



OUTCOME REPORT

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ITU-EKIP Regional Regulatory Forum for Europe

*Universal Connectivity for a
Post-Pandemic Digital Europe*

27-28 September 2021 | Online

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Organized within the framework of the ITU Regional Initiative for Europe
on Broadband infrastructure, broadcasting and spectrum management

ICT REGULATION BROADBAND DEVELOPMENT COLLABORATIVE REGULATION DIGITAL TRANSFORMATION DIGITAL ECONOMY

A complex network diagram showing a dense web of interconnected nodes and lines, representing a digital network or infrastructure.

Organized by
EKIP, Montenegro

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In addition, ITU would like to express their gratitude to **panel moderators**: Ms. Sofie Maddens, Head of Regulatory and Market Environment Division, Mr Boris Jevrić, Chief Deputy Executive Director – Head of Radiocommunication Department, Agency for Electronic Communications and Postal Services (EKIP), Montenegro and Mr Jaroslaw Ponder, Head of ITU Office for Europe, ITU.

Finally, ITU thanks all members of the **Programme Committee** who made this event possible: Mr Boris Jevrić, Chief Deputy Executive Director and to Mr. Pavle Mijuskovic, Deputy Executive Director – Head of Department for Electronic Communications Networks and Services, from the Agency for Electronic Communications and Postal Services (EKIP), Montenegro, for their work in the preparation of this event to Mr. Jaroslaw Ponder, Head of ITU Office for Europe for chairing the conference and providing valuable input in the preparation of this conference; to Mr. Julian McNeill, ITU Consultant, ITU Office for Europe, who coordinated the delivery of this event, and to Ms. Jiae Yang, Junior Policy Analyst, ITU Office for Europe, who supported the delivery of this event and is editor of this report.

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1. INTRODUCTION

The “[ITU-EKIP Regional Regulatory Forum for Europe 2021](#)” was held online on 27th and 28th September 2021. The conference was organised by the International Telecommunication Union (ITU) with the support of the Agency for Electronic Communications and Postal Services (EKIP) of Montenegro.

The Regional Regulatory Forum for Europe was conducted by the ITU Office for Europe, within the context of the European Regional Initiative 1 approved by WTDC-17 on “Broadband Infrastructure, Broadcasting and Spectrum Management”. The event was also supported by the Telecommunication Networks and Spectrum Management Division and the Regulatory and Market Environment Division of the Telecommunication Development Bureau (BDT), ITU.

The event provided an opportunity to address the status of regulatory frameworks in Europe supporting investment in broadband infrastructure, thereby underpinning economies’ digital transformation. Key topics covered by the workshop included:

- Session 1: Policy and regulatory incentives for affordable and robust connectivity
- Session 2: 5G implementation: strategies, policies and regulation accelerating deployment of mobile connectivity
- Session 3: From market analysis to market visualisation: enabling environment for evidence based regulation
- Special Session on emerging challenges in a post-pandemic Europe

The Regional Regulatory Forum’s main outcomes are outlined in this report, which structures the key points emerged during each session.

2. PARTICIPATION

The Forum mainly targeted national administrations, national regulatory authorities (NRAs), regional organisations and intergovernmental organizations, representing both ITU Members and non-Members. Over 28 eminent speakers presented and discussed during the sessions. Details about the [agenda](#) and speakers as well as all [presentations](#) delivered, can be found on the event’s website¹.

Over 230 registered participants from more than 30 countries took part in the conference and an average of around 100 participants was online during each session. Participants included high-level representatives of administrations and national regulators from the ITU Europe region including, delegates from Agency for Electronic Communications and Postal Services (EKIP) of Montenegro, delegates from the European Commission, and representatives of National Regulatory Authorities in the region.

