

HUNGARIAN ROADMAP

towards the implementation of the
Connectivity Toolbox

April 2021

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1. SUMMARY

On 18 September 2020, the Commission adopted a Recommendation¹ (Recommendation) calling on Member States to develop and agree on a common Union Toolbox of best practices to foster connectivity (Connectivity Toolbox) and, in particular, the deployment of VHCN, including fibre and 5G.

On the 26th of March, 2021 the Connectivity Toolbox was published on the European Commission's website.

This report contains the Hungarian Roadmap towards the implementation of the best practices included in the Connectivity Toolbox.

In order to provide an easy-to-use overview, we have divided all of the best practices into three categories, as follows. The first category consists of best practices where implementation is currently not feasible in Hungary due to legal obstacles being in place, or as there are no current market failures identified that are to be addressed by the respective best practices. The second category includes measures that are in line with current Hungarian practices, therefore no change is foreseen within the near future. In the third category we highlight best practices that are considered beneficial for fostering development of VHCN networks therefore we intend to partly or wholly implement them in Hungary.

The following table shows the results of our assessment of the best practices included in the Connectivity Toolbox.

Best practices	I	II	III
Reduction of network deployment costs	-	1, 3, 4, 8,10,12, 16,19, 21	2, 5, 6, 7, 9, 11, 13, 14, 15, 17, 18, 20, 22
Spectrum	-	23, 24, 25, 26, 27, 29, 31, 33, 34, 35, 36, 37, 38, 39	28, 30, 32

As the above table shows the best practices collected by the Member States in the Connectivity Toolbox are all proved to be relevant in Hungary, and a fairly large proportion of them is planned to be implemented in the coming years. Because of the extremely short timeframe that was available for Member States to agree on this Roadmap, prediction of exact timelines is very difficult, but until the forthcoming Implementation Report we will proceed towards making more concrete steps towards implementation.

The Hungarian Roadmap has been prepared by NMHH, the Hungarian national regulatory authority, in cooperation with the Ministry for Innovation and Technology and Lechner Nonprofit Co. Ltd., the operator of the Hungarian e-utility system.

¹ Commission Recommendation (EU) 2020/1307 of 18 September 2020 on a common Union toolbox for reducing the cost of deploying very high-capacity networks and ensuring timely and investment-friendly access to 5G radio spectrum, to foster connectivity in support of economic recovery from the COVID-19 crisis in the Union, OJ L 305, 21.09.2020, p.33.

2. INTRODUCTION

On 18 September 2020, the Commission adopted a Recommendation² (Recommendation) calling on Member States to develop and agree on a common Union Toolbox of best practices to foster connectivity (Connectivity Toolbox) and, in particular, the deployment of VHCN, including fibre and 5G.

On the 26th of March, 2021 the Connectivity Toolbox was published on the European Commission's website.

This report contains the Hungarian Roadmap towards the implementation of the best practices included in the Connectivity Toolbox.

The Connectivity Toolbox stipulates that Member States shall implement a best practice if it is deemed useful with regard to the particular national situation. Therefore, we assessed all the 39 best practices considering their legal conformity with current Hungarian legislation and feasibility under the national circumstances.

In order to provide an easy-to-use overview, we have divided all of the best practices into three categories as follows. The first category consists of best practices where implementation is currently not feasible in Hungary due to legal obstacles being in place, or as there are no current market failures identified that are to be addressed by the respective best practices. The second category includes measures that are in line with current Hungarian practices, therefore no change is foreseen within the near future. In the third category we highlight best practices that are considered beneficial for fostering development of VHCN networks therefore we intend to partly or wholly implement them in Hungary.

In line with the working method within the Special Group, we have divided the best practices into two major areas, namely best practices regarding cost reduction of network deployment and best practices regarding access to 5G radio spectrum.

² Commission Recommendation (EU) 2020/1307 of 18 September 2020 on a common Union toolbox for reducing the cost of deploying very high-capacity networks and ensuring timely and investment-friendly access to 5G radio spectrum, to foster connectivity in support of economic recovery from the COVID-19 crisis in the Union, OJ L 305, 21.09.2020, p.33.

