

# Mapping of Broadband Infrastructure and Services in Montenegro

**Montenegro**

**Agency for Electronic Communications and Postal Services**

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Warsaw, Poland

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## **NATIONAL REGULATION RELATED TO THE MAPPING**

### **1. THE LAW ON ELECTRONIC COMMUNICATIONS**

#### **1. THE RULES ON THE TYPE, MANNER OF DELIVERY AND DISCLOSURE OF DATA ON ELECTRONIC COMMUNICATIONS INFRASTRUCTURE AND ASSOCIATED FACILITIES WHICH MAY BE OF INTEREST FOR THE SHARED USE (IN ACCORDANCE WITH THE LAW ON ELECTRONIC COMMUNICATIONS)**

#### **1. THE LAW ON THE MEASURES TO REDUCE THE COSTS OF DEPLOYING HIGH-SPEED ELECTRONIC COMMUNICATIONS NETWORKS**

## THE LAW ON ELECTRONIC COMMUNICATIONS - ELECTRONIC COMMUNICATIONS INFRASTRUCTURE

**Article 11 - Competences of the Agency:** *The Agency promotes the national use of electronic communications infrastructure*

**Article 29 - Agency registrie :** *The Agency shall keep the register of electronic communications infrastructure and associated facilities of operators*

**Article 39 - Construction and the use of electronic communications networks:** *The terms of use and other conditions for planning, construction, maintenance and the use of particular types of electronic communications networks, electronic communications infrastructure and associated facilities are prescribed by the Agency.*

**Article 41 - Electronic communications network in buildings:** *More detailed technical and other requirements for the design, construction and the use of electronic communications network, electronic communications infrastructure and associated facilities in buildings are prescribed by the Agency.*

**Article 53, 54– Shared use of electronic communications infrastructure:** *The Agency has adopted the regulation laying down detailed conditions and the manner of shared use of electronic communications infrastructure and associated facilities and measures for the increased availability of free capacities in such infrastructure, upon the approval of the state administration body in charge of environmental protection and spatial planning.*

**Article 55 - Data on electronic communications infrastructure and associated facilities:** *The records on the type, availability and geographic location of the electronic communications infrastructure and associated facilities which may be of interest for the shared use shall be kept by the Agency, where Operators shall submit the data on quarterly basis; the Agency shall prescribe the type and the manner of data submission.*

## THE RULES ON THE TYPE, MANNER OF DELIVERY AND DISCLOSURE OF DATA ON ELECTRONIC COMMUNICATIONS INFRASTRUCTURE AND ASSOCIATED FACILITIES WHICH MAY BE IMPORTANT FOR THE SHARED USE

*The Rules prescribe content and the form of data regarding cable ducts, masts and buildings. The forms include spatial and technical data regarding electronic communications infrastructure and associated facilities. These data should be provided by the operators which are the owners of electronic communication infrastructure.*

*Also, the Rules prescribe Georeferenced database and associated web portal, which is dedicated to the records on electronic communications infrastructure, and provide data to EKIP, operators, spatial projects designers, and other stakeholders – depending on the authorization to access date.*

*Georeferenced database and web portal use the maps and services of the Real Estate Administration of Montenegro.*

## LAW ON THE MEASURES TO REDUCE THE COSTS OF DEPLOYING HIGH-SPEED ELECTRONIC COMMUNICATIONS NETWORKS

- *Currently is in the phase of public consultation and is expected to enter into force till the end of 2019*
- *Prepared in accordance with the Directive 2014/61/EU of the European Parliament and of the Council of 15 May 2014 on measures to reduce the costs of deploying high-speed electronic communications networks*

## CURRENT MAPPING SYSTEM

*The Agency has implemented a system for mapping the electronic communications infrastructure, which aims to provide appropriate access to data on electronic communications infrastructure in accordance with the Law on Electronic Communications and the Law on Arrangement of Space and Construction of Facilities. It is for the following purposes:*

- *An increase in the common use of electronic communications infrastructure - antenna poles, buildings / facilities, cable drainage, low voltage poles and public lighting posts*
- *Improved production of planning documentation*
- *Acceleration of the new generation networks development*
- *Investment increase*
- *Increase of broadband access availability*
- *Electronic communications infrastructure, associated equipment and services, data provision*