¹ itu.int/go/ELZ1

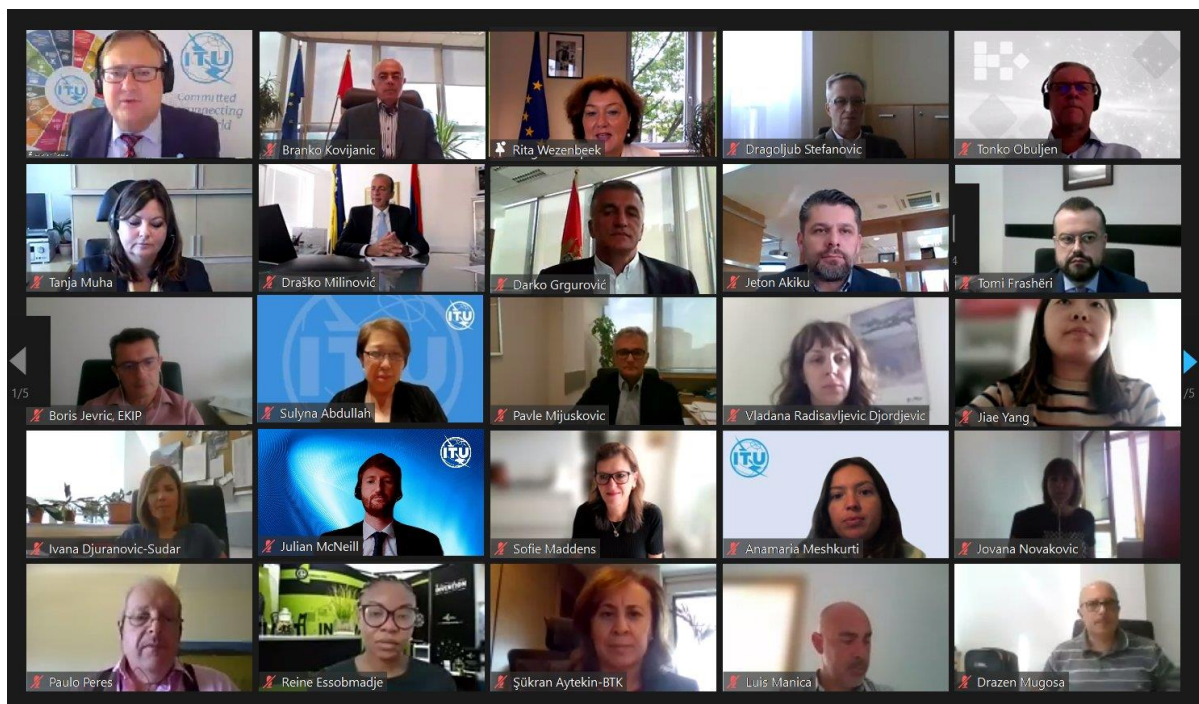


Figure 1 - Virtual Group Photo

3. DOCUMENTATION

The Regional Forum was held virtually. Relevant documentation, was made available in electronic form on the event webpage: itu.int/go/ELZ1

Video recordings of the workshop, as well as this outcome report, are also made available on the website and on YouTube:

- [Day 1](#)
- [Day 2](#)

4. OPENING SEGMENT

Opening Ceremony

In his opening speech, **Mr. Jaroslaw Ponder, Head of ITU Office for Europe, ITU**, welcomed delegates by recalling the crucial role played by connectivity to ensure resiliency of our societies during the pandemic crisis. Mentioning the Digital Trends in Europe 2017-2020 report, Mr. Ponder highlighted that still 7 European countries are below the global average of 75 mobile broadband subscriptions per 100 inhabitants, and still a few countries are missing full 4G coverage and this underpins that millions of people in Europe do not make use of mobile broadband services despite prices being the lowest globally. With regards to uptake of mobile and fixed broadband services, all countries in Europe find themselves above the global average of 15 fixed broadband subscriptions per 100 inhabitants, though a high degree of heterogeneity must be noted. In such scenario, scarce guarantees of return on investment, combined with generally higher prices limiting uptake are also obstacles that need to be addressed proactively. Mr. Ponder then proceeded by pointing out that policies and robust regulation can not only help address these challenges in a reactive manner, but also ensure a proactive approach

with objectives, KPIs, targets that go beyond filling the gaps but also raise the bar. Mr. Ponder recognized the longstanding collaboration with the Agency for Electronic Communications and Postal Services (EKIP), Montenegro, and commended the Agency for achieving 20 years of existence and excellent work at the country level and beyond. Mr Ponder finally reiterated the ITU's commitment to advance the implementation of ITU Regional Initiatives for Europe through the delivery of technical assistance to countries, through knowledge development, through capacity building and through specific projects.

Following Mr. Ponder's speech, **Mr. Branko Kovijanic**, President of the Council, Agency for Electronic Communications and Postal Services (EKIP), Montenegro, pointed out that the topic of this forum, 'Universal Connectivity for a Post-Pandemic Digital Europe' is a right choice since all the society has been forced to use the digital technologies to connect to each other to exchange the information. Mr. Kovijanic added that it is important to support digital formation and further develop ICT policies and for post pandemic economic recovery. Mr. Kovijanic then pointed that lack of infrastructure and digital illiteracy are the great hinderances, preventing large population from working and learning from home. Although there is no universal solution, Mr. Kovijanic remarked that exchanging ideas from countries to countries during the forum will help to find solutions to implement efficient business models and to find new ways of PPP financing to achieve broadband accessibility and affordability for all. Mr. Kovijanic concluded by stating that cooperation on this issue will continue to adopt the best policies for universal connectivity for all citizens.

Address by the European Commission

Following Mr Kovijanic's speech, **Ms. Rita Wezenbeek**, Director, Connectivity Department, DG CNECT, European Commission / Acting Head of Unit, Regulatory Framework Implementation Unit, DG CNECT, European Commission, reiterated that Universal connectivity for a post-pandemic Europe could not be more important because we now have seen how digital technologies and networks have been ensuring a successful response to the pandemic situation. Ms. Wezenbeek particularly showed her impression on development of pan-EU certificate of vaccination developed only in a few months thanks to digital technologies and international cooperation between EU, ITU and WHO. Ms. Wezenbeek then drew attention to the recent policy program announced by the European Commission, 'Path to the digital decade' as well as the European Electronic Communications Code (EECC) and joint investment Connectivity Toolbox. To achieve the concrete targets of EU in digital transformation, the policy program Digital Decade, a first ever digital governance framework, is planned to put on the same level as the European Green Deal after the negotiation in the Council of Europe and the European Parliament in upcoming months. Ms Wezenbeek also mentioned a Joint Declaration on Digital Principles, the Directorate General for Communications Networks, Content and Technology in the European Commission has been working, aiming to offer guidelines to ensure everyone benefits from digitalization. Ms Wezenbeek concluded her speech by stating The European Commission is looking forward to working closely with international partners to advance a global human-centred digital agenda.

