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— **ROADMAP FOR THE IMPLEMENTATION**

**OF THE**

**TOOLBOX FOR CONNECTIVITY**

**IN THE REPUBLIC OF SLOVENIA**

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# 1. INTRODUCTION

On 18 September 2020, the European Commission adopted recommendations on a common European Union tool to reduce the cost of deploying high-capacity networks and providing timely and investment-friendly access to 5G radio spectrum to promote connectivity in support of the European Union's economic recovery after the COVID-19 crisis.

This Recommendation provides guidelines for the development of best practices, called the "toolkit", to promote connectivity in support of economic recovery after the COVID-19 crisis, focusing on three areas, in particular:

- reducing costs and increasing the pace of deployment of electronic communications networks , in particular very high capacity networks, by streamlining licensing procedures for construction works, improving transparency and strengthening the capacity of the single information points set up by reducing broadband costs. measures to help reduce the environmental impact of electronic communications networks;
- provide, where appropriate, investment in access to 5G radio spectrum, where appropriate incentives for the use of spectrum, as well as timely spectrum allocation procedures for pioneering 5G bands;
- establish a stronger coordination process for spectrum allocation, which also facilitates the cross-border provision of innovative 5G services.

On 26 March 2021, European Commission published the Connectivity Toolbox on its website<sup>1</sup>.

In Republic of Slovenia (hereinafter: SI), we are convinced that the adopted Connectivity Tools will be of the greatest possible benefit to us in enforcing the set goals within the framework of the adopted national strategies in the field of digitalization.

**This document contains Roadmap for the implementation of Connectivity Toolbox from SI.**

In order to provide an easy-to-use overview, we have put all of the best practices into the roadmap and assessed them regardless of their implementation status. The document discusses best practices separately in separate tables by individual subsections.

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 the timely access to 5G radio spectrum.

Regarding initial assessment of usefulness of the best practices, we decided to categorize it at this stage with three levels (**High, Medium, Low**).

The following tables show the results of our assessment of the best practices included in the Connectivity Toolbox.

## 2. COST REDUCTION OF NETWORK DEPLOYMENT

**Reducing the cost and increasing the speed of deploying Very High Capacity Networks (VHCN)**

**STREAMLINING PERMIT GRANTING PROCEDURES**

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<sup>1</sup> [https://ec.europa.eu/commission/presscorner/detail/en/mex\\_21\\_1466](https://ec.europa.eu/commission/presscorner/detail/en/mex_21_1466)

<b>BEST PRACTICES 1</b>	<b>INTRODUCE PERMIT EXEMPTIONS AND FAST TRACK PROCEDURES AND PROMOTE THE APPLICATION OF EXISTING LIGHTER PERMIT GRANTING PROCEDURES</b>
<b>REFLECTION</b>	SI is well aware of the impact of building procedures on the speed of network deployment and supports the practices suggested in this chapter. Furthermore, the legislative solution in SI is already implemented.
<b>INDICATIVE TIMING</b>	SI believes that is already fulfilling the recommendations and suggested best practices in this chapter.
<b>INITIAL ASSESSMENT OF USEFULNESS</b>	Low
<b>STAKEHOLDERS</b>	Ministry of the Environment and Spatial Planning, Ministry of Public Administration, Municipalities or Public Communities, Agency for Communications Networks and Services of the Republic of Slovenia (hereinafter: NRA)

<b>BEST PRACTICES 2</b>	<b>PROVIDE MODEL REGULATIONS ON ELECTRONIC COMMUNICATIONS NETWORK DEPLOYMENT</b>
<b>REFLECTION</b>	SI is well aware of the impact of building procedures on the speed of network deployment and supports the practices suggested in this chapter. Furthermore, the legislative solution in SI is already implemented. A building permit is not required for building and deploying the majority of telecommunications facilities in SI.
<b>INDICATIVE TIMING</b>	<b>SI believes that is already fulfilling the recommendations and suggested best practices in this chapter.</b>
<b>INITIAL ASSESSMENT OF USEFULNESS</b>	Low
<b>STAKEHOLDERS</b>	Ministry of the Environment and Spatial Planning, Ministry of Public Administration, Municipalities or Public Communities, NRA

<b>BEST PRACTICES 3</b>	<b>PROVIDE INFORMATIVE MATERIALS AND WORKSHOPS FOR MUNICIPALITIES AND OTHER COMPETENT AUTHORITIES</b>
<b>REFLECTION</b>	As explained above, a building permit is not required for building and deploying the majority of telecommunications facilities in SI. On top of that, SI has been conducting for the past 7 years systematic field workshops for local / regional communities, in which it describes and promotes ways to speed up and simplify the implementation of the construction of telecommunications networks. The workshops include legislation explanations and various informative materials in the field.
<b>INDICATIVE TIMING</b>	<b>SI believes that is already fulfilling and improving the recommendations and suggested best practices in this chapter.</b>
<b>INITIAL ASSESSMENT OF USEFULNESS</b>	Low
<b>STAKEHOLDERS</b>	Ministry of the Environment and Spatial Planning, Ministry of Public Administration, Public sector bodies, Municipalities or Public Communities, NRA

<b>BEST PRACTICES 4</b>	<b>ENSURE THE USE OF ELECTRONIC MEANS FOR PERMIT APPLICATIONS</b>
<b>REFLECTION</b>	As explained above, a building permit is not required for building and deploying the majority of telecommunications facilities in SI. Concerning other building permits, SI is already in the process of preparing and implementing a system that will enable applications, filing, conducting, and issuing building permits completely through electronic means. ("e-Building"). With its implementation, the named best practise will be fully implemented beyond the recommendation.
<b>INDICATIVE TIMING</b>	According to our current information, the deadline for implementing the described system (ensuring the possibility for all license applications to be submitted electronically and for the relevant decisions (approval / rejection) by the competent authorities to be communicated to electronic communications operators electronically) <b>is 1. 1. 2022.</b>
<b>INITIAL ASSESSMENT OF USEFULNESS</b>	Medium
<b>STAKEHOLDERS</b>	Ministry of the Environment and Spatial Planning, Ministry of Public Administration, Public sector bodies, Municipalities or Public Communities, NRA