## GEOREFERENCED DATABASE AND ASSOCIATED WEB PORTAL

- *Provide efficient performance of legal obligations of EKIP in providing data access to the various stakeholders (operators of electronic communications networks and services, spatial projects designers, local and national institutions, investors and other interested parties)*
- *The access is provided after the permission has been issued by EKIP to the user, upon the user's request, in accordance with the law.*
- *Data are provided in .shp format and kept in Postgree SQL database in the EKIP.*
- *Web applications are based on the EsriArcGIS Server Platform. It allows the operators to deliver data on their electronic communications infrastructure and associated equipment to all interested parties, (which are allowed to review data in accordance with their permissions), and to EKIP, which reviews data and makes various reports.*



## ACCESS TO THE WEB PORTAL

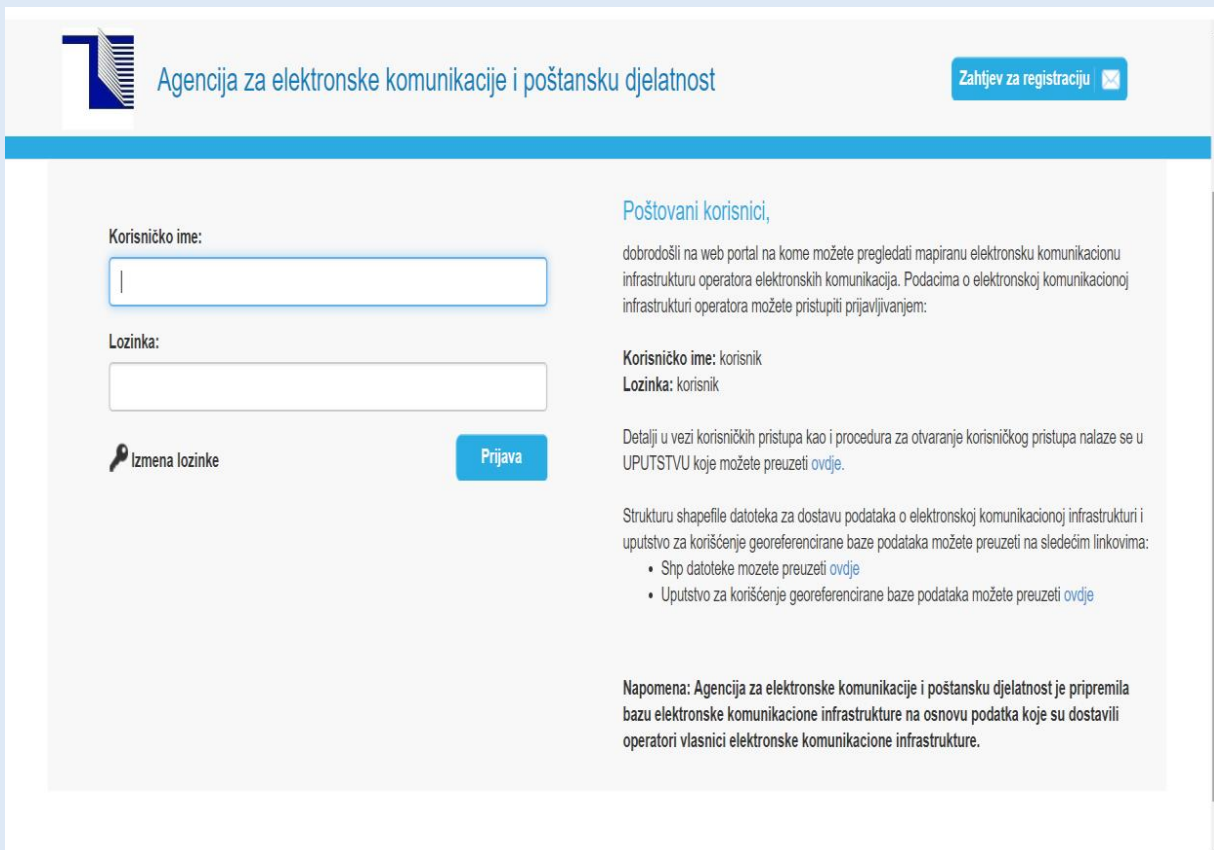
### **Public access provides:**

- *Geographical location and ownership of the ducts and manholes*
- *Geographical location and ownership of the antenna poles*
- *Geographical location and ownership of the buildings for placing the equipment*

