spring 2021, **took this strategic direction forward,** with the declared aim of encouraging the replacement of devices not - or only to a limited extent - suitable for mobile internet, and the **education of** those using 4G devices without a mobile internet subscription**, and the development of digital skills**.

The **tools used in the campaign and their main parameters** (number of impressions, reach) are summarised below:

Fig. 6 NetreFel! campaign tools in 2021

| **Activity** | **Description** | **Result** |
| --- | --- | --- |
| **Press conference and press release** | Campaign launch press conference (2 April 2021) and press release  **Moderator**: Borbás Marcsi (a celeb popular amongst elderly people)  **Participants**:   * Monika Karas, President of the NMHH * Péter Vári, Deputy Director General of the NMHH | **Number of hits**: 157, of which online: 142  **Main interviews:** MTVA, Kossuth Rádió, InfoRádió  All appearances positive |
| **Paid advertising** | Paid ads ran in May 2021 based on the agency's media planning proposal.  The creative materials for the advertisements were created using the Borbás Marcsi brand.  Main message: Get online - to stay connected, we help make mobile networking easier and safer.  The primary objective was to increase the number of visitors to the website. | **TV ratings**:   * 1.7 million people in the 30-49 age group at least once, 67.86% of the target group * in the 50+ age group at least once: 2 .9 million people, 78.56% of the target group.   **580 radio spots:**   * 18,5 % of the target group 30-49 * 21.25% of the 50+ target group, on average, saw the ad   **Print** publication 4.7 million copies:   * Target group 30-49: 32.3% reach * 50+ age group: 45% access   **40 million online** impressions; click-throughs: 114 403 (0.29%). |
| **Social media** | The aim was to increase the following and drive traffic to the website, while producing content on a continuous basis. | During the May campaign period, more than half (5,300) of the target set for the whole year (10,000 followers) was reached. |

*Source: NMHH*

At the end of the campaign, NRC Marketing Research and Consulting Ltd. conducted a representative campaign awareness measurement, according to which the **spontaneous awareness of** the **campaign was 22%, and the spontaneous and supported awareness was 35%.** Most people had heard about the campaign from the TV advertisement, and the target group was over-represented among those who were aware of the campaign.

### NetreFel! website

In the first phase of the communication, prior to the announcement of the device trade-in programme, the **NMHH set up a website** [**(**](http://www.netrefel.hu)**www.netrefel.hu) to promote mobile internet**, where all relevant information was made available, from the features of the different generations of mobile devices to the services that can be used with smartphones and the **aspects to consider when choosing a device**.

**Key features of the website included:**

* **knowledge base**: mobile internet news, what to know
* **help** to check your device, SIM card and network
* downloadable **mobile apps** for everyday life
* **showcase 4G and 5G technology,** representing a higher technological level
* **request for assistance** (online form),
* "Surfing Seniors" **podcast series** (12 episodes),
* **FAQ** (the website was also used to answer questions about the 3G switch-off):
  + what does 2G, 3G, 4G, 5G mean?
  + why does 3G switch-off happen?
  + what benefits can be expected from 3G switch-off?
  + when does the 3G switch-off happen?
  + how many subscribers will be affected by 3G phase-out in Hungary?
  + why not roll out the more obsolete 2G instead of 3G?
  + when will 2G be phased out in Hungary?
  + is my device affected by 3G switch-off?
  + will I need to change anything on my phone after 3G switch-off?
  + what happens if I don't switch to 4G?
  + which device should I choose?
  + is 4G service available where I live?
  + how much does a 4G mobile device cost?
  + old 3G phones become unusable?
  + which device should I choose?
  + how do I know if I am using 3G or 4G internet?
  + where is better to surf the internet: WiFi or mobile?
  + how do I set up my phone to use the internet?
  + do I need an antivirus on my mobile phone to use the internet?
  + how much mobile internet package should I buy?

**The currently available version of the website no longer only carries the initial functionality and information, as from the announcement of the programme the focus has shifted to supporting the device trade-in process.**

### The device trade-in programme communication campaign

**Following the announcement of the device trade-in programme, the** communication activity **has broadened both in terms of its main messages and target groups,** maintaining the general digitalisation orientation of the previous NetreFel! campaign, but complementing it with **the importance of replacing** outdated **2G and 3G devices that are** not (or not for long) suitable for internet use, the **possibility to receive support** for this purpose **and the technical information about the device trade-in programme**.

Based on discussions with MNOs and handset distributors, it was clear that **all stakeholders will be involved to some extent in the communication of the device trade-in programme, as they** wanted to see more customers to trade in their handsets with them. Therefore, at this stage, NMHH had to draw the public's attention primarily to **the fact that the support programme was launched and that general information and technical information on it was available**, leaving MNOs and retailers to communicate more widely on specific handsets or their own promotions complementing NMHH’s support.

At this stage, it **was also important to emphasise some elements of content that had not been included - or had been given less prominence - in the previous communication:**

* **3G mobile internet data speeds are well below** those of services based on **more advanced networks** (4G and 5G). In addition, with the finite amount of spectrum available for mobile communications, **3G is increasingly "takes up space"** from more advanced networks. Therefore, MNOs **worldwide are gradually phasing out 3G to** use the freed-up spectrum for higher quality services.
* Some domestic MNOs **have already started to roll out 3G in certain areas of the country**, and most have clear plans for **nationwide switch-off**.
* The phase-out of 3G is a sovereign decision of the MNOs, but the NMHH considers it of the utmost importance that **consumers are not caught unprepared by the technology change**. It is therefore using its own tools to support users in acquiring the necessary knowledge to use mobile services and is encouraging MNOs to do the same.
* In order to reassure older and/or non-internet using subscribers, or those who refuse to switch, it was necessary to specify that **those who only use their 3G phone for making calls or sending SMS**, or who only use their mobile device for internet access on a WiFi network, will **not notice the switch-off of 3G service**.
* However, **those already using mobile internet on 3G devices**, and those with 2G/3G devices who plan to use mobile internet in the future, **will be forced to** **switch to 4G services**, which offer much higher data throughput and almost full nationwide coverage**,** or evenconsider the even faster 5G.
* The **NMHH supports the replacement of handsets within its own resources** and **encourages MNOs to** offer additional discounts to make the replacement of outdated mobile phones more attractive.

In addition to the general messages above, **communication** at this stage had to cover **basic technical information about the device trade-in programme**, answering elementary questions such as:

* **how the consumer will know if he is affected by** 3G switch-off;
* what happens if you **do not switch to 4G**;
* **which device to choose;**
* how to find out **if 4G service is available** where you live;
* **where to get a subsidised device** (which device distributors are participating in the programme and where to find their points of sale)**;**
* **the price and conditions under which** consumers can get a new mobile handset (it was important to emphasise here that in addition to the NMHH subsidy, consumers should also be informed about any additional discounts offered by MNOs or handset distributors);
* **who and how to replace your old SIM card** with a 4G SIM;
* what to do to **avoid data loss** when replacing the device**;**
* who and how to transfer the **data on the old SIM to the** new phone**;**
* who is transferring the **data stored in the memory of the old handset and under** what conditions**;**
* **whether the user can keep their old 3G** device;
* **what will happen to** your old 3G device;
* **who consumers can contact if they** have any questions or complaints during the **programme**.

In addition, the communication had to **address** the following questions in **order to dispel fears that were unjustified for experts but realistic for users:**

* **will I get a new phone number**;
* **whether the loyalty period will restart**;
* **whether the service will become more expensive**;
* whether the amount on the **prepaid card is lost**.