<b>BEST PRACTICES 5</b>	<b>DIGITAL ADMINISTRATIVE PORTAL/SINGLE INFORMATION POINT (SIP) COORDINATION</b>
<b>REFLECTION</b>	The Single Information Point in SI is assigned and divided between three competent authorities: <ul style="list-style-type: none"> <li>– Article 4 (Physical Infrastructure Transparency): Surveying and Mapping Authority. There is already an established <u>consolidated cadastre of public infrastructure</u>, which also includes the detailed data about electronic communication infrastructure such as ducts, cables, lines and their capacity and availability. All the mentioned data is publicly and electronically available. <b>Already implemented.</b></li> <li>– Article 6, Par. 1 (Transparency in relation to planned works): AKOS (NRA). NRA is already running 2 portals: a) <u>Infrastructure Investments portal</u>: enables the investors in public infrastructure to notify their plans for construction of infra-structure online and also allows the interested co-investors to announce their interest of joint construction. The information of active notifications on the portal is fully electronically accessible to the public. And b) <u>Geoportal</u>: an open source mapping system, with digital representation of the physical infra-structure and other ECN related data. Geoportal allows public access to utility and telecommunication infrastructure data (location, type, availability, capacity) and network termination point. <b>Already implemented.</b></li> <li>– Article 7 (Permit-granting procedure): Ministry of Public Administration Ministry of Public Administration acts as the Broadband Competence Office (BCO) and SIP regarding permit-granting procedure. As described in the previous best practices, SI is already in the process of preparing and implementing a system that will enable applications, filing, conducting and issuing building permits completely through electronic means. ("e-Building"), <b>by 1. 1. 2022.</b></li> </ul>
<b>INDICATIVE TIMING</b>	The increased coordination between three competent authorities will be achieved with the implementation of the new Electronic Communications Law (ECA-2), which is in the legislation procedure. <b>Indicative timing is end of Q4 2021.</b>
<b>INITIAL ASSESSMENT OF USEFULNESS</b>	Medium

<b>STAKEHOLDERS</b>	Ministry of the Environment and Spatial Planning, Ministry of Public Administration, Public sector bodies, NRA
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<b>BEST PRACTICES 6</b>	<b>TACIT APPROVAL FOR RIGHTS OF WAY</b>
<b>REFLECTION</b>	SI has included this recommendation in the current proposed legislative solution - The new Electronic Communications Law ECA-2.
<b>INDICATIVE TIMING</b>	<b>Indicative timing is end of Q4 2021.</b>
<b>INITIAL ASSESSMENT OF USEFULNESS</b>	Medium
<b>STAKEHOLDERS</b>	Ministry of the Environment and Spatial Planning, Ministry of Public Administration, Public sector bodies, NRA

<b>BEST PRACTICES 7</b>	<b>FAST TRACK PROCEDURES FOR RIGHTS OF WAY</b>
<b>REFLECTION</b>	SI supports the simplification of the approval of rights of way. NRA has in 2020 performed a survey amongst the operators that are active in broadband deployment. It reached the conclusion that it is one of the important topics to address and solve to increase and speed up the deployment. For this reason, SI has included this recommendation in the current proposed legislative solution - the new Electronic Communications Law (ECA-2), which is in the legislation procedure
<b>INDICATIVE TIMING</b>	<b>Indicative timing is end of Q4 2021.</b>
<b>INITIAL ASSESSMENT OF USEFULNESS</b>	Medium
<b>STAKEHOLDERS</b>	Ministry of the Environment and Spatial Planning, Ministry of Public Administration, Public sector bodies, NRA

<b>BEST PRACTICES 8</b>	<b>ESTABLISH BROADBAND COORDINATORS</b>
<b>REFLECTION</b>	SI has included this recommendation in the current proposed legislative solution - the new Electronic Communications Law (ECA-2), which is in the legislation procedure, intends to introduce the function of the existing Spatial Planning Authority, which will also have the powers of coordination.
<b>INDICATIVE TIMING</b>	<b>Indicative timing is end of Q4 2021.</b>
<b>INITIAL ASSESSMENT OF USEFULNESS</b>	High
<b>STAKEHOLDERS</b>	Ministry of the Environment and Spatial Planning, Ministry of Public Administration, Public sector bodies, Municipalities or Public Communities, NRA

<b>BEST PRACTICES 9</b>	<b>USE OF JOINT PREPARATORY COORDINATION PROCEDURES FOR GRANTING RIGHTS OF WAY AND PERMITS NECESSARY FOR CIVIL WORKS</b>
<b>REFLECTION</b>	As explained above, a building permit is not required for building and deploying the majority of telecommunications facilities in SI. That said, SI believes that is already fulfilling and improving the recommendation and suggested best practices

	on a formal level. Furthermore, the coordinating function will be entrusted to the abovementioned Spatial Planning Authority. It will be defined in the new Electronic Communications Law (ECA-2), which is in the legislation procedure.
<b>INDICATIVE TIMING</b>	<b>Indicative timing is end of Q4 2021.</b>
<b>INITIAL ASSESSMENT OF USEFULNESS</b>	High
<b>STAKEHOLDERS</b>	Ministry of the Environment and Spatial Planning, Ministry of Public Administration, Public sector bodies, Municipalities or Public Communities, NRA