### **There are other types of access:**

- *For operators*
- *For designers*
- *For local and national institutions*

**Available data depend on the type of user in accordance with the law**




Agencija za elektronske komunikacije i poštansku djelatnost

Zahtjev za registraciju

Korisničko ime:

Lozinka:

 Izmena lozinke

Prijava

Poštovani korisnici,

dobrodošli na web portal na kome možete pregledati mapiranu elektronsku komunikacionu infrastrukturu operatora elektronskih komunikacija. Podacima o elektronskoj komunikacionoj infrastrukturi operatora možete pristupiti prijavljivanjem:

Korisničko ime: korisnik  
Lozinka: korisnik

Detalji u vezi korisničkih pristupa kao i procedura za otvaranje korisničkog pristupa nalaze se u UPUTSTVU koje možete preuzeti [ovdje](#).

Strukturu shapefile datoteka za dostavu podataka o elektronskoj komunikacionoj infrastrukturi i uputstvo za korišćenje georeferencirane baze podataka možete preuzeti na sledećim linkovima:

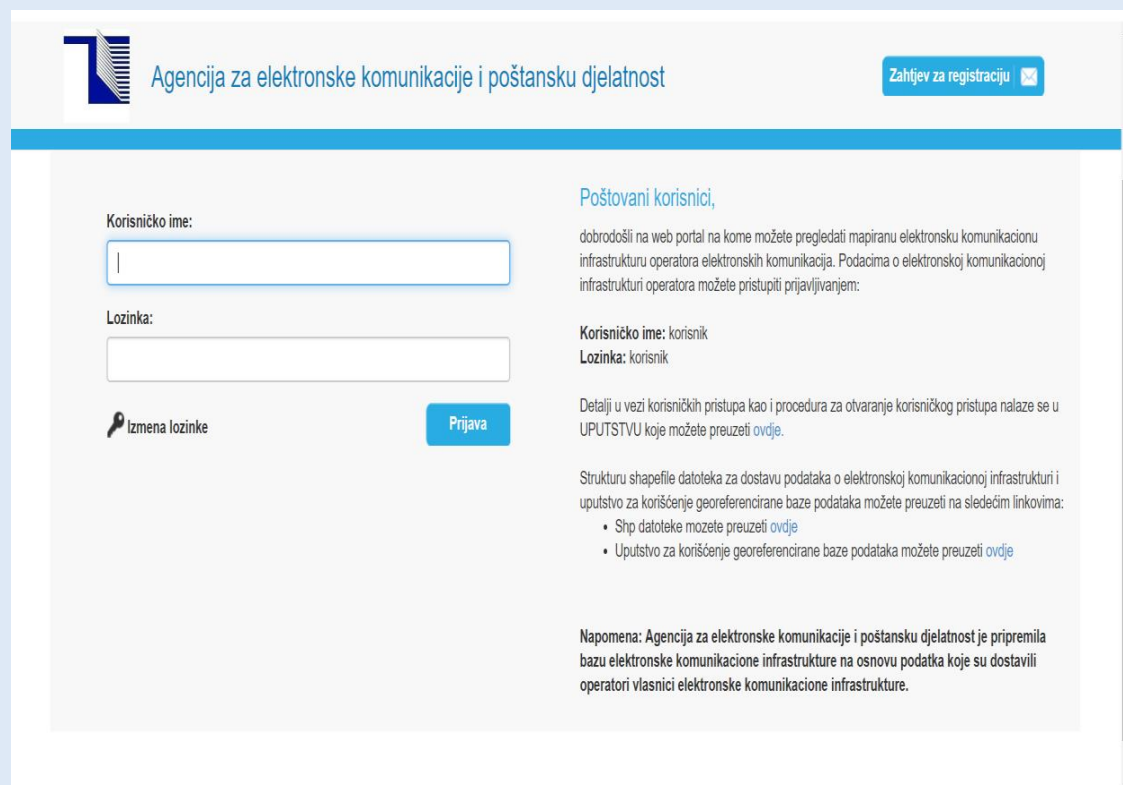
- [Shp datoteke možete preuzeti ovdje](#)
- [Uputstvo za korišćenje georeferencirane baze podataka možete preuzeti ovdje](#)