3. BEST PRACTICES REGARDING THE REDUCTION OF NETWORK DEPLOYMENT COSTS

I. Implementation is currently not feasible in Hungary due to legal obstacles being in place, or as there are no market failures identified that are to be addressed by the respective best practices	
-	-

II. Measures that are in line with current Hungarian practices, therefore no change is foreseen within the near future	
BP 1.	Introduce permit exemptions and fast track procedures and promote the application of existing lighter permit granting procedures
Reasoning	<p>The National Media and Infocommunications Authority (NMHH) is responsible for the authorization and supervision of electronic communications infrastructure deployment in Hungary.</p> <p>Legal provisions regarding construction, development and deployment of digital infrastructure have substantially changed as, in line with EECC, a new regulation in the form of a NMHH Decree³ entered into force in December 2020. There is no foreseen amendment likely to take place in this area in the near future.</p> <p>The issued Decree introduced a swifter authorization regime, putting emphasis on application of simplified procedures, i.e. regarding utilisation and modernization of existing infrastructure elements.</p> <p>Preconditions to be met for allowing application for simplified procedures include:</p> <ul style="list-style-type: none"> • No missing or supplementary documentation • No need to involve other competent cooperating authorities in the process. • There are activities that require neither permits nor notification, such as installing a new subscriber line on a public ground that is shorter than 100 m.
BP 3.	Provide informative materials and workshops for municipalities and other competent authorities
Reasoning	<p>Before municipalities adopt their own structural plans, zoning maps and local building and townscape codes, or decide on a project relating to electronic communications infrastructure deployment, they are required to request expert opinion of NMHH concerning new provisions.</p> <p>Furthermore, NMHH provides municipalities with up-to-date information for instance, regarding</p> <ul style="list-style-type: none"> • new regulations, • new nation-wide electronic communications infrastructure deployment projects,

³ 20/2020. (XII. 18.) NMHH Decree on the installation of electronic communications structures and the authority's proceedings related to electronic communications structures

	<ul style="list-style-type: none"> • the technical background of how network planners choose a certain location for a network element • the potential health effects of the deployment • the possibility that NMHH does EMF measurement if required. <p>The above information are currently handed over directly to the municipalities, but in order to reach a wider audience, in the near future NMHH might publish these materials on its website.</p> <p>NMHH has also organised workshops in order to inform municipalities and network planners about new regulations in place.</p>
BP 4.	Ensure the use of electronic means for permit applications
Reasoning	Permit applications, plans and other documentation have to be submitted electronically, via NMHH's dedicated data gateway (Adatkapu). NMHH's decision is also notified to the applicants via electronic means.
BP 8.	Establish broadband coordinators
Reasoning	<p>We agree that the establishment of a broadband coordinator might accelerate broadband deployment procedures, especially in Member States where permit granting is at the municipal level.</p> <p>On a case-by-case basis, regarding certain broadband deployment projects, i.e. at projects that are designated as investments of 'special importance to the national economy', the Hungarian government has also appointed a special government commissioner to coordinate a project.</p> <p>However, since in Hungary, the National Media and Infocommunications Authority (NMHH) is responsible for the authorization and supervision of electronic communications infrastructure deployment on a national level, at this point we currently do not see the necessity of establishing additional broadband coordinators.</p>
BP 10.	Legal requirements with regard to the appropriateness of fees
Reasoning	In accordance with the provisions of the European Electronic Communications Code, these principles are transposed into Hungarian law, and form the basis of the fees charged for the granting of civil works that are needed to deploy very high capacity networks.
BP 12.	Ensure the availability of information via the single information point (SIP) in electronic format
Reasoning	<p>In Hungary, the SIP is Lechner Nonprofit Co. Ltd., as the operator of the e-Utility System.</p> <p>It is a legal requirement for planners, designers and architects to conduct consultation with public utility companies related to permitting procedure necessary for building and construction works during the elaboration of building and construction plans and designs. In the course of the consultation, public utility service providers furnish information on the location and positions of their public networks, which has to be considered during the elaboration of building and construction plans and designs.</p>