In addition to media communication by the NMHH and MNOs, attention was also paid to the **involvement of social organisations, family members and friends in** order to prepare the affected (and especially the elderly). In line with the above, important functionalities were added to the NetreFel! website (e.g. knowledge base, downloadable applications, podcast series, FAQs, etc.), while maintaining the previous elements.

As a first step in expanding the content and functionality of the website, which provides useful information on how to replace devices that are not suitable for internet use and encourage the use of mobile internet, a ‘**Device trade-in support” menu was added to the** website after the announcement of the trade-in programme, but before its launch, initially providing only basic information on the expected device trade-in *("Device trade-in programme coming soon"*[[4]](#footnote-4) )

Following the launch of the exchange programme, information on the device trade-in programme was also published on the website, in an effort to **make it as clear and simple as possible**. The following main groups of topics were covered:

* **Checking the type of device**

The list **in the "Check your handset" menu** included more than 200 types of 2G/3G handsets ever marketed by Hungarian MNOs or available in Hungarian shops. The search was made easier by the fact that the first few letters of the brand name were entered and the search immediately jumped to the relevant brand.

The description also provided support in case you could not find your own device in the list. In this case, it provided step-by-step instructions on how to find the **network settings** in the Settings menu, which will help you decide which generation of device to use. Then the message *"If you don't see the terms 4G or LTE, you can probably take advantage of the support option" appeared.*

* **Check eligibility by IMEI number**

As only 2G or 3G-enabled mobile phones that were verified to have been used on a 3G or 2G network in Hungary (Magyar Telekom, Vodafone, Telenor, Digi) during a certain period and **had a unique IMEI code in the IMEI database compiled by the NMHH with the assistance of MNOs and using appropriate data protection tools were** eligible for the scheme, it was important that users could verify that their handset was included in this database.[[5]](#footnote-5)

They were also informed about **the MNOs, retailers and shops where they can get help** if finding the IMEI number or managing the database proves too complicated for them. Consumers were also informed about **who they could contact** if their IMEI number was not listed in the list of handsets that met the eligibility criteria (in addition to the mobile operator helpdesk, they could also report the problem to the **International Fund Development and Coordination Agency (NFFKÜ)** coordinating the support programme at mobilcsere@nffku.hu)

* **Shops participating in the device trade-in programme**

Given that the support was available at a number of retailers, i.e. MNOs' showrooms and specialised shops, as well as in **retail** **chains and smaller telecom or IT shops,** users needed guidance to find **the nearest trade-in point**. In addition to a search by town name and postcode, an interactive map search was also available, which showed the nearest shop participating in the scheme **based on the** user's **current geolocation.**

Fig. 7 Find a trade-in point on the NetreFel! website

A képen szöveg, térkép, képernyőkép, szoftver látható

Automatikusan generált leírás

*Source: www.netrefel.hu*

* **Help in choosing a new device**

The subsidy was available **for the purchase of any 4G or 5G-enabled device**, but users had to be informed of **the aspects to consider** when making a purchase. The menu and content supporting the choice was already available on the previous version of the netrefel.hu website: [How to choose a smartphone wisely](https://netrefel.hu/cikk/Hogyan_valasszunk_tudatosan_okostelefont)[[6]](#footnote-6) .

* **Fate of the old mobile device**

As expected, **many people were concerned about the fate of their old device** and the security of the personal data, photos and other information stored on it. The website also provided detailed information on this, which made it clear that the old **device had to be handed in to the retailer** (for destruction) and that the **deletion of data** (resetting to factory settings) and back-up should basically be the responsibility of the customer. Dealers had a duty to **ensure that the returned devices were destroyed. They** also had to ensure that the handed-in handsets were handled in such a way that any remaining data could not be accessed by anyone. However, it was not the responsibility of the traders to copy the data in full, but a specific article on the website provided **practical information on how to back up the data**: [Mobile trade-in guide: deleting and transferring personal data to the new device](https://netrefel.hu/cikk/Mobilcsere_kisokos_szemelyes_adatok_torlese_es_atmentese_az_uj_keszulekre)[[7]](#footnote-7) .

* **Power of Attorney**

For older, less mobile people, there was a legitimate demand for the possibility to **use a proxy in addition to the personalised service**. The netrefel.hu website has provided a model proxy for this purpose: [Power of attorney for the administration](https://netrefel.hu/upload/4_szamu_melleklet_meghatalmazas_minta_keszulekcsere_ugyintezeshez.pdf)[[8]](#footnote-8)

* **Details of the programme**

Although all the important information about the scheme was available in a clear and understandable way in the communication material and on the website, the official retailer guide with all the **details about the device trade-in scheme was also published on the NFFKÜ website**.[[9]](#footnote-9)

For months after the device trade-in programme ended on 31 March 2023, the home page of the netrefel.hu website continued to display a notice to inform users who had been informed too late about the programme, and **then the website "reverted" to the NetreFel! to a communication platform supporting the basic objective of the programme (mobile internet take-up).**

### Preparing M2M users

**The communication had to cover the M2M user group, answering the following questions:**

* how to determine if the **M2M modem is using a 3G SIM**;
* **what changes and difficulties** switch-off **may cause for** 3G M2M users;
* how to decide whether the **2G network is also suitable for** the purpose of the M2M service;
* what steps are needed to **switch to 4G.**

**In parallel to the public communication campaign, the NMHH used targeted communication and professional tools to prepare 3G M2M and IoT service providers and users, including**

* **held a public hearing** and a free **conference** to raise awareness of the importance of the issue;
* **has consulted with MNOs on** a number of occasions, urging them to contact their M2M and IoT customers and start preparing jointly for the 3G phase-out;
* has contacted **government institutions** (ministries, tax authorities, municipalities, back offices, state and municipal enterprises, etc.) on several occasions, asking them to review their systems and, if they use 3G, to consult their MNOs;
* has raised stakeholders' awareness of the 3G phase-out in a series of **conferences and interviews;**
* has taken the initiative to include the replacement of obsolete M2M and IoT devices among the **eligible activities and eligible costs** in the framework of general business development proposals.