<b>BEST PRACTICES 10</b>	<b>LEGAL REQUIREMENTS WITH REGARD TO THE APPROPRIATENESS OF FEES</b>
<b>REFLECTION</b>	As explained above, a building permit is not required for building and deploying the majority of telecommunications facilities in SI. For other facilities, fees and taxes are clearly prescribed and generally don't present a notable expense. That explained, SI believes that the requirement is met in the part regarding building permits. The new Electronic Communications Law (ECA-2), which is in the legislation procedure, will introduce lower fees for rights of way for all networks, and free of charge on real estate owned by the state or a self-governing local community free of charge, when building with public funds.
<b>INDICATIVE TIMING</b>	<b>Indicative timing is end of Q4 2021.</b>
<b>INITIAL ASSESSMENT OF USEFULNESS</b>	High
<b>STAKEHOLDERS</b>	Ministry of the Environment and Spatial Planning, Ministry of Public Administration, Public sector bodies, Municipalities or Public Communities, NRA

#### **IMPROVING TRANSPARENCY THROUGH THE SINGLE INFORMATION POINT (SIP)**

<b>BEST PRACTICES 11, 12</b>	<b>11. ENSURE THE AVAILABILITY OF INFORMATION FROM DIFFERENT SOURCES AND ENHANCE TRANSPARENCY OF PLANNED CIVIL WORKS</b> <b>12. ENSURE THE AVAILABILITY OF INFORMATION VIA THE SINGLE INFORMATION POINT (SIP) IN ELECTRONIC FORMAT</b>
<b>REFLECTION</b>	Regarding RECOMMEND 11 and RECOMMEND 12, SI welcomes the approach and recommended practices in the chapter.
<b>INDICATIVE TIMING</b>	SI has already performed activities in the area, resulting in fulfilling and expanding the suggested practices beyond the provided scope.
<b>INITIAL ASSESSMENT OF USEFULNESS</b>	High
<b>STAKEHOLDERS</b>	Ministry of the Environment and Spatial Planning, Ministry of Public Administration, Public sector bodies, Municipalities or Public Communities, NRA

<b>BEST PRACTICES 13</b>	<b>INCLUDE GEOREFERENCED INFORMATION (MAPS AND DIGITAL MODELS) IN THE DATA MADE AVAILABLE VIA THE SIP</b>
<b>REFLECTION</b>	<p>Surveying and Mapping Authority, part of the SIP in SI, has an established <u>consolidated cadastre of public infrastructure</u>, which also includes the detailed data about electronic communication infrastructure such as ducts, cables, lines and their capacity and availability. All the mentioned data is publicly and electronically available. According to ECA, each network operator (not only the public entities) must report information on the location and route, type and current use of the communication network and associated infrastructure, including the number of individual associated lines (optical fibre, copper pair, coaxial line, other).</p> <p>NRA, also part of SIP in SI, is already running 2 portals:</p> <p>a) <u>Infrastructure Investments portal</u>: enables the investors in public infrastructure to notify their plans for construction of infra-structure online and also allows the interested co-investors to announce their interest of joint construction. The information of active notifications on the portal is fully electronically accessible to the public. Slovenian ECA requests in all cases of planned construction of civil works (both investments in electronic communications networks and investments in utilities), that such planning is notified to AKOS (NRA, together with the callout for co-investment in electronic communications networks.</p> <p>b) <u>Geoportal</u>: an open source mapping system, with digital representation of the physical infra-structure and other ECN related data. Geoportal allows public access to utility and telecommunication infrastructure data (location, type, availability, capacity) and network termination point. The main purpose of AKOS Geoportal is to reduce the costs of building VHC networks and to encourage the shared use of infrastructure. Geoportal is public and available on: <a href="https://gis.akos-rs.si">https://gis.akos-rs.si</a>.</p>
<b>INDICATIVE TIMING</b>	<b>All is already implemented.</b>
<b>INITIAL ASSESSMENT OF USEFULNESS</b>	High
<b>STAKEHOLDERS</b>	Ministry of the Environment and Spatial Planning, Ministry of Public Administration, Public sector bodies, Municipalities or Public Communities, NRA, Surveying and Mapping Authority

#### EXPANDING THE RIGHT OF ACCESS TO EXISTING PHYSICAL INFRASTRUCTURE

<b>BEST PRACTICES 14</b>	<b>MAKE AVAILABLE INDICATIVE INFORMATION ON THE OCCUPATION LEVEL OF THE INFRASTRUCTURE AND/OR THE EXISTENCE OF DARK FIBRE</b>
<b>REFLECTION</b>	<p>Surveying and Mapping Authority in its <u>consolidated cadastre of public infrastructure</u> already provides information on the existence of dark fibre. Partially already implemented.</p> <p>The infrastructure occupancy level is expected to be defined in the new Electronic Communications Law (ECA-2), which is in the legislation procedure.</p>
<b>INDICATIVE TIMING</b>	<b>Indicative timing is end of Q4 2021.</b>



<b>INITIAL ASSESSMENT OF USEFULNESS</b>	High
<b>STAKEHOLDERS</b>	Ministry of the Environment and Spatial Planning, Ministry of Public Administration, Public sector bodies, Municipalities or Public Communities, NRA, Surveying and Mapping Authority

<b>BEST PRACTICES 15</b>	<b>ENSURE THE PROVISION VIA THE SINGLE INFORMATION POINT (SIP) OF TRANSPARENT INFORMATION REGARDING THE CONDITIONS OF ACCESS TO THE EXISTING PHYSICAL INFRASTRUCTURE</b>
<b>REFLECTION</b>	In SI, we assess that this part is problematic. In SI we will implement the publication of legal and executive bases at the SIP point.
<b>INDICATIVE TIMING</b>	<b>Till 30.4.2022</b>
<b>INITIAL ASSESSMENT OF USEFULNESS</b>	High
<b>STAKEHOLDERS</b>	Ministry of the Environment and Spatial Planning, Ministry of Public Administration, Public sector bodies, Municipalities or Public Communities, NRA, Surveying and Mapping Authority