	<p>Furthermore, public utility companies may also make comments and formulate specific instructions related to planned building and construction works.</p> <p>The substance of e-utility is in driving the above-mentioned procedure towards an electronic way, related to decreasing administrative burdens as well as bureaucracy limiting business activities and administration of citizen requests.</p>
BP 16.	Ensure access to physical infrastructure controlled by public bodies
Reasoning	<p>In Hungary, legal provisions regarding construction, development and deployment of digital infrastructure has substantially changed as, in line with EECC, a new regulation in the form of a NMHH Decree⁴ entered into force in December 2020. There is no foreseen amendment likely to take place in this area in the near future.</p> <p>The Decree contains provisions that facilitate access to physical infrastructure capable of hosting very high capacity network elements.</p> <p>According to the Decree, the owners of street furniture or advertising equipment (including owners of advertising devices displaying an information sign), and the owner of the advertising columns should cooperate with each other at the request of the electronic communications service provider in order to set up a small area wireless access point.</p> <p>If a party obliged to cooperate rejects the offer or the agreement is not reached within 45 days of receipt of the offer, NMHH may, upon request, establish the right of use by decision, to the extent necessary in the public interest for the construction of the small-area wireless access point.</p> <p>The regulation specifies further details of the cooperation and the cases when the offer of the electronic communications service provider may be rejected.</p> <p>Notably, the cooperation may be rejected if the installation endangers human life and health, in particular, if the EMF emission of a small-area wireless access point exceeds the health limit laid down in the ministerial decree regulating the health limits for electric, magnetic and electromagnetic fields in the 0 Hz-300 GHz frequency range.</p>
BP 19.	Include an optional prior/parallel conciliation mechanism
Reasoning	<p>In Hungary, if there is a dispute between operators, the formal dispute settlement procedure begins with the clarification of the situation, asking for missing information. Then, in the possession of all the documents to understand the problem clearly, at the first oral hearing, the parties get a couple of days to come to an amicable agreement. If it is not possible, the dispute resolution procedure continues and NMHH, the dispute settlement body, is making a final binding decision.</p>
BP 21	Ensure electronic communication and submission for parties
Reasoning	<p>E-administration is fully operational at NMHH, the Hungarian dispute settlement body. All requests for dispute resolutions are submitted via a dedicated gateway (Adatkapu), and communication with parties takes place via emails.</p>

⁴ 20/2020. (XII. 18.) NMHH Decree on the installation of electronic communications structures and the authority's proceedings related to electronic communications structures

III. Best practices that are considered beneficial for fostering development of VHCN networks therefore we intend to partly or wholly implement them in Hungary.

BP 2.	Provide model regulations on electronic communications network deployment
Assessment	<p>Before local governments and municipalities adopt their own structural plans, zoning maps and local building and townscape codes, or decide on a project relating to electronic communications infrastructure deployment, they are obliged to seek in-advance expert opinion from NMHH.</p> <p>However, NMHH's expert opinion is not binding, local governments and municipalities only have to take utmost account of it.</p> <p>In order to facilitate infrastructure deployment, especially concerning 5G developments, NMHH has been asked to work on recommendations and model regulations concerning the electronic communications aspects of these local building and townscape codes.</p>
Timing	NMHH's opinion will be taken into account when the relevant Governmental Decree will be modified, but the amendment of the relevant legal measures is in such an early phase that it is hard to set a specific deadline for this project.
Stakeholders	NMHH, local governments, municipalities, relevant ministries
BP 6., BP 7.	Tacit approval for rights of way, Fast track procedures for rights of way
Assessment	<p>According to Section 94 of Act C of 2003 on Electronic Communications, tacit approval for rights of way may be possible in some special cases (if public infrastructure is involved). Subsection (4a) stipulates that "The owner (user or manager) of public land is obliged to tolerate the deployment of electronic communications infrastructure; the land owner's consent should be considered granted." If the commencement of civil works requires explicit consent from the owner (user or manager) of public land, it should be granted within 30 days (otherwise, "consent shall be considered granted as requested"). We would note, however, that the conclusion of (a separate) administrative procedure concerning civil works would still require an explicit decision.</p> <p>According to Subsection (4c) of Section 94, where the deployment of electronic communications infrastructure involves the area of railway tracks, river or channel, the fiduciary or owner shall enter into an agreement within 45 days of receiving a reasonable request. If it fails to respond within this deadline for reasons within its control, it is obliged to tolerate the deployment.</p> <p>The amendment of Section 94 and of the relevant NMHH Decree is currently under progress in order to further facilitate VHCN infrastructure deployment.</p>
Timing	NMHH's opinion will be taken into account when the relevant Act will be modified, but the amendment is in an early phase and therefore it is hard to set a concrete preliminary deadline.