Fig. 8 Communication and coordination tools to prepare M2M users

| **Measure** | **Content of the measure** |
| --- | --- |
| **Baseline study**  *(April-August 2019)* | An expert paper exploring the rationale, conditions, potential benefits and regulatory actions required for the phase-out of 3G technology, which also focused on the M2M/IoT market implications, providing a technical starting point for the design of communication devices. |
| **NMHH public** hearing  *(December 2019)* | On 13 December 2019, the NMHH organised a public hearing on *"professional issues related to the use of frequency bands for mobile networks*", at which it presented its assessment of the situation in the M2M sector, with a special focus on the areas and users likely to be most affected by the 3G phase-out. |
| **Consultations with MNOs** *(September 2019 - January 2020)* | Bilateral meetings were held with all MNOs, during which NMHH representatives shared their expectations regarding 3G phase-out in the M2M market. |
| **Stakeholder interviews**  *(September-November 2020)* | To support the work of the NRA, in-depth interviews were conducted with national MNOs and other stakeholders, as well as EU regulatory experts, to seek their views on best practices for switch-off and recommendations for M2M services. |
| **HTE conference session on 3G phase-out**  *(November 2020)* | The session explored the factors that are hindering the phase-out of 3G, the steps to be taken and the speed at which the resources used by 3G can be released. One presentation was specifically on the M2M market.[[10]](#footnote-10) |
| **Information letter on the expected 3G switch-off for M2M service stakeholders** *(November 2020)* | The letter was sent to ministries, public service providers, utilities, chambers of commerce, etc. In the letter, the NMHH drew the attention of all user groups concerned to the fact that   * take stock of all your devices, equipment and digital solutions that can only work with 3G (UMTS) technology; * if you have such equipment, contact your provider as soon as possible to ensure a smooth switchover; * for future purchases, make sure that you only install equipment that works with more advanced (at least 4G) technology. |
| **Consultation with Ministry of Finance (MF)/National Tax and Customs Administration of Hungary (NTCA) representatives**  *(November 2020)* | The MF also confirmed in writing following the consultation that the 3G link to cash registers was not a point of concern. |
| **Mobile operator consultations and interviews**  *(continuous from February 2021)* | Ongoing consultation with MNOs on the possible scenarios for 3G phase-out, the IMEI database, the evolution of the number of 3G devices (residential and M2M). |
| **World Telecoms Day conference: forum on 3G phase-out** *(May 2021)* | "*3G Sunset: perfect win-win or risky adventure?"* -a roundtable discussion on 3G rollout was held with the participation of the Authority and the MNOs concerned (Vodafone, Telenor, Magyar Telekom). |
| **Device trade-in programme conceptual study**  *(May 2021)* | An updated version of the baseline study was prepared in 2019, which already contained precise proposals on the role of the NMHH, the communication tasks and the content of the device trade-in support programme. |
| **Coordination with the ITM[[11]](#footnote-11) policy area**  *(continuously from May 2021)* | The NMHH held several meetings with the Deputy State Secretary for Digitalisation of the Ministry of Innovation and Technology (ITM) and his colleagues to provide professional support for the NetreFel! campaign, to jointly implement the planned device trade-in programme and to review issues affecting the M2M market. |
| **Information letter on 3G switch-off for M2M service stakeholders** *(September 2021)* | The letter was sent to ministries, public service providers, utilities, chambers of commerce, etc. The purpose of the new information notice is to draw the attention of stakeholders to the expected 3G phase-out and to state that the NMHH considers it important that "*MNOs also prepare their business customers for the 3G phase-out in a timely and appropriate manner. Although the letter states that discussions with MNOs have shown that they are aware of their responsibilities and tasks in this regard, the NMHH also considered it important to reiterate the importance of raising awareness of the expected changes among the businesses and public organisations concerned*." |
| **HTE 3G phase-out conference**  *(September 2021)* | On 30 September 2021, Scientific Association for Infocommunications (HTE) organised a conference entitled "*The Future of 3G Networks in Hungary*", where a special round table was again dedicated to M2M market issues. |
| **IVSZ newsletter**  *(September 2021)* | Following their 2021 MENTA conference, the entire membership of the ICT association of Hungary[[12]](#footnote-12) (IVSZ) received the document drafted by the NMHH on the 3G phase-out and the resulting actions for M2M market players as an eDM newsletter, and its content was integrated into the conference summary article. |
| **Consultation with ITM representatives**  *(September - October 2021)* | The NMHH has taken the initiative to include the replacement of outdated 3G modems with 4G or 5G technology among the eligible costs for companies using M2M services affected by 3G switch-off in the framework of tendering schemes (both for digitisation and general business development tenders). |
| **Consultation with public stakeholders** *(October-December 2021)* | Consulting the Ministry of Finance, tax authority, electricity companies and other major public actors - based on suggestions from MNOs, the 3G conference and the reactions to the information letter |
| **Consultation with market stakeholders**  *(October-December 2021)* | Consulting chambers of commerce and other sectoral professional organisations and key companies - on the basis of the proposals of the MNOs, the 3G conference and the reactions to the information letter. |

*Source: NMHH*

# The device trade-in support programme

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| **By describing the main features of the design and implementation of the device trade-in support programme in Hungary, we also present the key strategic, financial and procedural issues and dilemmas that the NMHH considered before introducing the scheme:**   * **is the support programme justified?** * **who should be the beneficiaries of the programme?** * **what can the support be used for?** * **how much should the support be?** * **where should the trade-in take place?** * **what should happen to the old device?** * **who should run the programme?** |

## Is the support programme justified?

**The first question to be decided about the device trade-in support programme was whether it was really justified to use public funds for this purpose.** Inwhat cases might it be justified for a public actor (in this case the Authority) to intervene in the market with a view to promoting consumption and to partly cover the consumer price of these products?

**The NMHH considered a twofold approach in this respect:**

* **consumer protection**: **could subscribers be harmed by the phasing out of old technology?** It was clear that both the lack of information, the unwillingness to switch and the lack of funds to do so **would disadvantage certain groups of users;**
* on the other hand, itwas necessary to analyse the **social and economic benefits of switching** to more modern technology that go beyond the individual benefits.

**Past experience has provided useful guidance when considering the latter question:**

* **In the field of broadcasting, the NMHH's support programme for the needy** **played an important role in the successful digital switchover** until the end of 2013. Under this programme, NMHH not only provided the equipment (set-top boxes, antennas if necessary) for the reception of digital terrestrial television programmes to those who applied for support and were eligible for it, but also installed it with the help of specialists. Under the programme, the **NMHH provided the equipment necessary for the switchover to more than 150,000 households** free of charge. The smoothness of the digital switchover in Hungary was an outstanding achievement by European standards.
* In Hungary, **outside the field of electronic communications,** in the 2000s, a number of incentives were available to encourage technological change, primarily for energy saving: replacement of outdated **large household appliances** (fridges-freezers, washing machines, dishwashers, washer-dryers), **heating systems** (gas convectors), **installation of** residential **solar panels**. The best known of these was the "*Warmth of the Home*" programme, which aimed **to reduce household emissions and energy bills** by supporting energy modernisation in households. The scheme has supported the modernisation of nearly 84,000 homes up to the time of the design of the device trade-in programme. The programme itself started with a budget of HUF 2 billion per year and was increased to HUF 5 billion in 2020.

**NMHH identified residential 3G mobile phone users as the user group most vulnerable to 3G phase-out, and the social interest beyond individual consumer benefits as the spread of mobile internet and the strengthening of the digital ecosystem.**

## Who should benefit from the programme?

**The scheme was only available to the residential segment.** Themain reason for this was that business telephone and M2M users were unlikely to be significantly hampered by a lack of digital readiness and/or funding bottlenecks. **There was consensus that the programme should only support the replacement of active 2G/3G devices in use.**

Eligible 3G and 2G enabled **handsets had to meet the following requirements**[[13]](#footnote-13):

* a mobile device with a SIM card that can also be used for voice calls and is connected to an **individual subscription with an MNO in Hungary**;
* the mobile device is in an **operational** **condition** (ready to be switched on) that allows the **IMEI number to be determined**;
* **the phone used 3G or 2G voice and/or data services (identified by IMEI number)** on **a 3G or 2G network in Hungary** (Magyar Telekom, Vodafone, Telenor, Digi) in a verifiable way[[14]](#footnote-14) during the specified period prior to the launch of the **device trade-in programme**.

**Proof of use was verified using an** **IMEI database** created specifically for the device trade-in programme. It took approximately 4-5 months to standardise the IMEI database methodology, train the MNOs, test the validity of the data, ensure compliance with data protection rules and consolidate the IMEI databases of each service provider.

Applications were limited to **one 3G/2G handset trade-in per person and per IMEI number.**

**The following options were considered when defining the beneficiary population of residential telephone users:**

1. attract 3G users with a **mobile internet subscription only;**
2. the inclusion of **all 3G users;**
3. the inclusion of **all users with limited mobile internet access** (2G and 3G handset owners).