Napomena: Agencija za elektronske komunikacije i poštansku djelatnost je pripremila bazu elektronske komunikacione infrastrukture na osnovu podataka koje su dostavili operatori vlasnici elektronske komunikacione infrastrukture.

## OTHER TYPES OF THE ACCESS TO THE WEB PORTAL

- *For operators*
- *For designers*
- *For local and national institutions*

*Available data depend on the type of user in accordance with the law*



The screenshot shows the login page of the 'Agencija za elektronske komunikacije i poštansku djelatnost'. It features a header with the agency's logo and name, and a 'Zahtjev za registraciju' button. The main content area has a login form with fields for 'Korisničko ime:' and 'Lozinka:', a 'Prijava' button, and a link for 'izmena lozinke'. To the right of the form, there is a section titled 'Poštovani korisnici,' which welcomes users and provides information about the portal's purpose and available data. It includes a list of links for downloading data (Shp datoteke, Uputstvo) and a note about the agency's role in preparing the electronic communication infrastructure database.

Agencija za elektronske komunikacije i poštansku djelatnost

Zahtjev za registraciju

Korisničko ime:

Lozinka:

izmena lozinke

Prijava

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dobrodošli na web portal na kome možete pregledati mapiranu elektronsku komunikacionu infrastrukturu operatora elektronskih komunikacija. Podacima o elektronskoj komunikacionoj infrastrukturi operatora možete pristupiti prijavljivanjem:

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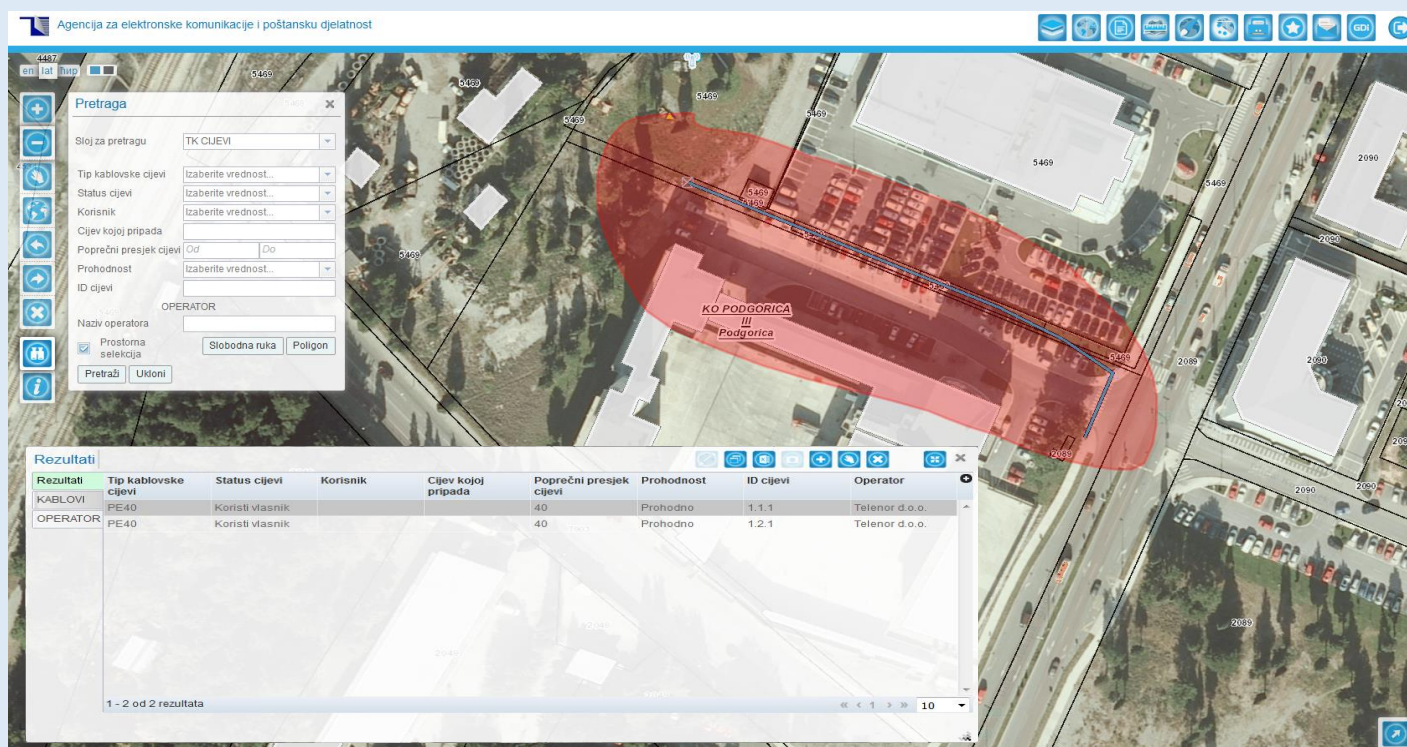
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## MAPPING OF THE DUCTS