Stakeholders	Relevant ministries, NMHH
BP 9.	Use of joint preparatory coordination procedures for granting rights of way and permits necessary for civil works
Assessment	<p>Currently there is no such joint procedure in Hungary, but it would indeed accelerate VHCN deployments.</p> <p>Since it requires change of the relevant laws and decrees, it will be considered at the next amendment of the relevant measures.</p>
Timing	Has not been defined yet.
Stakeholders	Relevant ministries, NMHH
BP 5, 11, 13, 14, 15	BP 5. Digital administrative portal/Single Information Point (SIP) coordination. BP 11. Ensure the availability of information from different sources and enhance transparency of planned civil works. BP 13. Include georeferenced information (maps and digital models) in the data made available via the SIP. BP 14. Make available indicative information on the occupation level of the infrastructure and/or the existence of dark fibre. BP 15. Ensure the provision via the single information point (SIP) of transparent information regarding the conditions of access to the existing physical infrastructure
Assessment	<p>In Hungary, the designated SIP is responsible for the operation of the e-utility system, while granting of civil works permits lies with the National Media- and Infocommunications Authority.</p> <p>SIP's e-utility data is stored through a web-based geospatial information service. This can serve data requests of the e-utility system real time through online data links. Using these services, public utility networks are shown on a map interface of the e-utility, which is based on Open Street Map, and incorporates basemap layers from the land registry and the National Orthophoto Database as well. Relevant and competent public utilities in a specific geographical area can thus be identified. The system is able to make public utility network vector data with attributes within planning softwares downloadable for planners and architects. Information on the electronic communication networks is provided by NMHH.</p> <p>NMHH has been also developing its own geospatial information system, called the "Hír-Közmű" registry. Once operational, it will provide a broad-based support to NMHH's work (authorization of electronic communications deployments, building supervision, market analysis, etc.). However, Hír-Közmű will not only assist the authority, but will also provide useful information to all electronic communications operators, including the location and data of individual networks.</p> <p>It will provide information on the place and ownership of actual and planned electronic communications networks. The registry will also provide information on the occupation level of the given network element (including dark fiber).</p> <p>NMHH is also developing an AutoCAD MAP 3D based network planning programme, called ESZTER. It will be freely downloadable from NMHH's website, supporting smaller network operators's network planners with digitising and making georeferenced all relevant network information.</p>

	Once up and running, Hír-Közmű will provide the basic information on the position of the electronic communications network elements to the e-utility system operated by the SIP.
Timing	According to the 21/2020. (XII. 18.) NMHH Decree electronic communications network providers are required to feed their network information into the new registry gradually, by the end of 2026 the latest. A potential refund of maximum half of the annual NMHH supervision fees incentivises the speediness of the information provision. Therefore, the registry is going to be fully operational by the end of 2026 the latest.
Stakeholders	Network operators providing data into the new registry
BP 17	Entrust a body with a coordinator and/or promoter role
Assessment	We agree that the establishment of a competent body to ensure the coordination of the processing of access requests to publicly owned or controlled infrastructure might considerably accelerate broadband deployment. Especially in case of 5G deployment, where a very large number of network elements are to be deployed throughout the country. This decision however, requires considerable coordination within the government, therefore while we generally support the initiative, within such a short timeframe it is not possible to provide a definite decision on its implementation.
Timing	Has not been defined yet.
Stakeholders	Relevant ministries, public bodies, NMHH
BP 18.	Development of guidelines for all governance levels
Assessment	We agree that developing guidelines – including on pricing methodologies, standard agreement model(s), offer(s) based on fair and reasonable terms and conditions and/or other relevant documentation - as options to facilitate access and usage of physical infrastructure (including buildings and street furniture) and property owned or controlled by public bodies for the purpose of hosting network elements might be very useful. This decision, however, requires considerable coordination within the government, therefore while we generally support the initiative, within such a short timeframe it is not possible to provide a definite decision on its implementation.
Timing	Has not been defined yet.
Stakeholders	Relevant ministries, public bodies, NMHH
BP 20.	Ensure transparency, awareness and trust in the dispute resolution mechanism by issuing guidelines
Assessment	NMHH has already held a workshop for stakeholders to familiarise with the new provisions of the BCRD. However, in the first couple of years NMHH did not experience a considerable take up of the possibility enabled by the new rules.