Welcome Remarks by Heads of the National Regulatory Authorities Present

Following opening speeches and address by the European commission, **Mr. Jaroslav Ponder**, Head of the ITU Office for Europe and Chair of the event, handed over to **Mr. Jeton Akiku**, Director, Agency for Electronic Communications (AEC), North Macedonia. Mr. Akiku appreciated the forum as an

excellent opportunity to conduct high-level dialogue aiming at further development of broadband access that needs to be flexible and cooperative. Mr. Akiku showed his expectation on maximum contribution of the participant to the debate on regulation and challenges in the ICT sector and added that AEC hopes to make a considerable contribution.

Mr. Tomi Frasheri, Chairman, Agency for Electronic Communications and Post (AKEP), Republic of Albania, shared the Albanian experience stating that the prioritization of innovation and digitalization process helped Albania not to be caught off the guard even during the pandemic. Mr. Frasheri mentioned that Albania was recognized as one of the countries with the fastest growth for internet from fixed networks per 100 inhabitants in the latest report of ITU. In line with GSR Best Practices Guidelines, Mr. Frasheri highlighted that AKEP finalized a series of analysis of mobile telephony wholesale, adopted regulatory documents and has been developing the 5G strategic plan for Albania. Mr. Frasheri also added that securing 5G remains one of their top challenges ahead.

Mr. Drasko Milinovic, General Director, Communications Regulatory Agency (CRA), Bosnia and Herzegovina, highlighted digital transformation can only be fully realized if high quality access to communication networks and services are available at affordable prices for all people. Mr. Milinovic added that it is not an easy task particularly for developing countries and it requires a strong collaboration between policy makers and regulators. Mr. Milinovic then identified one of the key priorities of Bosnia and Herzegovina, which is 5G planning and licencing. Mr. Milinovic also introduced the fact that CRA is working on the legislation of European Electronic Communications Code and the draft of broadband strategy for Bosnia and Herzegovina. Finally, Mr. Milinovic highlighted the importance of data analytics capabilities and cooperation with their international partners including ITU.

Ms. Tanja Muha, Director, Agency for Communication Networks and Services of the Republic of Slovenia (AKOS) pointed out that Slovenia is one of the most rural countries with scattered settlement in Europe and faces many challenges in building high capacity fibre-to-the-home (FttH) and 5G networks due to low commercial interest in less populated areas and low return of investments. To ensure the connectivity all, Ms. Muha introduced three portals that AKOS established, which are geoportal for all telecommunication infrastructure, investments portal for announcing planned constructions, and portal MiPi, for media and informational literacy. Ms. Muha also updated about the frequencies band allocation for 5G technology which happened in the summer of 2021 and pointed out the important role of regulators in encouraging investment in high connectivity of digital networks.

Mr. Tonko Obuljen, President of the Council, Croatian Regulatory Authority for network industries (HAKOM), Croatia shared that Croatia has been through the challenging period due to the pandemic and two earthquakes in 2020. HAKOM had an excellent cooperation with all the operators to response to this serious situation in a short period of time. Although some projects were delayed, HAKOM is currently active in deploying the measures mentioned in EU Connectivity Toolbox and implementing more dynamic electrocommunication market. Mr. Obuljen also mentioned that the main challenge in Croatia today is deployment of 5G services.

Mr. Dragoljub Stefanovic, Chief Operating Officer, Regulatory Agency for Electronic Communications and Postal Services (RATEL), Republic of Serbia, highlighted that reliable broadband available to citizens, businesses and the overall economy has become crucial and investments and incentives by the government to roll out very high-capacity network are also vital to the further digitalization of the society. Mr. Stefanovic stated that RATEL implements a GIS broadband mapping system and collaborates with the state authorities for the legislation on electronic communication, the strategy

planning for introducing 5G services, e-government services, and secure cyber security. Mr Stefanovic also shared that the Serbian government in partnership with the EBRD is putting significant investment in infrastructure upgrades.

Mr. Darko Grgurovic, Executive Director, Agency for Electronic Communications and Postal Services (EKIP), Montenegro, stated that the pandemic greatly affected the way of living and substantially increase the importance of electronic services, and mentioned that a huge progress has been made during the 20 years of presence of EKIP.

5. CONFERENCE SESSIONS

SETTING THE CONTEXT

Global trends and ITU GSR-21 Best Practice Guidelines

Following high level interventions and the signature ceremony, **Ms. Sulyna Abdullah**, Chief, Digital Knowledge Hub Department, BDT, ITU, delivered a short [presentation](#) on global trends and ITU GSR-21 Best Practice Guidelines. Ms. Abdullah stated that regulatory and institutional framework are essential in driving digital ecosystem growth. Also, new policies and regulations need to be built in and onto existing ones in order to increase their relevance and impact on the development of the digital ecosystem and also to find market solutions to new challenges. Ms. Abdullah highlighted that regulators and policy makers are playing an instrumental role in defining a new normal in a new digital post-COVID world. Ms. Abdullah then also pointed out that the role of government is to clear the way to invest and support vibrant and competitive markets for future-proof broadband and digital services and there is a need to adopt alternative approaches to spur investments in non-commercial or challenging areas. Ms. Abdullah specified that the 2021 Consultation focused on effective and agile financing mechanisms to digital infrastructure, access and use, prototyping regulatory patterns for the post-Covid digital world, and transformational leadership to unleash the power of emerging technologies and business models. Finally, Ms. Abdullah invited all the regulators to contribute to the next GSR Best Practices Guidelines, engage in GSR discussions, take the GSR-21 recommendations home to be implemented to your local context and engage in regional association and processes.