**The possibility of narrowing down the target groups** on the basis of social (e.g. income) and/or demographic characteristics (e.g. older people) was also considered.

In the end, the **broadest possible** option (option c) was chosen: the **scheme was open to anyone residing in Hungary who had a 2G or 3G device eligible for exchange - but the scheme gave priority to trading in 3G devices.** This was partly justified by the digital development orientation of the scheme (the more people use the mobile network) and partly by the MNOs' prior expectations that residential 2G/3G users would be a very difficult user group to reach and mobilise, which would have created absorption risks for a too narrowly defined target group.

**The scheme gave priority to 3G users by ensuring that for the first three months of the handover period** (between 14.02.2022 and 08.05.2022), **support was only available if the 3G handset was handed in. Thereafter, during the remaining period of the programme** (09.05.2022 to 31.03.2023), **both residential 2G and 3G handsets could be replaced**.

## What can the support be used for?

It had to be decided whether the aid should be **used only for the purchase of equipment or whether it should be extended to mobile internet subscriptions.** In addition, it had to be decided what **minimum requirements the scheme should set for the devices that could be purchased** with the subsidy, e.g.:

* **4G capable**,
* **5G capable**, or;
* **VoLTE[[15]](#footnote-15) capable** (capable of carrying voice traffic on 4G or 5G networks).

The rationale for requiring **VoLTE capability was to alleviate the pressure on 2G networks when they** take over voice traffic previously carried on 3G handsets following switch-off. It was therefore decided that **only VoLTE capable 4G or 5G** phones could be purchased with this support.

The scheme **did not cover mobile internet subscriptions**, as this would have raised the possibility of indirect subsidies to MNOs and would have unduly extended the duration of the scheme (until the end of the subscription subsidy).

## How much should the support be?

**Two criteria had to be taken into account** when determining the level of financial support:

* **on the one hand, the size of the aid had to be attractive to the beneficiaries**, i.e. it had to substantially reduce the cost of buying a new device, but at the same time it had to be proportionate to the administrative burden of the transaction;
* on the other hand, it was important **to ensure that as many people as possible benefited from** **the available funding.**

At the time of the preparation and launch of the programme, the cheapest retail price of a 4G VoLTE-enabled 4G device that met the conditions of the scheme was around HUF 20-30 thousand gross in Hungary[[16]](#footnote-16) . For these lower priced handsets, **a major quality compromise had to be made** in several aspects (uptime, speed, material quality, display size, etc.).

At the same time in Hungary, the price of the **most popular smartphones** (Samsung, Huawei)[[17]](#footnote-17) **fell into the 45-60 thousand HUF range (Appr. 145-160 EUR)**, while the **mid-range** (functionality, speed, camera quality, etc.) phones cost **60-90 thousand HUF**. **(Appr. 160-230 EUR)**[[18]](#footnote-18) High-end devices could cost several times more.

On the basis of the above criteria, the **amount of support at the start of the device trade-in programme was HUF 20 thousand (Appr. 50 EUR) per device, but the** gross retail **price of the** new device to be purchased with the support **could not exceed HUF 120 thousand (Appr. 315 EUR)** (high-end devices were excluded mainly for communication reasons).

Later, thesum of the supportwas increased from HUF 20,000 to HUF 40,000 (Appr. 50 to 100 EUR) and the price cap was abolished - and the programme was extended until March 2023. The facilitations and the extension of the scheme were basically necessary **for absorption reasons**, as the interest of the target group seemed to dry up after a while.

These changes **together proved to be sufficient to allocate the available HUF 5 billion (Appr. 13 million EUR).** Overall, the absorption experience has confirmed the MNOs' preliminary expectation that 3G and 2G residential mobile users represent a more difficult to reach and mobilise customer segment than average.

Fig. 9 Changes to the main parameters of the device trade-in programme between 14.02.2022 and 31.03.2023

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Date** | **Which phone is eligible?** | **Eligibility criteria** |
| **Phase I** | from 14.02.2022  Until 08/05/2022 | 3G | * 20 thousand HUF (Appr. 50 EUR) subsidy/person/equipment * Max. Eligible devices with a retail price of HUF 120 thousand (Appr. 315 EUR) |
| **Phase II** | From 09/05/2022 to 18/07/2022 | 3G and 2G |
| **Phase III [[19]](#footnote-19)** | From 19.07.2022  31.03.2023 | * 40 thousand HUF (Appr. 100 EUR) subsidy/person/equipment * No upper price limit for the device you want to buy |

*Source: NMHH*

## Where should the trade-in take place?

**Two basic questions arose regarding the location of the device trade-in:**

* in addition to MNOs' shops, can the exchange be carried out **in electronics shops** that meet the conditions of the scheme?
* what should be the **basic requirements** for the transaction venues (i.e. the participating businesses)?

From a practical point of view, it would have been **simpler** if the **exchange of mobile devices could only take place in the shops of the four Hungarian MNOs.** However, **competition policy considerations**, the need to **maximise the number of trade-in points** and to ensure the **widest possible national coverage** were all in favour of the inclusion of electronic shops. In the end, the latter option was chosen, so that **all retailers who met the following criteria for exchange locations could participate in the** programme on the basis of a self-application:

* distribute **at least 5 different types of VoLTE-enabled 4G or 5G devices** in different price ranges;
* have **premises where the trade-in transaction can be carried out** (accessible shop, infrastructure for filling in application documents, safe waiting area, etc.);
* have their **own website** and undertake to display and update information about the programme on it;
* have the conditions in place to ensure that the **3G devices** received from applicants are **collected, stored and destroyed in accordance with the waste management rules[[20]](#footnote-20)** ;[[21]](#footnote-21)
* have **the IT infrastructure** needed to carry out the **device trade-in** (scanning, fast and stable internet connection, printing, web-based, 24/7 IT tool capable of running platform-independent support software);
* as a multi-store retail chain, they are able to invoice subsidies on a **consolidated basis, on a store network level,** on a monthly basis.

As a result of the dealer registration, which closed at the end of January 2022, **the programme was launched with 700 outlets nationwide.** Inaddition to MNOs, national retail chains and technology stores, **a number of smaller mobile phone retailers** have joined the initiative. This **ensured that** virtually **all beneficiaries had convenient access to an exchange point near their homes**.

## What should happen to the old device?

**Another important issue in the design of the support programme was whether a user who replaces an old handset should be able to keep his or her old phone or have to hand it in for destruction.**

From a retailer's point of view, the simplest solution would have been to allow the user to keep their old phone. However, this solution - or any other scheme that would have allowed recycling or reuse - would have run counter to the fundamental strategic objective of **reducing the stock of mobile phones in the population that are not suitable for internet use. It was** therefore **decided to hand in the old phones for destruction.**

**Several challenges related to data management and waste management were identified, and the** following elements were included in the support programme:

* the beneficiary **had to have** previously removed **all personal data** from the device and made a written declaration that the **data had** been irretrievably **deleted, with the factory settings restored;**
* the trader participating in the scheme had to undertake to collect, store and destroy the handset in **accordance with the waste management rules[[22]](#footnote-22)** (from a data management point of view, the destruction had to be carried out in a closed system, ensuring that no one could access any personal data that might remain on the handset).