	<p>Our understanding is that there is still a considerable lack of knowledge regarding the dispute resolution mechanism among smaller operators. Therefore, a detailed guideline is planned for the stakeholders to inform them i.e. on the minimum information necessary to submit a request for dispute resolution, on the timelines of the procedure, on the possible outcomes, etc.</p> <p>NMHH is planning to publish all the relevant information on its website, in an easily accessible format.</p> <p>NMHH is also planning to organise a second workshop on this topic, trying to reach potential clients and inform them on the possible benefits of dispute resolution.</p>
Timing	NMHH workshop and guideline is expected to be completed within a year.
Stakeholders	NMHH
BP 22.	Limit the negative environmental footprint of the electronic communications networks
Assessment	<p>Currently there is no specific government activity to reduce the environmental footprint of electronic communications networks or forthcoming amendment of the legal background. However, major network operators such as Magyar Telekom Group, Vodafone Hungary and Telenor Hungary have their own environmental policies, and follow international standards in order to provide environmentally more neutral operations. These operators also monitor their activities and regularly issue sustainability reports. Vodafone launched its green turn in order to operate its European network from the July of 2021 with renewable energy while Magyar Telekom started to provide Green mobile data package. Magyar Telekom operates a solar cell system that can generate green energy for the transport of 450000GB/year and the surplus of the fee of Green data serves the expansion of the solar system.</p> <p>Hungary is strongly committed to the principle of environmental sustainability. We are looking to do more for environmental sustainability in cooperation with our stakeholders, by providing a platform for discussion and sharing of “green” best practices for network operators. We will also conduct an inquiry into regulatory best practices and ways to incentivize “green” solutions for investments in network infrastructure, including shared use or co-investments.</p>
Timing	Has not been defined yet.
Stakeholders	Ministry for Innovation and Technology, operators, NMHH

4. BEST PRACTICES REGARDING THE TIMELY ACCESS TO 5G RADIO SPECTRUM

I. Implementation is currently not feasible in Hungary due to legal obstacles being in place, or as there are no market failures identified that are to be addressed by the respective best practices	
-	-

II. Measures that are in line with current Hungarian practices, therefore no change is foreseen within the near future	
BP 23.	Assessment of environmental effects
Reasoning	<p>Act LIII of 1995 on the General Rules of Environmental Protection contains regulations that may be approximated with the 2001/42/EC, 2011/92/EU and 92/43/EEC.</p> <p>In the cases specified in the regulations, the condition for issuing an environmental permit is the performance of an environmental impact assessment.</p> <p>Authorization of right of use of radio spectrum and environmental authorization are two separate procedures, and the responsibility of different authorities. The two procedures are not interdependent.</p>
BP 24.	Promote adequate reserve prices
Reasoning	<p>The Hungarian Electronic Communications Act (Act C of 2003) stipulates general rules for the regulation of radio spectrum fees: radio spectrum fees should be set in a way that reflects the need to ensure the optimal use of resources. Fees shall be set in such a way that they are objectively justified, transparent and non-discriminatory, proportionate to the objective pursued and serve the objectives of radio spectrum management. The amendment of the NMHH Decree on rules of award procedures (implementing the EECC) in addition to the criteria laid down in Electronic Communications Act provides that NMHH shall take into account the usability of awarded spectrum as well as the possibility of alternative use when determining the reserve price.</p> <p>In order to establish any award procedures, a study substantiating the fees is prepared in each case, as this is the way in which NMHH can meet the requirement of objectivity. Defining the applied methodology is the first step, as it can be different for each frequency band at different times, adapted to the possibilities of use. NMHH examines all fee elements connected to spectrum awarding and usage, (one-time fee, including minimum fee, fee payment rules, annual frequency fee, possible fee discounts) separately and as a whole periodically in the context of bands for the same purpose and for each frequency band, based on international experience.</p>
BP 25.	Timely availability of 5G harmonised bands
Reasoning	<p>In Hungary, the National Media and Infocommunications Authority (NMHH) is responsible for regulation of allocation and usage of frequency bands.. All three 5G pioneer bands have been made available by the NMHH Decree.</p>