SESSION 1: POLICY AND REGULATORY INCENTIVES FOR AFFORDABLE AND ROBUST CONNECTIVITY

Focus: New business models are needed to ensure better affordability and uptake of connectivity, with particular attention to the last mile. Beyond the extraordinary measures put in place during the outbreak of the pandemic, panellists will discuss emerging solutions in terms of policy actions and regulatory incentives to increase affordability and uptake.

Moderator: Ms. Sofie Maddens, Head of Regulatory and Market Environment Division, Telecommunication Development Bureau, ITU

Panellists: Ms. Vladana Radisavljevic Djordjevic, Head of Group for planning and development of electronic communication networks and services, Ministry of Trade, Tourism and

Telecommunications, Republic of Serbia, [[presentation](#)] Ms. Sophio Tvalavadze, Head of Department of Communications, IT and Innovations of the Ministry of Economy and Sustainable Development (MoESD), Georgia, Mr. Luis Manica, Expert, External Affairs Office, Autoridade Nacional de Comunicações (ANACOM), Portugal, [[presentation](#)] and Mr. Pavle Mijuskovic, Deputy Executive Director – Head of Department for Electronic Communications Networks and Services, Agency for Electronic Communications and Postal Services (EKIP), Montenegro [[presentation](#)]

Key points:

Ms. Vladana Radisavljevic Djordjevic, Head of Group for planning and development of electronic communication networks and services, Ministry of Trade, Tourism and Telecommunications, Republic of Serbia

- The availability of fixed broadband was mapped in the third quarter of 2019 in Serbia and the data were gathered from all electronic communications operators with market share above 1% at the settlement level, which are around 4600 settlements. Settlement level resolution provided enough data to determine white and grey areas and start incentives scheme.
- In the first quarter of 2020, the Serbian government adopted ‘Regulation on the establishment of Program of use of funds of the Budget fund for financing activities and improvement and development measures in the field of electronic communications and information society in 2020’ on the proposal of the Ministry of Trade, Tourism and Telecommunications.
- This regulation was based on ‘EU Guidelines for the application of state aid rules in relation to the rapid deployment of broadband networks (2013)’.
- The first phase of the Rural Broadband Rollout Project is already being implemented covering 475 settlements and 80,000 households. The Ministry conducted open public calls for selection of private operators for joint infrastructure construction and will construct mid-mile segment, connecting schools/public institutions in targeted areas to optical backbone.
- Selected operators will have obligation to deploy last-mile infrastructure covering at least 95% of household in targeted areas, with at least 100+Mbps. They will have obligation to provide broadband service for free for connected schools/public institutions in targeted areas.

Ms. Sophio Tvalavadze, Head of Department of Communications, IT and Innovations of the Ministry of Economy and Sustainable Development (MoESD), Georgia

- The Georgian government has taken measures to support building broadband infrastructure. Due to some legislation changes in 2015 related to digital neutrality, Georgia started providing mobile 4G broadband services. 100% of population in Georgia is covered by 4G signal.
- Georgia is planned to provide 5G services so the preparation process of strategic plan, coordination of frequencies with neighboring countries are underway.
- Within the framework of the EU for digital program, with the support of the European Commission and the World Bank group, Recommendations on national broadband strategy of Georgia was elaborated, including implementation and action plan for 2020-2025. Georgia officially adopted the national broadband strategy on 10 January 2020.

- The Key objective of the plan is to enhance legal regulatory framework for broadband development in line with EU norms and to overcome the digital divide between urban and rural areas. Targets are in line with EU Gigabit Society targets for 2025.
- Georgia has started 'login Georgia' project supported by the World Bank, which has three components: to increase the access to affordable broadband internet, to promote the use of broadband enabled digital services, and to support the projects of implementation.
- The first component of 'login Georgia' is the most important among the three, which supports the construction and activation of the fibre optic networks under the program of broadband infrastructure development for the selected rural settlements. 5000 km of fibre optic infrastructure is planned to be deployed and 170,000 households will benefit at least 100 Mbs/s of broadband internet services and administrative bodies will 1Gb/s.
- Georgia is also engaged in training and capacity building, e-commerce and e-government services and special activities targeting women and people with disabilities. A draft law is submitted in the parliament to improve the quality of broadband network.
- With the support of the European Bureau of Internet Society, the connectivity projects in mountainous and remote area in Georgia has successfully completed in 2017 and 2019.

Mr. Luis Manica, Expert, External Affairs Office, Autoridade Nacional de Comunicações (ANACOM), Portugal

- The Member States of the European Union notified the European Commission to spend 62.7 billion euros as a state aid to achieve very high capacity networks, but only 7.8 billion euros were spent during 2014 and 2019. Portugal achieved 87% of very high capacity network coverage which is higher than the average of EU, 44%. Portugal stays the second highest among the Member States in terms of subscribers to at least 100Mbps broadband take-up.
- ANACOM Portugal indicated that it is not easy to cover the low populated area with high capacity virtual network, which takes up a large part of the territories of some countries such as Portugal, Spain, France and some Scandinavian countries.
- Portugal has use targeted regulation allowing all the telecom operators to access civil infrastructures and imposed no fibre access obligations, which lead to the promotion of co-investment. State aid has been also used in line with the start of the private investments in 2009 and the resolution promoting very high capacity networks as a strategic priority for Portugal.
- ANACOM indicated major problems in Portugal as high prices of broadband offer, excessive bundling in end users' services and loyalty offers imposing high charges on consumers in case of early termination of contracts.
- ANACOM mentioned that state aid for the remaining uncovered areas is needed at the supply side and social tariffs for broadband access is needed at the demand-side to close the digital gap in post-pandemic era.