<b>BEST PRACTICES 16</b>	<b>ENSURE ACCESS TO PHYSICAL INFRASTRUCTURE CONTROLLED BY PUBLIC BODIES</b>
<b>REFLECTION</b>	The new Electronic Communications Law (ECA-2), which is in the legislation procedure will introduce an easier access to public infrastructure, owned by state or local communities. On the state property easements will be granted directly by the Government. On top of that, it is expected to add a mandatory admissibility clause in the case of the establishment of easements on real estate owned by the state or self-governing local for the benefit of the network operator joint construction by another network operator.
<b>INDICATIVE TIMING</b>	<b>Indicative timing is end of Q4 2021.</b>
<b>INITIAL ASSESSMENT OF USEFULNESS</b>	High
<b>STAKEHOLDERS</b>	Ministry of the Environment and Spatial Planning, Ministry of Public Administration, Public sector bodies, Municipalities or Public Communities, NRA, Surveying and Mapping Authority

<b>BEST PRACTICES 17</b>	<b>ENTRUST A BODY WITH A COORDINATOR AND/OR PROMOTER ROLE</b>
<b>REFLECTION</b>	SI has included this recommendation in the current proposed legislative solution - the new Electronic Communications Law ECA-2 intends to introduce the function of the existing Spatial Planning Authority, which will be a body with entrusted coordinator and/or promoter role. On top of that, the NRA is already running workshops and consultations with local communities and infrastructure operators, and such activities could be coordinated together with the new authority.
<b>INDICATIVE TIMING</b>	<b>Partially already implemented. Indicative timing is end of Q4 2021.</b>

<b>INITIAL ASSESSMENT OF USEFULNESS</b>	High
<b>STAKEHOLDERS</b>	Ministry of the Environment and Spatial Planning, Ministry of Public Administration, Public sector bodies, Municipalities or Public Communities, NRA, Surveying and Mapping Authority

<b>BEST PRACTICES 18</b>	<b>DEVELOPMENT OF GUIDELINES FOR ALL GOVERNANCE LEVELS</b>
<b>REFLECTION</b>	The matter is problematic, we are still looking for a solution.
<b>INDICATIVE TIMING</b>	<b>Till 30.04.2022</b>
<b>INITIAL ASSESSMENT OF USEFULNESS</b>	Medium
<b>STAKEHOLDERS</b>	Ministry of the Environment and Spatial Planning, Ministry of Public Administration, Public sector bodies, Municipalities or Public Communities, NRA, Surveying and Mapping Authority

#### **DISPUTE RESOLUTION MECHANISM**

<b>BEST PRACTICES 19, 20, 21</b>	<p><b>19. INCLUDE AN OPTIONAL PRIOR/PARALLEL CONCILIATION MECHANISM</b></p> <p><b>20. ENSURE TRANSPARENCY, AWARENESS AND TRUST IN THE DISPUTE RESOLUTION MECHANISM BY ISSUING GUIDELINES</b></p> <p><b>21. ENSURE ELECTRONIC COMMUNICATION AND SUBMISSION FOR PARTIES</b></p>
<b>REFLECTION</b>	In SI we are already implementing most of what is proposed in the subject chapter, at least in some elementary phase. There are no major comments, except perhaps one: Point 19 strongly emphasizes the preliminary / parallel mediation phase, while also discussing dispute resolution within the BCRD deadlines. These deadlines are extremely short (2 months). In case the parties agree with the previous mediation phase (and this one is unsuccessful), then the dispute cannot be resolved within 2 months. Mediation alone takes 15 days with one meeting at best. Resolving the inter-operator dispute under the General Administrative Act (with all the formalities set out in it, including the oral hearing) within 45 days is not feasible. It would be suggested here that the mediation phase be exempted from the 2 month deadline from the BCRD.
<b>INDICATIVE TIMING</b>	<b>Till 30.04.2022</b>
<b>INITIAL ASSESSMENT OF USEFULNESS</b>	Medium
<b>STAKEHOLDERS</b>	Ministry of the Environment and Spatial Planning, Ministry of Public Administration, Public sector bodies, Municipalities or Public Communities, NRA, Surveying and Mapping Authority

## REDUCING THE ENVIRONMENTAL FOOTPRINT OF NETWORKS

BEST PRACTICES 22	LIMIT THE NEGATIVE ENVIRONMENTAL FOOTPRINT OF THE ELECTRONIC COMMUNICATIONS NETWORKS
REFLECTION	<p><b>22a) Sharing of physical infrastructure for networks which</b> has already been promoted through provisions in existing Electronic Communications Law (ECA-1C) Art. 91 and 92. The provisions have had positive impact on physical infrastructure sharing. Operators share passive infrastructure (i.e. towers) based on commercial agreements and one-to-one principle.</p> <p>On the mobile market, passive infrastructure sharing (base stations locations, masts) is based on commercial agreements, where the sharing is usually based on simple sharing of one passive infrastructure element for another equal passive infrastructure element. The NRA did not have to decide in any dispute resolution and did not get any such initiative. Many of mobile network sites are shared among mobile operators, in all cases on a fully commercial basis on a quid pro quo principle.</p> <p>Symmetric regulation is transposed into the Article 91 of ECA-1C, which stipulates the same as Article 12 of the FWD.</p> <p>For now, SI did not impose the obligation to the operators regarding the sharing of infrastructure. NRA must cooperate with the administrative unit of the municipality to do that.</p> <p>However, SI is publishing the notifications for co-investors on the website.</p> <p>ECA-1C in Article 92 stipulates that SI shall impose an obligation of shared use of installations in buildings or of first distribution point if this is outside of the building in accordance with the same procedure as a shared use, previously described as from Article 91.</p> <p>Passive infrastructure sharing and local agreements on national roaming</p> <p>In circumstances where market-driven deployment of infrastructure for the provision of networks or services that rely on the use of radio spectrum is subject to insurmountable economic or physical obstacles for operators, and therefore access to networks or services by end-users is not possible, the NRA shall impose on a license holder who has acquired radio spectrum in the public tender in such an area for the period of license's validity obligations related to sharing passive infrastructure or obligations to conclude localised roaming access agreements.</p> <p>In circumstances where access to and sharing of passive infrastructure alone is not sufficient to resolve this issue, the NRA may impose obligations for sharing active infrastructure.</p> <p>The NRA shall include the above-mentioned options as obligations in the license for the applicants that shall acquire radio spectrum in the public tender.</p> <p>The objective of this measure is to avoid distortion of competition in areas where other operators have no option of obtaining access to locations commercially on existing network and building a new location is subject to insurmountable economic or physical obstacle.</p> <p><b>22b) Network sharing (active and/or passive), multi-operator sites for mobile networks where</b> SI has in its Public tender with public auction for the award of radio frequencies for the provision of public communications services in the 700 MHz, 1500 MHz, 2100 MHz, 2300 MHz, 3600 MHz and 26 GHz radio frequency bands in order to ensure efficient use of the radio spectrum, to improve coverage of Slovenian territory and in order to reduce impact on environment, promoted the following sharing options:</p> <ul style="list-style-type: none"> <li>- sharing of passive or active infrastructure or spectrum pooling,</li> </ul>