## Who should run the programme?

**The question of which** institution, public or market actor should be the **promoter of the scheme was crucial to its success.** The **role of the NMHH, which** provides the funds for the scheme, was considered as the first option. Although the authority had previous experience in the field of subsidies, it did **not have the human resources and IT systems** to implement the scheme, so it would have had to build up the system as a greenfield investment from scratch. In addition to being **very** **costly and time-consuming**, this solution would have involved all the potential risks of a newly deployed system, which, given the timing of the MNOs' 3G switch-off plans, was considered **an unacceptable risk.**

For these reasons**, it seemed more appropriate to entrust the management and administration of the grant to an actor with** **proven systems and experience** in managing similar grant schemes. The choice was finally made in favour of the International Development and Resource Coordination Agency (NFFKÜ)[[23]](#footnote-23), a background institution of the Ministry of Innovation and Technology (ITM). The main argument in favour of this choice was the fact that NFFKÜ had previously acted as the operator of several residential energy efficiency programmes.[[24]](#footnote-24) **The main tasks of NFFKÜ** in the implementation of the device trade-in programme under the **tripartite contract with ITM and NMHH were**:

* assisting in the preparation of **tender documents**[[25]](#footnote-25) ;
* development, testing and operation of an **IT system for tender management**;
* carrying out **retailer registration**;
* creating and maintaining the **programme website**;
* providing **information and customer service** to applicants and beneficiaries;
* providing **training, education, information** and customer service **to traders** participating in the programme;
* **reporting to** the NMHH and ITM on the progress of the programme;
* **issuing vouchers, paying subsidies to** traders;
* **financial closure and accounting**.

**The web-based application management system, which was developed by the NFFKÜ for the purpose of the scheme, as the key central infrastructure of the scheme, had to meet the following main requirements:**

* **support** the **application management process** to process applications as efficiently and quickly as possible, with as few human resources as possible:
  + **retailer registration**
    - electronic registration
    - checking
    - completion of documents
    - decision-making
  + **carrying out device trade-in** 
    - checking eligibility
      * IMEI data (is the device eligible to participate in the programme?)
      * personal data (is the device owner eligible to participate in the programme?)
    - registering the application form
    - registering the applicant's declaration
    - selecting a new device
    - registering the details of the new device (price, type, etc.)
    - registering the invoice number
    - returning the old device
    - issue of the documentation of support
    - closing the transaction
* compliance with the **IT security and data protection requirements** under the relevant legislation;
* **cost-effective** development and operating costs those are commensurate with the expected benefits.

# Regulatory challenges

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| **Several challenges of a legal nature had to be addressed in the context of the support of the 3G phase-out process by NMHH; these can be broadly divided into two groups:**   * **competition regulation considerations related to NRA participation;** * **compliance with state aid and data protection rules related to the device trade-in programme.** |

## Competition regulatory considerations

At the start of the process, MNOs separately stressed their preference for a **coordinated 3G phase-out with a clear and predictable timetable for all.** This was mainly due to their fear that if one operator decided to switch off before the others, their competitors still operating 3G networks could lure customers away from them on the basis of the logic "*Don't change your handset, change your operator*".

The three 3G network operators in isolation from each other were therefore faced with what is essentially a **classic game-theory prisoner’s dilemma**. They felt that **only with the coordination of an independent actor could they make a decision that would be optimal for all three** in the long run. But if they could not rely on the cooperation of others, short-term considerations (e.g. fear of subscriber churn due to the switch-off) would force them to use outdated technology for a long time to come.

**So the first legal/regulatory question that arose was whether MNOs could shut down their 3G networks in a coordinated manner, with an active coordinative role of NMHH.** This could be answered on the basis of the provisions of *Act LVII of 1996 on the Prohibition of Unfair Market Practices and Restrictions of Competition* (Competition Act or Tpvt.) and the practice of the Hungarian Competition Authority (GVH).

In this context, the Hungarian legislation stipulates first of all that *"any agreement or concerted practice between undertakings, as well as any decision of an association, public body, association or other similar organisation of undertakings (hereinafter together referred to as an association of undertakings) established under the law of association (hereinafter together referred to as an agreement) which has as its object or effect the prevention, restriction or distortion of competition or which may have such an effect shall be prohibited."*[[26]](#footnote-26) The legislator has further specified this general prohibition by stating that *"this prohibition applies in particular to:*

*a) to determine directly or indirectly the buying or selling prices or other commercial terms;*

*(b) to restrict or control production, distribution, technical development or investment;*

[...]

*(d) to partition the market, to exclude from sales, to limit the choice of outlets;*

[...]*"[[27]](#footnote-27)*

The essence of a **concerted practice** is that there is contact between market players, the object or effect of which is to influence their future market behaviour and their plans for network use - **the switch-off of their 3G network certainly falls within this category**. This reduces the uncertainty inherent in the competitive process, which in the logic of the GVH and the European Commission (as competition authority) is one of the key drivers of effective competition. **If the coordinating firms exchange confidential information about their future market behaviour, competitors will necessarily take this information into account when determining their market behaviour**.[[28]](#footnote-28) *"The result is that the undertakings concerned substitute the risks of competition for the cooperation between them*." [[29]](#footnote-29)

**Coordinated behaviour is therefore clearly prohibited for businesses**. However, competition law also provides for exceptions to the general prohibition. According to the Competition Act, **an agreement is exempted from the prohibition** if

*"(a) it contributes to a more rational organisation of production or distribution, or to the promotion of technical or economic progress, or to an improvement in the protection of the environment or competitiveness;*

*(b) a fair share of the benefits of the agreement accrue to non-participants;*

*(c) the resulting restriction or foreclosure of economic competition does not exceed what is necessary to achieve the common economic objectives; and*

*(d) does not make it possible to exclude competition in respect of a substantial part of the goods concerned."*[[30]](#footnote-30)

**From a lawyer's perspective, it was tempting to equate these exculpatory conditions with concerted behaviour to 3G switch-off , taking into account:**

* 3G switch-off will allow MNOs to use more spectrum bands for mobile data traffic, thus saving costs, **providing better service and developing new product offerings with the additional broadband capacity**. A possible exchange of information on the intention to switch off could also have brought **efficiency gains**, as market players could have focused their efforts on **developing new technologies** such as VoLTE, which they could roll out more slowly in the absence of a 3G switch-off, and would no longer have to invest resources in maintaining outdated 3G technology.
* It is also a defensible assumption that MNOs **pass on part of the benefits of switch-off to** **consumers**. 3G consumers may receive a new handset and thus new services, while other consumers may benefit from a bigger and better mobile internet offer, an increase in the degree of digitalisation, which **may ultimately lead to lower prices.**
* It also seemed possible to ensure that the single operator action and information exchange **would** **not go beyond the economic purpose of the agreement**, i.e. the broadband-related use of 3G frequencies.
* It could also be argued that **the coordination of switch-off does not reduce competition**, because the emergence of new products triggers the opposite process.

However, the Hungarian Competition Act (Tpvt.) also provides that *"the burden of proving that an agreement is exempted from the prohibition [...] under Section 17 is on the party claiming the exemption."*[[31]](#footnote-31) When examining restrictive agreements between MNOs, the **competition authority** thus **effectively starts from a "presumption of fault"** and will only exempt the undertakings concerned if they clearly prove that they fulfil the conditions for exemption.