Mr. Pavle Mijuskovic, Deputy Executive Director – Head of Department for Electronic Communications Networks and Services, Agency for Electronic Communications and Postal Services (EKIP), Montenegro

- Montenegro has 4 operators in fixed telephony and 3 operators in mobile telephony. The investment on electronic communications sector takes up about 40% of its revenue in total during 2016 and 2020.
- Total fixed broadband traffic and average monthly traffic per subscriber have been growing. Around 77% of the households are covered by 100Mbps network and 14.36% of the households are not covered by the networks. Mobile internet users, mobile internet traffic and average monthly traffic per user have been all growing continuously.
- Although the mobile network in Montenegro quite dense, there exists still areas with no coverage. UTMS, LTE and LTE (10 Mbps dl) covers 80.91%, 78.65% and 74.76% of its territory, respectively. In terms of population, UTMS, LTE, and LTE (10 Mbps dl) covers 97.93%, 97.53%, and 97.10% of the whole population, respectively.
- The Ministry of Economic and Development of Montenegro has been preparing a comprehensive study to analyse the current situation, to classify the three zones depending on the number of available networks in present or upcoming three years.
- Broadband cost-reduction directive is still in the process to be adopted by the parliament of Montenegro, which is expected to make improvements in network infrastructure, transparency and rights to users' access to the political infrastructure. This law will also help reduce the environment impact of electronic communication networks.
- Montenegro also mentioned harmonization of different laws and reducing fees for deploying infrastructure in local road, state-owned or municipality-owned area are needed.
- Montenegro plans to have auction for pioneer frequency for 5G beginning of the year 2022.

Points made during the discussion:

- Serbia stated that ensuring resilient connectivity, deploying high quality electronic communication networks, converging the digital divides are the main challenges. Serbia also added that it is important each stakeholders do their best in their own field to overcome the challenges.
- Georgia identified the challenges as developing digital economy not only for resilient connectivity but also closing the digital gaps and skills causing by the lack of investment, poor affordability of access and low final returns in rural area.
- Portugal experienced serious forest fire which damaged the network infrastructure. Portugal government took 27 measures to protect telecom networks such as using radio links as an alternative in the event of emergency, changing from aerial to undergoing cables using preferably existing infrastructure, and creating and maintaining a fire protection band which has high tolerance of fire risks.
- Montenegro had one major interruption during the pandemic crisis which affected a large number of subscribers and EKIP adapted the regulation and forced the infrastructure sharing to solve this problem. From the perspective of EKIP, keeping a good relationship with operators helped to deal with such disaster.
- From the perspective of Serbia, only joint work among private sectors, NGOs, academia, policy makers and regulator can reach to appropriate solutions on universal connectivity.
- Georgia already experienced successful regulatory framework and policy programs with many actors involved, particularly through public consultation.

- ANACOM Portugal considers cooperation with other stakeholders crucial. Particularly collaboration with academia helped ANACOM to obtain scientific knowledge on EMF and its impact on human health.
- Montenegro reiterated the importance of all the stakeholders playing their part to solve challenges in ICT sector.

SPECIAL SESSION ON EMERGING CHALLENGES IN A POST-PANDEMIC EUROPE

Focus: Investment in infrastructure is important as much as leaving no one behind and ensuring meaningful connectivity for all. ICT accessibility is one of the challenges to ensuring uptake of digital technologies. This session will provide an example of how regulatory action can support uptake of connectivity by all groups of society and ensure better inclusion.

Speaker: Ms. Gordana Kulisic, Senior Customer Protection Expert, Croatian Regulatory Authority for Network Industries (HAKOM), Croatia

Presentation: [Digital Accessibility for all](#)

Key points:

- Croatia plans to initiate the universal services which will allow all users who do not have the technical ability to use standard packages still benefit at least 4Mbps of data transfer rate.
- In addition to such mini package, end users in socially vulnerable group will also be entitled to a 50% discount on that package, a 50% discount on the unlimited traffic option fee and more than 50% discount on public telephone service without contractual obligation.
- Within the technical possibilities operators in Croatia must provide persons with disabilities with equal access to public communications services, devices that enables persons with impaired hearing to make a call and access to public, access to emergency services for the deaf and the possibility of receiving subscribers' contracts and invoices in customized forms.

Points made during the discussion:

- ITU took the floor to illustrate the work that ITU is doing in the region on ICT accessibility. More can be found on the [webpage](#).

SESSION 2: 5G IMPLEMENTATION: STRATEGIES, POLICIES AND REGULATION ACCELERATING DEPLOYMENT OF MOBILE CONNECTIVITY

Focus: The Session will take a holistic approach to 5G implementation focusing on the outcomes and strategic next steps following spectrum auctions, including best practices from consultation process, innovation ecosystem development, and use cases and business models for market development.