	<p>To support the introduction of 5G, NMHH conducted a successful auction process on 700 MHz, 3400-3800 MHz and 2100 MHz frequency bands and the results of these were announced in March 2020. With one exception, the winners have already launched their 5G commercial services in the 700 MHz and the 3400-3800 MHz frequency bands.</p> <p>The 26 GHz is the only pioneer band where MFCN utilisation is just in planned status. NMHH held two public consultations where no market demand for the 26 GHz band was indicated. Most recently, we have consulted with market players during the finalization of the NMHH radio spectrum strategy: protecting existing fixed service usage in the 26 GHz band is even more important for network operators. The NMHH Radiospectrum Strategy 2021-2025 contains ideas for the 26 GHz band.</p> <p>Preparations must be started in due course and relevant tasks must be executed to enable the use of the 24.25-27.5 GHz frequency band for mobile (5G) purposes. Provision must be made for the use of the 32 GHz frequency band for fixed point-to-point and point-to-multipoint applications, and the necessary regulatory steps must be taken to migrate the 26 GHz band applications to the 32 GHz band in order to release the 26 GHz band for MFCN purposes.</p>
BP 26.	Review National Spectrum Plans on a regular basis
Reasoning	<p>In accordance with the international legal obligations, NMHH shall, within the framework of national frequency allocation, lay down in a regulation the rules for civil, non-civil and common use of frequency bands, and shall ensure that these rules are reviewed, if necessary, but at least every three years by the Electronic Communication Act (Act C of 2003). The actual regulation is available in English on the following link: https://stir.nmhh.hu/publicview/ . The web based STIR system displays the Decree No. 7/2015 (XI. 13.) NMHH on the national frequency allocation and the rules of using frequency bands and ensures its handling via electronic means.</p> <p>NMHH has been developing and making available its radio spectrum strategy (RSS) since 2012. The last two RSS spans 5-5 years. The planned award schedule is part of the RSS. https://english.nmhh.hu/tart/index/148/Spectrum_Strategies</p>
BP 27.	Enable payments of award fees in instalments
Reasoning	<p>Based on the Hungarian regulations⁵, NMHH has the right to consider within the framework of the given award procedure whether it allows installment payment or not and what conditions it imposes. The conditions of payment must be part of the award documentation.</p> <p>The last radiospectrum auction was the “Auction procedure for the entitlements of frequency use of the 900 MHz and 1800 MHz frequency bands”. (Documentation is available on the following link: https://english.nmhh.hu/article/214650/Documents_of_the_auction_procedure_for_the_entitlements_of_frequency_use_of_the_900_MHz_and_1800_MHz_frequency_bands .) The winners were given a period of slightly more than 1 year after</p>

⁵ Decree 4/2011 (X. 6.) NMHH – on the rules of auctioning and tendering procedure for the obtaining the entitlement of frequency use

	the procedure to pay the full auction fee. The total auction fee shall be paid until 6 April 2022. Economic forecasts and market conditions were also taken into account when setting the deadline.
BP 29.	Combine coverage obligations with financial incentives
Reasoning	<p>Based on the Hungarian regulations⁶, NMHH has the right to consider within the framework of the given award procedure what obligation it establishes in connection with the deployment of the network and/or coverage of the network. The rules should be included in the award Documentation. The payment conditions must also be part of the award Documentation. Any kind of combination of the obligation elements is possible if it is in line with the regulation and aims of the given award procedure.</p> <p>In case of previous sales procedures, this is already a used practice in Hungary. The latest example is the auction procedure announced for frequency use entitlements related to wireless broadband services specially supporting the introduction of 5G NMHH used incentives to achieve 5G coverage goals. 50 % fee discounts are available for 10 years to parties who</p> <p style="padding-left: 40px;">a) obtained frequency use rights in this auction procedure in the 700 MHz or the 3600 MHz frequency band, and/or</p> <p style="padding-left: 40px;">b) already hold frequency use rights for the 3600 MHz frequency band before the start of the auction procedure.</p> <p>All of the winners requested a fee discount with conditions according to section 6.3.1 and Annex 2 Item 1 of the Auction Documentation.</p> <p>The obligation: to implement a total of 10 or more network development cases selected from 4 or more groups of network development cases divided into 5 groups in Table 1 of Annex 2 of the Documentation, and to ensure broadband wireless coverage with metrics set down in Annex 2 of the Documentation, within the deadlines specified for each case.</p> <p>The five categories are the following (with examples)</p> <ul style="list-style-type: none"> • Rail and other non-road traffic (rail, waterways, bikeways) by October 2025 • Road traffic (highways, 1/10 number roads) by December 2025 • Population coverage of settlements (From District of Budapest to villages, innovation centres, etc.) by December 2023 • Tourism (Tokaj, Balaton, Sopron-Fertő, World Heritage areas of Hungary, etc.) by July 2025 • Verticals (energy, healthcare, industrial parks, projects under the Modern Cities Program, universities, agricultural projects, etc.) by July 2023
BP 31.	Structure of recurrent spectrum fees to incentivise roll-out
Reasoning	In case of auctioning and tendering, block management is generally possible according to the Hungarian regulation ⁷ . Block management means the management