The **Hungarian Competition Authority's** (GVH) practice - understandable in many respects - of **not giving an ex ante opinion on the behaviour of regulated subjects**, but expressing its legally valid position *ex post* in decisions, has also been applied to the issue of 3G switch-off. The MNOs - and the NMHH in the event of a possible NMHH coordination - should therefore have taken the risk of interpreting the competition law provisions on exemption, which are in many points disputable, under the burden of proof imposed on them by the above provision of the Tpvt. It is understandable that **neither the MNOs nor the NMHH, which could play the role of coordinator, ultimately considered this risk to be acceptable.**

The switch-off of 3G networks has therefore **been carried out according to separate strategies and decisions taken by** each mobile operator, **without any deliberate consultation between the companies**. Ultimately, this also made it clear that the **operators' "catch-22 dilemma", while undoubtedly real, was not as serious as operators felt** at the start of the process. Indeed, the benefits of switching off 3G networks were so immediate and foreseeable that, in order to realise them, the MNOs that had previously switched off were even willing to take the risk of some churn of 3G subscribers.

## Other legal challenges related to the programme

### The role of the NMHH

A fundamental question was **whether the NMHH could be part of a support programme and whether it could provide funding for this**. The Act CLXXXV of 2010 on Media Services and Mass Media (Media Act or Mttv.) states that

* pursuant to Article 109 (2), the NMHH participates in the implementation of the Government's policy in the field of **frequency management and communications**, as defined by law;
* pursuant to Paragraph (5) of Article 109, the NMHH is responsible, among other things, for **promoting the smooth and effective operation and development of the communications market**, the **protection of the interests of telecom operators and users**, and the establishment and maintenance of **fair and effective competition** in the telecommunication sector;
* pursuant to Paragraph (9) of Article 134, the NMHH has the possibility to **provide support or contributions from the** resources and means at its disposal **for the development of a culture of informed consumer decision-making in** the field of communications, media and cinematographic works, or to use its resources and means for this purpose.

On this basis, **the NMHH decided** to **launch a device trade-in support programme in line with the Mttv. in** order to facilitate the phase-out of 3G in the context of promoting the efficient use of radio spectrum - without specific legislation, through contracts.

### State aid rules

**The first question that arises when designing any measure that involves state aid is whether it complies with the state aid rules of EU law.**

According to the Treaty on the Functioning of the European Union (TFEU), *"save as otherwise provided in the Treaties, any aid granted by a* Member State *or through State resources in any form whatsoever which distorts or threatens to distort competition by favouring certain undertakings or the production of certain goods shall, in so far as it affects trade between Member States, be incompatible with the internal market."[[32]](#footnote-32)* In short, **State aid is in principle prohibited**. It may only be granted under the conditions specifically laid down in the TFEU.

However, at the time of the design of the scheme, **there was already a precedent that direct or indirect aid to consumers for the phase-out of a particular technology was compatible with EU law**, as there was already a consumer equipment subsidy scheme for the digital switchover. This was approved by the European Commission[[33]](#footnote-33) , which then approved its modification.[[34]](#footnote-34) In this case, the two main conditions for the aid were that the aid

* **consumers are given end-user devices to purchase**, and
* including low-income families or individual residents, so the **support should be socially based**.

The TFEU also states that *'aid having a social character granted to individual consumers, provided that such aid is granted without discrimination as to the origin of the products concerned'[[35]](#footnote-35) - a* provision that the scheme fully complied with.

**Consumer support during the digital switchover** **was not the only precedent** that suggested that the device trade-in programme was likely to be compatible with the related requirements of EU law. Other examples closer in time were also examined in the course of the preparation. The most important of these was the aforementioned ‘**Warmth of Home’ scheme**[[36]](#footnote-36) , which **proved to be a key precedent for two reasons:**

* on the one hand, because the Warmth of Home scheme involves **state aid directly to consumers, without any discriminatory element, on the basis of objective criteria, which, as experience has** shown, has also been found to be in breach of the EU state aid prohibitions;
* on the other hand, because this operational support programme has drawn the attention of the NMHH, which otherwise did not have a tendering system, the necessary manpower and the practical experience, to the fact that the **infrastructure and practices necessary for the success of the device trade-in support programme** are available at NFFKÜ. The research into the precedents for State aid therefore not only led to clarification of the immediate legal issues, but also **laid the foundations for the subsequent NMHH - ITM - NFFKÜ cooperation**.

**Whether the planned device trade-in programme complied with EU state aid rules was not a matter for the NMHH to assess at its own risk.** In Hungary, the compliance of state aid with EU rules is checked by a separate body, the State Aid Monitoring Office[[37]](#footnote-37) (TVI), which is part of the Prime Minister's Office when the scheme is being developed.

The rules for the operation of the TVI are laid down in a separate government decree[[38]](#footnote-38) , under which **draft state aid schemes must be notified and approved in advance**. The prior notification must be made to the body granting the aid which issues the legal act containing the aid scheme or the instrument or decision establishing the individual aid. On the basis of the notification, the TVI shall examine whether the draft complies with the provisions of the legislation and issue a preliminary opinion or position.

During the planning of the programme, the NMHH and the ITM cooperated with the **TVI in accordance with the** procedure laid down in the government decree, which **finally approved the support programme**. Only the indirect effects were considered by the TVI to require more detailed examination, but the objective requirements for traders and the openness of trader registration removed the last doubts.

### Participation of electronics stores

When granting aid to consumers, care must also be taken to ensure that it **does not indirectly favour specific market players**. It followed from this logic that a distinction could only be made between retailers providing the aid on the basis of objective reasons relevant to the granting of the aid.

In other words, it would have made the tender much easier if the list of participating retailers could have been narrowed down to the four large MNOs - or to the electronics retailers with a national network. However, it was clear from EU state aid rules that this was not legally possible and, as the implementation of the scheme later demonstrated, **such a narrowing would not have been particularly useful. It** was therefore clear that the scope of dealers to be included in the scheme should be extended to independent distributors if they met the criteria set out in the call for proposals.

In this way, the **conditions imposed on the traders** participating in the scheme **were objective** and strictly related to the technical aspects of the application procedure. It was therefore ensured that no unintended side-effects of the consumer support would distort the retail market. It should be noted that this was also a priority issue for the TVI in its examination of the legal aspects of the aid scheme.

It was therefore clear from the planning stage that the operation would involve not only the large distributors (the four MNOs and the large electronics retailers), which cover approximately 95% of the mobile handset distribution market, but also smaller independent distributors. While the existence of a physical outlet was included in the dealer criteria, the **programme was also open to the largest online stores as well as most of the smaller ones.** Experience has shown that in most cases they also have a physical location.

Finally, consistent enforcement of EU competition rules on state aid has also led to concrete benefits, as **most of the devices sold under the scheme - and therefore most of the aid - have been sold through independent distributors**. The State aid rules were therefore not only mandatory, but also explicitly helped to achieve the objectives of the tender.

### GDPR considerations

It was clear from the start of the design that the device trade-in programme could only be successful if it was targeted, i.e. focused on the critical mass of users affected by 3G switch-off. Targeting, as a *sine qua non,* also meant that the programme would necessarily be data intensive. **This in turn elevated data protection to a critical legal design issue**.

In this context, it was necessary to examine in particular what data management processes would be required under the scheme, and **specifically who would be involved and with what personal data**. The first and perhaps the most important lesson to be drawn from the particular importance of data protection is that **it is worth involving the data protection agency in the design of the scheme at the earliest possible stage**. The NMHH and the ITM/NFFKÜ started a continuous consultation with the **National Authority for Data Protection and Freedom of Information[[39]](#footnote-39) (NAIH)** relatively early on, which resulted in the timely identification of relevant data protection issues and the provision of appropriate responses that would stand the test of the attention of the data protection authority.