Moderator: Mr Boris Jevrić, Chief Deputy Executive Director – Head of Radiocommunication Department, Agency for Electronic Communications and Postal Services (EKIP), Montenegro

Speaker: Mr. Anestis Gikopoulos, Policy Officer, Radio Spectrum Policy Unit, DG CNECT - European Commission [[presentation](#)], Mr. Elvis Babačić, General Manager for Fixed and Mobile Radiocommunication, Agency for Electronic Communications and Postal Services (EKIP), Montenegro

[[presentation](#)], Mr. Jane Jakimovski, Head of the Radio Communications Sector, Agency for Electronic Communications (AEC), North Macedonia [[presentation](#)], Mr. Krešimir Mazor, Senior Expert in Spectrum Management Department, Croatian Regulatory Authority for Network Industries (HAKOM), Croatia [[presentation](#)], and Mrs. Janja Varšek, Head of Spectrum Management Department, Agency for Communication Networks and Services of the Republic of Slovenia (AKOS) [[presentation](#)].

Key points:

Mr. Anestis Gikopoulos, Policy Officer, Radio Spectrum Policy Unit, DG CNECT - European Commission

- The European Commission introduced the 5G Action Plan and the European Electronic Communication Code with the support of Radio Spectrum Policy Group to put in place the EU digital single market. The European Commission also released the Implementing Regulation on Small-Area Wireless Access Points (SAWAPs) in July 2020.
- The pandemic crisis highlights the need of EU wide very high capacity of broadband and investment on digital infrastructure, which led to the agreement on Connectivity Toolbox on 25 March 2021. 2030 Digital Compass is also being updated in the light of the pandemic, with a governance framework titled 'Path to the Digital Decade'.
- Among the digital decade targets is the improvement of the digital infrastructure in EU, more precisely 100% of households coverage with gigabits network and 100% of the populated areas coverage with 5G network.
- Commission Recommendation called on Member states to agree on a common Union Toolbox of best practices on connectivity by September 2020. The European Commission stated that timely deployment of very high-capacity networks and investment are major enablers for future digital services.
- The aim of Connectivity Toolbox is reducing the cost and increasing the speed of deploying very high-capacity networks and ensuring a timely and investment-friendly access to 5G radio spectrum. The Connectivity Toolbox contains 39 best practices proposed by Member States on the policy options provided under the European Electronic Communications Code and the Broadband Cost Reduction Directive.
- The European Commissions indicated that the Member States have the discretion but also the responsibility to implement the Toolbox. Each Member State should have provided the European Commission with a roadmap for the implementation of the Toolbox by 30 April 2021 including the initial assessment of usefulness of best practices, expected plan regarding the implementation, and indicative timing and potential stakeholders for implementation.
- The Member States of the EU have started implementation of the national roadmaps of the Toolbox is ongoing and are planned to report by the end of April 2022 to the European Commission.

Mr. Elvis Babačić, General Manager for Fixed and Mobile Radiocommunication, Agency for Electronic Communications and Postal Services (EKIP), Montenegro

- Currently there is no commercial 5G operations in Montenegro and only one 5G test has been done in June 2021. They conducted survey and study on strategy for implementations of 5G and a spectrum auction for the renewal and 2.6GHz will be started in October 2021. A

spectrum auction for pioneer 5G bands is planned in 2022. Guidelines for 5G base stations authorization regarding EMF exposure is also scheduled in 2022.

- The survey showed very low awareness of the potential of 5G, possible user scenarios and benefits from 5Gs in Montenegro, except in the group of national operators. Operators are interested in deploying 5G network without any obligation regarding coverage and quality of service, Operators indicated main obstacles are complex, inefficient and time-wasting procedures for construction of base stations and the access to state-owned land. They indicated EMF exposure, cyber security and data protection as potential main risks of 5G.
- The study is expected to identify technological, regulatory, security, spectral and structural challenges, constraints and barriers to the deployment of 5G mobile communications networks and the development of 5G infrastructure and to provide appropriate guidance to enable the deployment of 5G mobile networks in Montenegro by the end of 2022. It contains 22 recommendations and action plan for 5G in 8 steps including other activities and communication strategies regarding EMF exposure, cyber security, data protection and conspiracy theories related to 5G.
- From the perspective of Montenegro, implementation of 5G networks and services will be gradual and LTE/LTE-Advanced/LTE-Advanced Pro will remain dominant mobile technology at least in the next five year. Therefore, Montenegro mentioned that further enhancement is needed and more operational complexity and costs are expected.
- Montenegro mentioned that the regulatory framework should be harmonized at the European level and work on raising awareness of 5G and risk communication. As Montenegro planned to provide commercial 5G services by the end of 2022, the need of national 5G strategy and action plan is highlighted.

Mr. Jane Jakimovski, Head of the Radio Communications Sector, Agency for Electronic Communications (AEC), North Macedonia

- AEK received the public consultation for issuing frequency authorizations for 5G and the result shows that there is no operator interested in all frequency bands and around 20 years of longer duration of licenses is preferred. Also, all operators support synchronization of networks and some scared citizens due to fake news called to stop the 5G procedure.
- AEK announced its intention to conduct a public tender on 1 June 2021 with public bidding to issue a limited number of authorizations for use of radio frequencies in 694-790 MHz, 3400-3800 MHz and 24.25-27.5GHz. During the public hearing that lasted until 5 July 2021, three operators showed their interests.
- The national broadband targets for Macedonia are as follows: By the end of 2023, at least one larger city to be covered with 5G signal; By the end of 2025, the main corridors in accordance with the Treaty establishing the Transport Community on the basic and comprehensive road network in the country should be covered with an uninterrupted 5G signal; By the end of 2027, all towns in the country are covered with uninterrupted 5G signal; By the end of 2029, anyone can have the opportunity to access the internet through 5G with a minimum speed of internet access of at least 100 Mbps.