	<ul style="list-style-type: none"> <li>- business agreements on national roaming,</li> <li>- joint deployment of infrastructure for the provision of networks and services based on the use of radio frequency spectrum.</li> <li>- active sharing and frequency pooling, including dynamic spectrum sharing, is permitted within a framework that does not limit infrastructural competition. Sharing of active equipment and frequency pooling are permitted when passive sharing is not sufficient, e. g:</li> <li>- in challenging areas, such as: national parks and settlements in other remote areas, road and railway tunnels, critical road sections, regions of Slovenian border and Piran bay, regions exceeding 60% of active railways with passenger, regions exceeding 60% of main roads and regional roads category I and II, historical monuments and other buildings under protection of Cultural heritage, small cells if there is a restriction on space encroachment /building restrictions, and indoor</li> <li>- and for purpose of network densification to secure very high capacity base stations offering Gigabit speeds: road and city infrastructure (e.g., lamp posts, traffic lights ...), railway and energy infrastructure and in dense venues (convention centres, concert halls, stadiums, bus and train stations, shopping malls, factories, ports, airports ...).</li> </ul> <p>Under dynamic spectrum sharing, it is meant the sharing of spectrum between license holders or between the license holder and the lessee, at a specific location, whereby the spectrum can be dynamically redistributed between them.</p> <p>For the 26 GHz band, frequency pooling and active sharing, including dynamic spectrum sharing, are permitted everywhere, with a pre-emptive right in favour of the license holder on its assigned sub-band, and active sharing between all licence holders including dynamic spectrum sharing, is permitted.</p> <p>Sharing is permitted in accordance with competition law principles. The existence of distortions of competition will be monitored by SI or the body responsible for the protection of the competition within the scope of its jurisdiction.</p> <p>The SI is monitoring the development on the market and in technology and may in the case of a significant change in Slovenian mobile market and based on the license holders' initiative adjust the sharing conditions and adequately amend licenses.</p> <p><b>22c) Use of energy-efficient processes, equipment and technologies</b></p> <p>Concerning this issue, SI has a vision on future regulatory development in Slovenia and EU:</p> <ul style="list-style-type: none"> <li>- Licensing regimes for local networks could be flexible, may be service &amp; technology neutral,</li> <li>- New light licensing regime based on an automated platform could be possible alternative for auctions in dedicated bands and local usage,</li> <li>- Possible digitalisation of the light licensing processes: automation of first come/first served licensing based on Artificial Intelligence (AI),</li> <li>- Operators could be encouraged to invest in self organised networks using AI to configure and maintain networks, allowing dynamic spectrum sharing,</li> </ul> <p>When new sharing mechanism between co-primary services and existing secondary services with unknown locations are developed and tested, digitalised sharing (static and dynamic) and digitalised coordination process within frequency bands could be promoted.</p>
<b>INDICATIVE TIMING</b>	<b>Till 30.04.2022</b>
<b>INITIAL ASSESSMENT OF USEFULNESS</b>	Medium

<b>STAKEHOLDERS</b>	Ministry of the Environment and Spatial Planning, Ministry of Public Administration, Public sector bodies, Municipalities or Public Communities, NRA
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### 3. TIMELY ACCESS TO 5G RADIO SPECTRUM

#### ENVIRONMENTAL IMPACT ASSESSMENT

<b>BEST PRACTICES 23</b>	<b>ASSESSMENT OF ENVIRONMENTAL EFFECTS</b>
<b>REFLECTION</b>	<p>SI has just finished the multiband auction for the award of radio frequencies for the provision of public communications services in the 700 MHz, 1500 MHz, 2100 MHz, 2300 MHz, 3600 MHz and 26 GHz radio frequency bands. The auction has been completed on 16 April 2021 and all bands will be assigned after payment of the spectrum fee till mid-June 2021. With this Slovenia has fulfilled Directives 2001/42/EC, 2011/92/EU and 92/43/EEC for wireless communication network rollouts. One big city will be covered with 5G 3 months after issuing licences which means, that it will be covered in Q3/2021.</p> <p>20 MHz in 3400-3420 MHz and 30 MHz in 2300 MHz band is expected to be auctioned in Q1/2022 for local usage and will be available for MNOs, niche operators and verticals with primary goal to cover the vertical needs (e.g. PMSE vertical, electricity vertical,...).</p>
<b>INDICATIVE TIMING</b>	<b>The auction process started in Q4/2020 and is already finished</b>
<b>INITIAL ASSESSMENT OF USEFULNESS</b>	High
<b>STAKEHOLDERS</b>	Ministry of Public Administration, Public sector bodies, Municipalities or Public Communities, NRA