**From a data protection point of view, there have been two fundamentally separate data management processes during the grant programme:**

* the **compilation and management of the IMEI number database** for 3G/2G enabled mobile phones eligible for device swap support, and
* the **processing of the personal data of individuals applying for support**, including the fate of any personal data retained on the telephones submitted for exchange.

**From a GDPR[[40]](#footnote-40) compatibility perspective, the database of unique identifiers - i.e. IMEI numbers - of devices used in mobile networks in particular has raised questions of interpretation that go beyond the routine application of the legislation.** Under the GDPR, essentially all data is personal data that can be associated with a natural person (data subject).[[41]](#footnote-41) Since a mobile device marked with an IMEI number can be linked to the subscriber to whom it belongs, the **IMEI number is clearly personal data under the current data protection legislation**. Consequently, the setting up and use of the IMEI database had to comply with the provisions of the GDPR.

The IMEI numbers of the eligible devices were collected by the MNOs from their own systems. This data processing was made possible by an explicit provision of the GDPR .[[42]](#footnote-42)[[43]](#footnote-43) However, access to IMEI numbers and their use by the NMHH to create a separate database for the subsidy scheme also required an appropriate legal title. This was ensured by the provisions of the Statute, according to which *"The Authority may, from the resources and means at its disposal, grant aid or make contributions in the field of communications [...] or use its resources and means for that purpose."*[[44]](#footnote-44) **The processing of data in the IMEI database is therefore carried out for the performance of a public task laid down by law**, for which Article 6(1)(e) of the GDPR provides a proper legal basis.

The use of the IMEI database had to be designed in accordance with the principles of the GDPR, in particular the **principles of purpose limitation and data minimisation. The** database allowed traders participating in the scheme to query whether the IMEI number of the mobile device to be replaced, which was the legal basis for the subsidy at the time of purchase, was included. The same search could be carried out by the beneficiary himself. The IT system providing access to the database gave a simple "yes" or "no" answer to the query. In this way, **neither the trader nor the consumer directly inquiring about the IMEI number in question had access to more personal data than was strictly necessary** for the transaction.

**Operations involving the personal data of beneficiaries raised significantly fewer data protection issues.** Here, it was necessary to record the personal data of beneficiaries to ensure that they were really only taking advantage of the opportunity offered to them once.

An important element of the data management related to the sponsor data was that the IT system serving the application **generated and recorded a** **unique code** based on the ID card data (the so-called 4T data) at the time of purchase using a predefined algorithm, and was also able to check whether someone had already used the funding opportunity with this data. If, at a later point in time, the same 4T data were used to record a new data entry at another trader after the aid was claimed, the same code was generated as the one already in the database of closed transactions and an error message was sent. On this basis, the irregularity of the new claim could be clearly identified and the re-submission could be quickly rejected. **Again, the principles of purpose limitation and data economy were maximised**, as the closed transactions database consisted of a set of codes that could not be used to retrieve either the personal data of the beneficiaries or the IMEI numbers of the mobile devices concerned.

Even so, it was not clear **under which of the GDPR's legal titles the** **processing of beneficiaries' personal data by the merchants participating in the scheme could be carried out.** The most obvious was the data subject's consent under Article 6(1)(a) of the GDPR. However, for this legal title, it is important that the data subject's consent must be voluntary, and this requirement is perceived very strictly in data protection practice. Since without the provision of personal data, the data subjects would have been deprived of the aid, their consent to the processing would probably not have been voluntary by the standards of data protection law. This legal title was therefore not applicable here.

**At the same time, the grant relationship is a contractual relationship in civil law between the donor and the beneficiary**. The personal data of the beneficiary are therefore in fact processed for the purpose of concluding and performing a contract for the grant. Accordingly, the correct address for the processing of the data by the trader in the context of the scheme was[[45]](#footnote-45) , as provided for in paragraph 1(b) of the GDPR.

**A further data protection issue requiring detailed consideration was the fate of personal data on mobile devices replaced and handed in during the programme.** It is clear that this was a key issue for the whole programme. The leakage of personal data from even a single mobile phone exchanged and handed in under the programme could have undermined confidence in the programme as a whole.

In order to prevent this from happening, beneficiaries were specifically reminded to permanently erase the data content of their 3G devices and were asked to declare this when they handed them in. In addition, as already indicated in the criteria for determining the scope of the contribution, **dealers were also required to store and destroy the handed-in handsets in a closed system that clearly excluded any possibility of data leakage**.

The detailed and accurate exploration and clarification of data protection issues **during the programme paid off: in the** end, **no problems related to the processing of personal data were raised** during the implementation.

# Results of the NetreFel! programme

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| **From a policy perspective, the most important concrete result of the NetreFel! programme was the complete and problem-free switch-off of Magyar Telekom’s and Vodafone's 3G networks and the partial decommissioning of Yettel's 3G network in 2022-2023. The communication efforts and the device trade-in programme played a major role in the fact that no consumer complaints were registered with either the MNOs or the authorities regarding the termination of 3G services.** |

The device trade-in programme was open to interested parties for more than a year, **forming a national safety net that could be used by anyone in Hungary who would have had to bear a relatively high financial burden to replace their device on their own.**

In the course of communication efforts and preparation of the support programme (e.g. compilation of the IMEI database of eligible handsets), **MNOs themselves have also prepared for the switch-off,** accurately identified their 2G and 3G users, the active M2M devices on their networks, better understood the main consumer choices and motivations, the scope and scale of the challenges associated with 3G switch-off.

**In the end, around 120,000 people took part in the scheme** and **almost all of the HUF 5 billion (Appr. 13 million EUR) available was spent.**

Fig. 10 Evolution of device trade-in programme (units)



*Source: NFFKÜ device trade-in database*

The detailed data show that **the best-selling devices were in the mid-range** (40-80 thousand HUF) (Appr. 100-200 EUR).

Fig. 11 Device trade-in by price category in the phases of the programme

*Source: NFFKÜ device trade-in database*

**At the beginning of the** **programme, mainly older users** were interested (phases I and II), this changed only with the increase of the subsidy amount from HUF 20 to HUF 40 thousand (Appr. 50-100EUR) (phase III).

Fig. 12 Change of equipment by age in the phases of the programme



*Source: NFFKÜ device trade-in database*

The **greatest interest for device trade-in was in the** **most deprived regions of the country:** Northern Great Plain, Southern Transdanubia, and Northern Hungary.

Fig. 13 Share of device trade-in programme value by region (%)

*Source: NFFKÜ device trade-in database*

Contrary to preliminary expectations, **only around a quarter (26%) of all handset trade-ins took place in** **mobile phone** shops, with the rest of the transactions taking place in larger (54%) and smaller electronics shops (20%).

Fig. 14 Device trade-in by sales channel



*Source: NFFKÜ device trade-in database*

**The Q1 2023 data shows that even those who did not take advantage of the subsidised** handset **replacement option have increasingly opted to replace their 3G/2G handsets over the past two years.** Over the last three years (2020-2023)

* the **number of** active **residential 2G devices** decreased **by 460 thousand** (from 1830 thousand to 1370 thousand);
* the **number of** active **residential 3G devices** decreased **by 320 thousand** (from 630 thousand to 309 thousand);
* **3G devices that also carry data traffic have essentially disappeared** (from 275,000 to 10-15,000).