Mr. Krešimir Mazor, Senior Expert in Spectrum Management Department, Croatian Regulatory Authority for Network Industries (HAKOM), Croatia

- Despite some geographical difficulties in providing good quality of service with 1246 islands, Croatia has been handling national spectrum management appropriately.

- Croatian Telecom(HT) and A1 Croatia are the major operators in Croatia. Their market share on fixed network market as of 2020 is above 90% including in the market of broadband access services, pay TV and IPTV services and fixed telephony services.
- Croatia has two stages of auction with the format of SMRA, which are the main auction stage for generic blocks and the allocation stage for specific location of the blocks in the band.
- 5G coverage obligations of the winners of the 700MHz band include population in urban areas, rural areas, highways and the selected railways. 4G/5G coverage obligations include population in 60 selected underserved settlements, 20 selected underserved municipalities of special interest. Also at least -110 dBm of Reference Signal Received Power is required.
- Operators with national licenses the spectrum in 3600 MHz band have to put in operation at least 1 base station in each county by the end of the year 2022 and at least 200 base stations in total by the end of the year 2025. On the other hand, operators with regional licenses in 3600 MHz band have to put in operation at least 1 base station in each county by the end of the year 2022 and at least 1 BS in Varaždin and Međimurje county by the end of the year 2024.
- Passive infrastructure sharing is already prescribed by applicable regulations and legal acts. Operators also have obligation to active infrastructure sharing, national roaming and wholesale access to mobile virtual network operators.
- Croatia issues license with the duration of 15 years with the possibility of extension of 5 years, except some regions such as Varaždin and Međimurje where the duration is for 12 years with the possibility of the extension of 5 years.

Mrs. Janja Varšek, Head of Spectrum Management Department, Agency for Communication Networks and Services of the Republic of Slovenia (AKOS)

- Slovenia finalized the draft tender documentation on 30 October 2020 and the tender process was done by 10 June 2021.
- The operators in each frequency band should start using frequencies and offering services to end-users in at least one major city in a year. They should offer services to end user using all these frequencies in all major cities in 5 years. For 700 MHz SDL, 1500 MHz SDL and 26 GHz bands, the operators should start using frequencies and offering services to end-users in at least one major city in 5 years.
- AKOS promotes sharing of passive or active infrastructure or spectrum pooling to the extent that infrastructural competition is not limited. AKOS also promotes business arrangements on national roaming and joint deployment of infrastructure for the provision of networks and services based on the use of radio frequency spectrum. Sharing of frequency and active infrastructures is allowed in challenging areas such as Triglav National Park, road and railway tunnels, Slovene border and Piran bay.
- In the 26 GHz band, frequency pooling and active sharing is permitted, including dynamic spectrum sharing. Until the end of the year 2025 synchronization is required in 2300MHz, 3600MHz and 26GHz in compliance with the default synchronization scheme.
- The winners of the public tender will have to comply with the relevant national and European legislation, internationally recognized standards and best practices in networks and services security and operational continuity and adequate and proportionate organizational and technical measures for managing security risks and safety.

SESSION 3: FROM MARKET ANALYSIS TO MARKET VISUALISATION: ENABLING ENVIRONMENT FOR EVIDENCE BASED REGULATION

Focus: Evidence-based decision making is more and more at the heart of regulatory policy, providing insight into the status of networks and informing decisions. This session will investigate how NRAs are using or planning to use broadband mapping and other tools to support the achievement of policy objectives at the country level.

Moderator: Mr Jaroslaw Ponder, Head of ITU Office for Europe, ITU

Panellists: Mr. Fjorald Bitri, Network and Infrastructure Specialist, Technical Department, Electronic and Postal Communications Authority (AKEP), Albania [[presentation](#)], Mr. Antonin Borgnon, Deputy Head - Coverage and Rollouts Unit, Electronic Communications, Postal and Print media distribution Regulatory Authority (ARCEP), France [[presentation](#)], Ms. Agnieszka Gladysz, Director of the Department of Strategy and Analysis, Office of Electronic Communications (UKE), Poland [[presentation](#)], and Ms. Meliha Kovacevic, Head of Licensing Department, Communications Regulatory Authority (CRA), Bosnia and Herzegovina [[presentation](#)]

Key Points:

Mr. Fjorald Bitri, Network and Infrastructure Specialist, Technical Department, Electronic and Postal Communications Authority (AKEP), Albania

- AKEP Albania functioned and coordinated with the operators to ensure the provision of electronic communication services during the pandemic crisis. Its role in cross-sector coordination has become important to manage such crisis and also ensure the fundamental service sustainability.
- AKEP has contributed to draft the Roadmap to reduce roaming charges between EU and Western Balkan countries. The objectives of the Roadmap are defined by Statement of Support to the Digital Agenda for the Western Balkans.
- Currently available, the Atlas mapping system gives information for shared infrastructure, transparency for fixed and mobile network availability, active network provides within the area, but not the information on end user infrastructure by which the service is accessed.
- Following the National Plan for sustainable development of broadband digital infrastructure 2020-2025 adopted by the council of ministers, AKEP has applied a new project 'Development of broadband Atlas for Albania' at the Western Balkan in cooperation with the ministry of Infrastructure and Energy and the World Bank, to include information for last-mile connectivity on Atlas.
- Network radio infrastructure map, fiber optic map and network passive infrastructure map are available on Atlas, as well as monitoring of quality of mobile services.