⁶ Decree 4/2011 (X. 6.) NMHH – on the rules of auctioning and tendering procedure for the obtaining the entitlement of frequency use

⁷ The regulation of the frequency bands for which awarding procedure is applied and for which block management is possible can be found in the same legislative act, Decree No. 7/2015 (XI. 13.) NMHH on the national frequency allocation and the rules of using frequency bands

	with frequencies of a frequency block under conditions of radio spectrum use as set forth in legal rules and the individual licence (in this case: framework licence). Block management includes the planning, deployment and operation of radio equipment and radio systems taking into account other applications operating in the band containing the frequency block according to the 7/2015 (XI. 13.) NMHH decree. In case of block management the number of radio equipment does not influence the level of the radio spectrum fee, only the amount of the spectrum covered by the individual usage right. The fee is based on the amount of the spectrum expressed in kHz found in the licence.
BP 33.	Use coherent practice for granting rights of use for radio spectrum based on the European Electronic Communications Code
Reasoning	Determining the type of authorisation is a national competence, but Hungary has so far applied the methodology set out in the related recommendations in all cases.
BP 34.	Facilitate interoperability through the development and application of standards
Reasoning	Interoperability standards are covered by the provisions of Article 39 of the European Electronic Communications Code. NMHH contributes to the standardization tasks of electronic communications in cooperation with standardization stakeholders in accordance with the legal regulations. NMHH also ensures that via an effective and efficient radio spectrum management any type of internationally available technology can be used within the legal framework.
BP 35.	Make use of harmonised technical conditions developed by the European Conference of Postal and Telecommunications Administrations (CEPT)/ Electronic Communications Committee (ECC), if common dedicated frequency ranges are deemed necessary
Reasoning	One of the key strategic objectives of NMHH Radiospectrum Strategy, is the promotion of the harmonization of the use of radio spectrum by electronic communication networks and services, which needs to be supported during the drafting of Hungarian legislation.
BP 36.	When identifying the appropriate authorisation regime Member States should pay particular attention to any specificities resulting from a cross-border dimension
Reasoning	One of the aims of the Act C of 2003 on electronic communication is the promoting the effective and efficient use of radio spectrum relying on state of the art technologies and solutions, free of harmful interference that governs the performance of official duties. Spectrum use free from harmful interference must be ensured. The possibility of interference-free use should also be assured through international coordination in line with the NMHH Radio Spectrum Strategy 2021-2025. As a result of the implementation of the EECC, a new section has been added to the Act C of 2003 on electronic communication, entitled Radio Spectrum Coordination. In the coordination of the use of radio spectrum, NMHH shall cooperate with the Member States concerned and the RSPG. NMHH shall make every effort to cooperate with neighbouring Member States to ensure that the use of harmonized radio spectrum is in accordance with Union law and is allowed in those neighbouring Member States.