**Overall, the period prior to the phase-out of 3G services saw a significant modernisation of the Hungarian residential handset base, with the NMHH's communications, regulatory and support role making a significant contribution.**

**The smooth phase-out of 3G services, and the related renewal of the devices owned by Hungarians, could play an important role in the more efficient use of spectrum, the deployment of 5G services, the improvement of the choice and quality of mobile internet services, the development of digital competences of the population, and the overall balanced development of the digital ecosystem in Hungary in the coming years.**

**In addition, the NMHH also considers it an important benefit of the support programme that the scheme was implemented in an exemplary communication, strategic and IT cooperation between MNOs, electronic stores and public administration actors, which could be a useful precedent and promising good practice for future programmes supporting digitalisation in Hungary.**

The NMHH is ready to share its broad share its broad experiences with the project regarding the design of a handset subsidy program.

Contact:

Szabolcs Szentléleky LL.D.

Expert on International Affairs



Directorate of International Affairs

Address: 1015 Budapest, Ostrom u. 23-25.

Tel: +36 1 457-7466 • Mobile: +36 30 309-4026

E-mail: [szentleleky.szabolcs@nmhh.hu](mailto:szentleleky.szabolcs@nmhh.hu)

Web: [www.nmhh.hu](http://www.nmhh.hu)

1. A specific data request was necessary to identify the relevant user base as the NMHH's regular mobile market report focused on active SIM cards and not on the network capability (2G/3G/4G/5G) of the handsets. [↑](#footnote-ref-1)
2. Since 2014, the use of online cash registers has been mandatory.On 1 September 2014, 176,000 online cash registers were in operation, and by the end of 2019, the National Tax Administration (NAV) had access to 213,000 cash registers in real time. [↑](#footnote-ref-2)
3. The measurements of the preparatory project estimated an average of 20 MB of data traffic per cash register per month (uplink). [↑](#footnote-ref-3)
4. <https://netrefel.hu/cikk/Hamarosan_erkezik_a_keszulekcseretamogatasi_program> [↑](#footnote-ref-4)
5. On the website, they were given clear instructions on how to check the IMEI number of their own device, but the check could not be carried out on the netrefel.hu website, but on the **website of the organisation responsible for the technical implementation of the programme, the NFFKÜ** ([mobilcsere.nffku.hu](https://mobilcsere.nffku.hu/)), which **was set up for this purpose**, and only if they had **a customer account.** [↑](#footnote-ref-5)
6. <https://netrefel.hu/cikk/Hogyan_valasszunk_tudatosan_okostelefont> [↑](#footnote-ref-6)
7. <https://netrefel.hu/cikk/Mobilcsere_kisokos_szemelyes_adatok_torlese_es_atmentese_az_uj_keszulekre> [↑](#footnote-ref-7)
8. <https://netrefel.hu/upload/4_szamu_melleklet_meghatalmazas_minta_keszulekcsere_ugyintezeshez.pdf> [↑](#footnote-ref-8)
9. <https://mobilcsere.nffku.hu/> [↑](#footnote-ref-9)
10. Tamás Csaba, Telenor: How big a problem is 3G switch-off for M2M/IoT applications? [↑](#footnote-ref-10)
11. The Ministry of Innovation and Technology (ITM) was responsible for electronic communications in the government when the device trade-in support programme was launched. [↑](#footnote-ref-11)
12. <https://digital-skills-jobs.europa.eu/en/organisations/ivsz-ict-association-hungary> [↑](#footnote-ref-12)
13. https://mobilcsere.nffku.hu/gateway/files/MCS\_2021\_palyazati\_kiiras\_es\_utmutato\_es\_mellekletei\_palyazoi.pdf [↑](#footnote-ref-13)
14. Active devices at the start of the programme: from 1 July 2021 to 31 December 2021, and in the second phase (when the programme is extended) from 1 July 2021 to 30 April 2022. [↑](#footnote-ref-14)
15. Voice over LTE internet calls that do not consume mobile internet traffic. Compared to traditional GSM calls, it has the advantage that the connection is established faster, the mobile internet can be used while the call is in progress and consumes less of the phone's battery. [↑](#footnote-ref-15)
16. For example: Nokia 2.2 (30.000 Ft), Xiaomi Redmi Go (25.000 Ft), ZTE A452 (30.000 Ft). [↑](#footnote-ref-16)
17. Ex: Samsung Galaxy A1, A20, J4 and J5 series, Huawei Y5, Y6 [↑](#footnote-ref-17)
18. Ex: Galaxy A3, Huawei P40 Lite, Huawei P40 Lite 5G. [↑](#footnote-ref-18)
19. In the sense of the contract between NMHH and NFFKÜ, this is not a separate (Phase III) but an extension of Phase II. [↑](#footnote-ref-19)
20. Government Decree 197/2014 (VIII. 1.) on waste management activities related to electrical and electronic equipment [↑](#footnote-ref-20)
21. From a data management point of view, the destruction had to operate in a closed system that ensures that any personal data that may remain on the handed-in mobile devices cannot be accessed by anyone. [↑](#footnote-ref-21)
22. Government Decree 197/2014 (VIII. 1.) on waste management activities related to electrical and electronic equipment [↑](#footnote-ref-22)
23. <https://nffku.hu/> [↑](#footnote-ref-23)
24. On 1 August 2020, the NFCPC was awarded the organisational responsibility for the implementation of publicly funded residential energy and consumer protection tenders. In this context, it was responsible for the full management of the applications for support for the sub-programmes of the Warm Home Programme announced by the NFM/ITM, the applications for support for associations representing consumer interests in 2018 and 2019, and all residential energy applications announced in the years before 2015, including the implementation of the EEA-Norway Fund programme, as well as the vouchering and budget accounting tasks. [↑](#footnote-ref-24)
25. Call for proposals for applicants, Call for proposals for traders [↑](#footnote-ref-25)
26. Tpvt. 11. § (1) [↑](#footnote-ref-26)
27. Tpvt. 11. § (2) [↑](#footnote-ref-27)
28. VJ/57/2007 [↑](#footnote-ref-28)
29. VJ/74/2011 [↑](#footnote-ref-29)
30. Tpvt. 17. § [↑](#footnote-ref-30)
31. Art. 20 of the Civil Code. [↑](#footnote-ref-31)
32. Article 107 TFEU [↑](#footnote-ref-32)
33. State aid N 316/2010 - Lithuania Switchover to digital TV broadcasting in Lithuania Brussels, 24.01.2011 C(2011)428 final on the basis of which the Hungarian notification SA.34901 (2012/N) - Hungary Brussels, 06.12.2012 C(2012) 9233 final [↑](#footnote-ref-33)
34. SA.38031 (2013/N) - Hungary Brussels, 04.02.2014 C(2014) 670 final [↑](#footnote-ref-34)
35. Article 107(2)(a) TFEU [↑](#footnote-ref-35)
36. Government Decree 350/2020.(VII. 16.) [↑](#footnote-ref-36)
37. <https://tvi.kormany.hu/home> [↑](#footnote-ref-37)
38. Government Decree No 37/2011 (22.III.) on State aid procedures under EU competition law and the regional aid map [↑](#footnote-ref-38)
39. <https://www.naih.hu/about-the-authority> [↑](#footnote-ref-39)
40. Regulation (EU) 2016/679 of the European Parliament and of the Council on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation, or GDPR) [↑](#footnote-ref-40)
41. Recital 26 and Article 4(1) GDPR. [↑](#footnote-ref-41)
42. Act C of 2003 on electronic communications [↑](#footnote-ref-42)
43. Art. 157 (2) [↑](#footnote-ref-43)
44. Eht. [↑](#footnote-ref-44)
45. *"processing is necessary for the performance of a contract to which the data subject is a party or for taking steps at the request of the data subject prior to entering into a contract"* [↑](#footnote-ref-45)