#### INCENTIVES FOR INVESTMENT

<b>BEST PRACTICES 24</b>	<b>PROMOTE ADEQUATE RESERVE PRICES</b>
<b>REFLECTION</b>	<p>the existing Electronic Communications Law (ECA-1) Art. 60 Par.8 has already implemented a methodology of setting reserve prices, as its minimum amount and the method of its payment shall be determined in the decision on the initiation of a public invitation to tender procedure. In setting the amount or minimum amount of the reserve price and the method of its payment, there are 4 criteria to be considered:</p> <ol style="list-style-type: none"> <li>1) the supply of and demand for the frequencies being put to tender,</li> <li>2) the level of development of the market to which the frequencies being put to tender relate, and</li> <li>3) the level of such prices in other Member States.</li> <li>4) It may in no case be so high as to hinder the development of innovative services and competition in the market.</li> </ol> <p>In calculated prices, licence duration as well coverage obligations are taken into account.</p> <p>SI has as well refarmed spectrum in time and offered all available spectrum in one big multiband auction. SI has not decided for set aside spectrum or reserved spectrum in order to avoid speculative participation, strategic demand reduction and has chosen auction format and spectrum caps in a way to avoid outbidding of smaller bidders or collusion in the auction.</p> <p>The new Electronic Communications Law ECA-2 will introduce the provisions as well regarding longer licence duration 20 years instead of 15 years.</p>

<b>INDICATIVE TIMING</b>	<b>Already implemented.</b>
<b>INITIAL ASSESSMENT OF USEFULNESS</b>	High
<b>STAKEHOLDERS</b>	NRA, Ministry of Public Administration, Public sector bodies

<b>BEST PRACTICES 25</b>	<b>TIMELY AVAILABILITY OF 5G HARMONISED BANDS</b>
<b>REFLECTION</b>	As already mentioned the auction has been completed on 16 April 2021 and all bands will be assigned till mid-June 2021. In this auction it was offered 2 x 30 MHz in the 700 MHz band and 15 MHz of 700 MHz SDL spectrum, 380 MHz of 3600 MHz spectrum from 3420 – 3800 MHz and upper 1 GHz of 26 GHz spectrum (26.5-27.5 GHz). All spectrum was sold. Remaining of 3600 MHz spectrum (3400 – 3420 MHz) will be offered in local auction expected in Q1/2022 or will be assigned in alternative way, if ECA-2 is adopted in due time. The remaining of 26 GHz band (from 25,025 – 26,5 GHz) for civil WB ECS could be auctioned when the demand is expressed. Lower part of the 26 GHz band is available for military WB ECS (e.g. PPDR vertical).
<b>INDICATIVE TIMING</b>	<b>Already implemented.</b>
<b>INITIAL ASSESSMENT OF USEFULNESS</b>	High
<b>STAKEHOLDERS</b>	NRA, Ministry of Public Administration, Public sector bodies

<b>BEST PRACTICES 26</b>	<b>REVIEW NATIONAL SPECTRUM PLANS ON A REGULAR BASIS</b>
<b>REFLECTION</b>	The ECA-1 envisages the cyclical 3-year preparation of Spectrum Strategies. The draft Spectrum Strategy 2021 – 2023 is prepared and is now in approval process. The Strategy defines plans for spectrum for wideband/broadband electronic communications services including spectrum for verticals, BWA/MMDS, for fixed, satellite services, PMSE, broadcasting, radio amateurs, UAVs and license exempt spectrum for WAN/RLAN, SRD, UWB, LPWAN and WPT.
<b>INDICATIVE TIMING</b>	<b>Already implemented.</b>
<b>INITIAL ASSESSMENT OF USEFULNESS</b>	High
<b>STAKEHOLDERS</b>	NRA, Ministry of Public Administration, Public sector bodies

<b>BEST PRACTICES 27</b>	<b>ENABLE PAYMENTS OF AWARD FEES IN INSTALMENTS</b>
<b>REFLECTION</b>	In draft Electronic Communications Act ECA-2 Art.49, Par.1/4 and Art.72 Par 9 SI proposed possibility of payment of award fees also in instalments.
<b>INDICATIVE TIMING</b>	<b>Indicative timing is end of Q4 2021.</b>
<b>INITIAL ASSESSMENT OF USEFULNESS</b>	High

<b>STAKEHOLDERS</b>	NRA, Ministry of Public Administration, Public sector bodies
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<b>BEST PRACTICES 28</b>	<b>INDIVIDUAL AUTHORISATION REGIME FOR THE 24.25-27.5 GHz FREQUENCY BAND</b>
<b>REFLECTION</b>	In draft Electronic Communications Act ECA-2 SI is proposed the modification of existing Art.39, Par.3 in a way that public tender will not be any more obligatory for local assignments of public mobile services. Public mobile services for non-national coverage the procedure will be held under modified Art.39, Par.2, where public tender is needed only if there are not enough frequencies for all applicants.
<b>INDICATIVE TIMING</b>	<b>Indicative timing is end of Q4 2021.</b>
<b>INITIAL ASSESSMENT OF USEFULNESS</b>	High
<b>STAKEHOLDERS</b>	NRA, Ministry of Public Administration, Public sector bodies

<b>BEST PRACTICES 29</b>	<b>COMBINE OBLIGATIONS WITH FINANCIAL INCENTIVES</b>
<b>REFLECTION</b>	In auction for the lot in 800 MHz band with special coverage obligations, held in 2014, SI reduced the reserve price by amount of calculated costs of the obligations, as well in the 2021 auction for the 700 MHz spectrum reserve price was calculated taking into account increased coverage requirements. For future auctions, SI will consider other best practices in combining financial incentives with coverage obligations.
<b>INDICATIVE TIMING</b>	<b>Indicative timing is end of Q1 2022.</b>
<b>INITIAL ASSESSMENT OF USEFULNESS</b>	High
<b>STAKEHOLDERS</b>	NRA, Ministry of Public Administration, Public sector bodies