Mr. Antonin Borgnon, Deputy Head - Coverage and Rollouts Unit, Electronic Communications, Postal and Print media distribution Regulatory Authority (ARCEP), France

- ARCEP introduced its broadband mapping website which provides the information on the speed of and the access to networks of fixed, 4G, 5G and satellite at the address level.

- ARCEP conducted a follow-up study on engagements of operators for FttH rollouts as Orange and SFR has the targets by 2020 and by 2022. Using the data of FttH rollouts, ARCEP checks the speed, the dynamicity of networks, and the areas not covered sufficiently.
- ARCEP also conducted prospective studies such as forecast of broadband access evolution between 2020 and 2025. Requested by the French government, ARCEP combined the data on current situation, FttH rollouts forecast, and Fixed Wireless Access (FWA) sites deployment forecast and created a model on FttH rollouts speed in an area to forecast access to 8Mbps and to 30Mbps.
- ARCEP also conducted a study on the opportunity of installing a new mobile site to enhance fixed-like connectivity services and created 600 local atlas maps with indicators of the speed of networks to give local knowledge of situation to help prioritize the most interesting sites.

Ms. Agnieszka Gladysz, Director of the Department of Strategy and Analysis, Office of Electronic Communications (UKE), Poland

- Poland indicated that broadband mapping can be approached from different perspectives such as infrastructure mapping, investment mapping, service mapping mainly by provider sourced data, and demand mapping mainly by user sourced data. Poland chose infrastructure and service mapping, and the telecommunication operators are legally obliged to provide the data.
- Coordination between stakeholders such as ICT ministries, national regulatory authorities, telecom operators, internet service providers, local authorities and consumers is important to collect good data and to allow them to use this data for different purposes.
- Poland takes all the action in line with the EU strategy and directive in creating geographic zone mapping and infrastructure mapping which allows effective intervention and specific targeting of funds to improve existing infrastructure and to minimize digital inequalities.
- Poland followed the basic steps of developing a broadband mapping methodology, which are setting objectives, appointing the authority in charge, defining data collection requirements, deciding obligatory data supply and considering the confidentiality of the data.
- Poland identified 7 minimal project requirement baselines which are legal compliance, complete functionalities, reasonable cost of implementation and maintenance, accessibility, availability and easy to use, technology-neutral approach, consideration of population density and specific facilities, and centralized reporting and presentation.
- As minimal technical requirement baselines, Poland emphasizes verifying IT resources and compliance with common technical standards, existing registers in the beginning of the process and also building strict data formats and validation frameworks.

Ms. Meliha Kovacevic, Head of Licensing Department, Communications Regulatory Authority (CRA), Bosnia and Herzegovina

- Bosnia and Herzegovina have created two geoportals for infrastructure mapping based on EU INSPIRE (2008) obligations corresponding to the constitutional order. These geoportals enable transparent and useful method for access to spatial data.

- Elements of service mapping such as number of internet subscribers in cities, fixed network coverage by the operators and network nodes per operator are present in all reports and market analysis of Bosnia and Herzegovina.
- Bosnia and Herzegovina recently introduced a map test called RAK NetTest that shows quality of broadband services on the map by sourcing data directly from end users.
- Lack of coordination and cooperation between stakeholders is mentioned as big challenges and identification of the roles of each stakeholder is much needed in Bosnia and Herzegovina.
- Collaborating with AKOS, ITU is providing technical assistance to Bosnia and Herzegovina on supporting the creation of an 'Enabling Environment for Broadband Mapping in Bosnia and Herzegovina' which is expected to offer a comprehensive guideline by Q4 this year.

6. CLOSING REMARKS

Mr. Jaroslaw Ponder, Head of Regional Office for Europe, ITU, and Chair of the event, thanked participants and panellists and briefly summarized the excellent content emerged through the various sessions. He thanked speakers and in particular high-level representatives of National Regulatory Authorities and the European Commission. He also emphasized the need to take action on investment in connectivity and protection of the competition, 5G implementation, and new evidence based methods and tools for regulatory action. Mr Ponder reiterated that ITU stands ready to support countries through implementation of capacity building, knowledge development, technical assistance, exchange of best practices, and ad hoc projects to support the implementation of Regional Initiative 1 on "broadband development, broadcasting, and spectrum management".

Mr. Ponder also recognized the work undertaken by the Agency for Electronic Communications and Postal Services of Montenegro for the support in organising this event, organised jointly with ITU Office for Europe. Finally, Mr Ponder also commended EKIP for 20 years of activity reiterating the willingness to continue the fruitful collaboration over the coming months and years.

Mr. Darko Grgurović also thanked participants and panellist for joining the Forum and reminded about the priority to ensure that broadband reaches all citizens to make sure they can leverage digital services. Mr. Grgurović also reiterated the invitation to join physically in 2022 in Budva, Montenegro, as it is usual practice for ITU Regional Regulatory Forums, should the situation relating to pandemic allow for it next year.