BP 37.	Promote continuous scientific research on electromagnetic field (EMF) emissions carried out by credible and independent institutions
Reasoning	<p>The Hungarian Academy of Sciences has set up an ad hoc 5G Working Committee to form an opinion on the health effects of 5G mobile technology. The summary of the opinion was issued in March, 2021 The resulting document can be downloaded from the following link: https://mta.hu/data/dokumentumok/english/2021/5G_final_EN.pdf</p> <p>The Hungarian government is planning to foster further scientific research on EMF, relying on the expertise of the National Research Institute for Radiobiology and Radiohygiene and Hungarian universities. The financing scheme is currently under consideration.</p>
BP 38.	Coordinated and targeted communication for informing and educating on 5G implementation
Reasoning	<p>In 19 June, 2017 a platform for strategic and professional cooperation regarding 5G deployment was established, called the 5G Coalition (5GC), aiming for enabling Hungary to become one of the hubs of 5G developments in Europe. The 5G Coalition now includes 86 member organisations, with representatives from industry, academia and the government.</p> <p>One of 5GC's goals is to communicate clearly on 5G development in Hungary, to outweigh the spread of disinformation in this area. 5GC created an information portal, where simple, easy to understand, but unbiased and up-to-date information is available on 5G deployments, health effects, etc. It can be found on the following link: https://5g.hu/en/5g-coalition .)</p>
BP 39.	Inform the public on the compliance of Radio Base Stations installations with applicable EMF safe limits
Reasoning	<p>NMHH Radio Spectrum Strategy 2021-2025 stipulates that “From the point of view of the communication of the Authority, it is important to continuously inform the population and those involved in spectrum management, to organize personal meetings, forums and conferences, and to provide their appropriate funding. It is also necessary to ensure the continuous further development of the extensive access surfaces of the registers, data and knowledge that facilitate information. Communication campaigns are mainly used in priority areas, such as information on the phase-out of 3G mobile systems, information on mobile network technologies (e.g. 5G systems, use of 26 GHz) and other health effects (e.g. electrosmog). These campaigns also require the use of significant supporting tools.“</p> <p>NMHH continuously measures electromagnetic radiation also known as electrosmog and anyone can ask for a targeted electrosmog measurement in his/her own home using the following website: http://nmhh.hu/tart/index/358/Elektroszmog .</p> <p>Electromagnetic radiation is monitored via 38 fixed monitoring stations and 20 portable probes that can be installed even in residential buildings and apartments. Over the past seven years, NMHH's technicians have completed over 2800 measurements near residential buildings, schools and telecommunication towers. None of the measurements returned data above the health effects emission limit value and resulted in further regulatory action.</p>

	NMHH has also prepared a short video available here .
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III. Best practices that are considered beneficial for fostering development of VHCN networks therefore we intend to partly or wholly implement them in Hungary.	
BP 28.	Individual authorisation regime for the 24.25-27.5 GHz frequency band
Assessment	<p>There is not yet a decision on the authorization method of the 24,25-27,5 GHz frequency band.</p> <p>NMHH held public hearings twice to assess market needs, including the 26 GHz band concerned. The first public hearing was in 2017. The second public hearing was held on 13 December 2019.</p> <p>For the time being the 24.5-26.5 GHz band is used for fixed service systems (mainly point-to-point microwave links) mostly by mobile network operators. Only one licence holder is other than an MNO. The users asked for the possibility not to change the right of use before the expiry date and a replacement band should be designated for microwave systems as a first step and only after that the refarming will be feasible.</p> <p>Neither of the stakeholders showed interest for the MFCN use in the 26 GHz band at the time of the public hearings. According to their views, such needs might raise in the near future.</p> <p>At the first step NMHH should open an alternative frequency band for the fixed service usage. For this purpose, the 32 GHz band (31.8-33.4 GHz) has been identified by NMHH.</p> <p>The NMHH Radiospectrum Strategy 2021-2025 addresses the utilization of both bands. Within the framework of the utilization concept, the authorisation method is identified by the authority taking into account the needs of market players.</p>
Timing	2022
Stakeholders	NMHH, market players (e.g. 26 GHz licence holders, vendors, verticals)
BP 30.	Promote the opportunity of infrastructure sharing
Assessment	<p>Shared or collective spectrum use is also an area studied by NMHH. It is already covered in several places by the NMHH Radiospectrum Strategy 2021-2025 (RSS) published in December 2020 https://english.nmhh.hu/document/219290/nmhh_radio_spektrum_strategy_2021_2025.pdf. Based on the RSS, NMHH is planning to produce a document on the practical application of the principles governing the approval of transactions in the field of secondary spectrum trading (in particular joint and shared spectrum agreements), taking into account international practices.</p> <p>NMHH has started analyzing the situation with a focus on reviewing the cases of cooperation made possible by 5G.</p> <p>As part of the implementation of the Code, NMHH will introduce a system of simplified approval in connection with lease agreements.</p>
Timing	2021
Stakeholders	NMHH

BP 32.	Use financial aid as a complement to incentivise investments
Assessment	The Hungarian Government has announced broadband infrastructure development programs in line with EU programs. NMHH examines the possibility of applying incentives in all cases. However, NMHH is of the opinion that a new state aid program might slow down the already lengthy award process. Of course, based on the Recommendation, NMHH will examine the feasibility of 'Use financial aid' before the next award procedures, so that it does not jeopardize timely availability of harmonised bands.
Timing	Has not been defined yet.
Stakeholders	Ministry for Innovation and Technology and/or NMHH