<b>BEST PRACTICES 30</b>	<b>PROMOTE THE OPPORTUNITY OF INFRASTRUCTURE SHARING</b>
<b>REFLECTION</b>	<p>According to the licenses issued after multiband auction frequency pooling and active sharing, including dynamic spectrum sharing will be permitted in challenging areas such as:</p> <ul style="list-style-type: none"> <li>- remote areas where coverage is very expensive,</li> <li>- parts of roads, railways and state border exceeding general coverage obligations,</li> <li>- buildings where there is a restriction on building restrictions and indoor.</li> </ul> <p>In case network densification needs to secure very high capacity base stations offering Gigabit speeds, frequency pooling and active sharing, including dynamic spectrum sharing are permitted also:</p> <ul style="list-style-type: none"> <li>- on road and city infrastructure (e.g., lamp posts, traffic lights ...),</li> <li>- on railway and energy infrastructure</li> <li>- in dense venues (convention centres, concert halls, stadiums, bus and train stations, shopping malls, factories, ports, airports ...).</li> </ul>
<b>INDICATIVE TIMING</b>	<b>Indicative timing is end of Q1 2022.</b>

<b>INITIAL ASSESSMENT OF USEFULNESS</b>	Medium
<b>STAKEHOLDERS</b>	NRA, Ministry of Public Administration, Public sector bodies

<b>BEST PRACTICES 31</b>	<b>INFRASTRUCTURE SPECTRUM FEES TO INCENTIVISE ROLL-OUT</b>
<b>REFLECTION</b>	<p>The calculation of reserve price is based on four criteria: 1) the supply of and demand for the frequencies being put to tender, 2) the level of development of the market to which the frequencies being put to tender relate, and 3) the level of such prices in other Member States. 4) the price shall in no case be so high as to hinder the development of innovative services and competition in the market.</p> <p>Frequency annual fee is being regularly assessed whether the recurrent spectrum fee structure could penalise the rollout and densification of the 5G networks. The latest revision to adjust the spectrum fee structure was done in 2019, adjusting fees for frequency band 26 GHz and some other bands. As well discounts for the first three years were introduced to stimulate the rollout of 5G networks as an incentive SI reduce annual spectrum fees for 1<sup>st</sup> year for 70%, for 2<sup>nd</sup> year for 50 % and for 3<sup>rd</sup> year for 30 % and discount for 700 MHz band due to late switch off of DTT in neighbouring countries.</p>
<b>INDICATIVE TIMING</b>	<b>Indicative timing is end of Q1 2022.</b>
<b>INITIAL ASSESSMENT OF USEFULNESS</b>	Medium
<b>STAKEHOLDERS</b>	NRA, Ministry of Public Administration, Public sector bodies

<b>BEST PRACTICES 32</b>	<b>USE FINANCIAL AID AS A COMPLEMENT TO INTENSIVE INVESTMENTS</b>
<b>REFLECTION</b>	<p>The amendment of the Regulation (EU) No 651/2014 declaring certain categories of aid compatible with the internal market in application of Articles 107 and 108 of the Treaty, so called General Block Exemption Regulation (GBER), is under preparation.</p> <p>In accordance with the new GBER rules, SI will use all possibilities of financial aid at the EU level programmes to co-finance significant investments in the introduction of 5G network infrastructure.</p>
<b>INDICATIVE TIMING</b>	<b>Indicative timing is 30.4.2022.</b>
<b>INITIAL ASSESSMENT OF USEFULNESS</b>	Medium
<b>STAKEHOLDERS</b>	Ministry of Public Administration, Public sector bodies, Ministry of Finance



**ENHANCED COORDINATION AT UNION LEVEL ON SPECTRUM ASSIGNMENT FOR CROSS-BORDER INDUSTRIAL USE**

<b>BEST PRACTICES 33</b>	<b>USE COHERENT PRACTICE FOR GRANTING RIGHTS OF USE FOR RADIO SPECTRUM BASED ON THE EUROPEAN ELECTRONIC COMMUNICATIONS CODE</b>
<b>REFLECTION</b>	<p>In line with RECOMMEND 21 ENHANCED COORDINATION AT UNION LEVEL ON SPECTRUM ASSIGNMENT FOR CROSS-BORDER INDUSTRIAL USE in draft new ECA-2 Articles 41 and 42 simplify internal procedure in order to support multi-country and/or pan European verticals</p> <p>“Article 41 (joint selection procedure) (1) When the NRA receives an initiative for the allocation of radio frequencies under a joint allocation procedure, with one or more other EU Member States, it shall initiate the radio frequency allocation procedure in accordance with the provisions of this Act. In doing so, it shall consider the commonly agreed plan, the conditions set out in the joint authorization procedure, inter alia, to provide those interested in the allocation with similar radio spectrum blocks. The Ministry may instruct the NRA to initiate proceedings (2) Until the joint selection procedure has taken place, the NRA must allow other EU Member States to join the procedure. (3) Where the NRA does not carry out a joint approval procedure, it shall inform the initiator of the reasons for such a decision.”</p>
<b>INDICATIVE TIMING</b>	<b>Indicative timing is end of Q1 2022.</b>
<b>INITIAL ASSESSMENT OF USEFULNESS</b>	Medium
<b>STAKEHOLDERS</b>	NRA, Ministry of Public Administration, Public sector bodies

<b>BEST PRACTICES 34</b>	<b>FACILITATE INTEROPERABILITY THROUGH THE DEVELOPMENT AND APPLICATION OF STANDARDS</b>
<b>REFLECTION</b>	<p>SI supports harmonisation of spectrum and least restrictive technical conditions for PAN-European services.</p> <p>Draft Electronic Communications Act ECA-2 proposed in Art. 42 harmonized allocation of radio frequencies in relation to common selection procedures in EU countries.</p>
<b>INDICATIVE TIMING</b>	<b>Indicative timing is end of Q1 2022.</b>
<b>INITIAL ASSESSMENT OF USEFULNESS</b>	Medium
<b>STAKEHOLDERS</b>	NRA, Ministry of Public Administration, Public sector bodies

<b>BEST PRACTICES 35</b>	<b>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</b>
<b>REFLECTION</b>	SI supports and actively participates in work of CEPT/ECC in development of common dedicated frequency range, to use harmonised technical conditions

	developed by CEPT/ECC working groups. SI recognises the importance of fostering connectivity for cross-border use cases amongst EU and non-EU countries, which both are members of CEPT/ECC. Harmonised technical conditions are also regularly included in the latest amendments to the national plan for the use of radio frequencies.
<b>INDICATIVE TIMING</b>	<b>Indicative timing is 30.4.2022.</b>
<b>INITIAL ASSESSMENT OF USEFULNESS</b>	Medium
<b>STAKEHOLDERS</b>	NRA, Ministry of Public Administration, Public sector bodies

<b>BEST PRACTICES 36</b>	<b>WHEN IDENTIFYING THE APPROPRIATE AUTHORISATION REGIME MEMBER STATES SHOULD PAY PARTICULAR ATTENTION TO ANY SPECIFICITIES RESULTING FROM A CROSSBORDER DIMENSION</b>
<b>REFLECTION</b>	SI uses licensing regimes with known locations for services where incumbent services in neighbouring countries need to be protected. License free regimes are used only in accordance with EC/ECC Decisions. If in the future more flexible licensing regimes are introduced, the locations will need to be reported to SI so that SI could protect incumbent services in neighbouring countries in accordance with EC/ECC Decisions and Recommendations as well as cross-border agreements. SI is also regularly taking part in peer reviews.
<b>INDICATIVE TIMING</b>	<b>Indicative timing is 30.4.2022.</b>
<b>INITIAL ASSESSMENT OF USEFULNESS</b>	Medium
<b>STAKEHOLDERS</b>	NRA, Ministry of Public Administration, Public sector bodies

#### **ASPECTS RELATED TO ELECTROMAGNETIC FIELDS AND PUBLIC HEALTH**

<b>BEST PRACTICES 37</b>	<b>PROMOTE CONTINUOUS SCIENTIFIC RESEARCH ON ELECTROMAGNETIC FIELD (EMF) EMISSIONS CARRIED OUT BY CREDIBLE AND INDEPENDENT INSTITUTIONS</b>
<b>REFLECTION</b>	SI supports and looks for safe solutions in the field of EMF, we have proposed some targeted research projects.
<b>INDICATIVE TIMING</b>	<b>Indicative timing is 30.4.2022.</b>
<b>INITIAL ASSESSMENT OF USEFULNESS</b>	High
<b>STAKEHOLDERS</b>	NRA, Ministry of Public Administration, Public sector bodies

<b>BEST PRACTICES 38</b>	<b>COORDINATED AND TARGETED COMMUNICATION FOR INFORMING AND EDUCATING ON 5G IMPLEMENTATION</b>
<b>REFLECTION</b>	Besides NRA's official website dedicated for 5G <sup>2</sup> has NRA in 2019 opened special website portal MIPI <sup>3</sup> to inform general public on new technologies, internet security, media and information literacy, children and the media - inappropriate content. The aim is to provide evidence-based information to specific groups and to educate the wider public about 5G thus strengthening public confidence in institutions, which in turn may increase acceptance for the new 5G technology. NRA recognises that successful communication often involves authorities from several fields of expertise and responsibility as well as other stakeholders cooperating in order to translate scientific and technical information into every-day language and to address cross-sectoral issues.
<b>INDICATIVE TIMING</b>	<b>Indicative timing is 30.4.2022.</b>
<b>INITIAL ASSESSMENT OF USEFULNESS</b>	High
<b>STAKEHOLDERS</b>	NRA, Ministry of Public Administration, Public sector bodies

<b>BEST PRACTICES 39</b>	<b>INFORM THE PUBLIC ON THE COMPLIANCE OF RADIO BASE STATIONS INSTALLATIONS WITH APPLICABLE EMF SAFE LIMITS</b>
<b>REFLECTION</b>	The <a href="#">Radiation Protection Administration</a> <sup>4</sup> deals with EMF measurements and monitoring. They publish on their results achieved during these measurements, as well as information on the appropriate measurement and monitoring regimes of the EMF in order to continue to ensure public health.
<b>INDICATIVE TIMING</b>	<b>Indicative timing is 30.4.2022.</b>
<b>INITIAL ASSESSMENT OF USEFULNESS</b>	High
<b>STAKEHOLDERS</b>	Ministry of the Environment and Spatial Planning, Radiation Protection Administration, Ministry of Health, Public sector bodies

<sup>2</sup> <https://www.akos-rs.si/radijski-spekter/izpostavljamomobilno-omrezje-5g>

<sup>3</sup> <https://www.mipi.si/teme>

<sup>4</sup> <https://www.gov.si/drzavni-organi/organi-v-sestavu/uprava-za-varstvo-pred-sevanji/>

## 4. CONCLUSIONS

The fact is that economic and general development in the modern digital society is closely linked to the development of broadband infrastructure, so we need to focus strategically on its development as a national priority. In order to be able to keep up with the most developed countries, we need to set ambitious development goals, as one of the key, if not the key, infrastructure is the digital society, which must provide quality high-speed Internet access for all.

Despite the awareness that economic and general development in the modern digital society is closely linked to the development of broadband infrastructure, each EU Member State must also be aware of the possibilities of reducing costs in the construction of broadband infrastructure itself. Therefore, the adopted document Connectivity Toolbox is a very good tool that will use the described good practices to help each country, according to its needs, to establish a system that will optimally solve cost problems in the construction of broadband infrastructure.

The document will be updated with new knowledge in the field of cost efficiency and access to 5G radio spectrum and will be as such a real tool that will optimize the connectivity in the Republic of Slovenia.