### Data are related to:

- Geographical location
- Ownership of the ducts
- Placed cables, their owners and types
- Manholes, their owners and types
- Placed equipment
- Space availabilities ...





## MAPPING OF THE ANTENA POLES

### Data are related to:

- Geographical location
- Height and dimensions of the pole
- Ownership
- Placed equipment
- Space availabilities ...

Agencija za elektronske komunikacije i poštansku djelatnost

**Pretraga**

Svoj za pretragu: ANTENSKI STUB

Naziv lokacije antenskog stuba: Durmitor

Naziv antenskog stuba:

Opština: Žabljak

Tip antenskog stuba:

**Rezultati**

| Rezultat               | Naziv lokacije antenskog stuba | Opština | ID antenskog stuba | Operator                   | Naziv antenskog stuba | Nadmorska visina | Tip antenskog stuba | Dimenzije osnove stuba |
|------------------------|--------------------------------|---------|--------------------|----------------------------|-----------------------|------------------|---------------------|------------------------|
| ANTENSKI STUB - OPREMA | Durmitor-Veliki Štuoc          | Žabljak | 1350               | Radio dlužni centar d.o.o. | Durmitor-Veliki Štuoc | 2108 m           | Kvadrat             | 30m                    |
| OPERATOR               |                                |         |                    |                            |                       |                  |                     |                        |

1 - 1 od 1 rezultata

DURMITOR  
30.06.2014.  
Pogled 200°

Podloge

## MAPPING OF THE BUILDINGS/FACILITIES

### Data are related to:

- Geographical location
- Ownwrrship
- Placed equipement
- Space availabilities

Agencija za elektronske komunikacije i poštansku djelatnost

**Pretraga**

Sloj za pretragu: ZGRADE

Naziv lokacije: lovčen

Opština:

Naziv zgrade:

Tip zgrade:

Ukupni iznajmljivi prostor: Od: Do:

ID zgrade:

Pretraži Ukloni

**Rezultati**

| Rezultat                 | Naziv lokacije | Opština | Naziv zgrade | Tip zgrade                               | Ukupna površina                                    | Tip   | Ukupna snaga | Rezervna snaga |
|--------------------------|----------------|---------|--------------|--|--|---|--------------|----------------|
| ZGRADE - IZNAJMLJE NO    | Lovčen         | Cetinje |              | Predajnička prostorija i Prostorija veza | Predajnička prostorija 67.5 i Prostorija veza 14.3 | ORJEKTIROCI infrastruktura II kvartal 2015/LOVČEN - Cetinje.pd#CB %20Cetinje.pd | 150000W      | 200000W        |
| ZGRADE - OPREMA OPERATOR |                |         |              |  |  |   |              |                |

1 - 1 od 1 rezultata

STARA AGREGATSKA SALA

Objekat LOVČEN

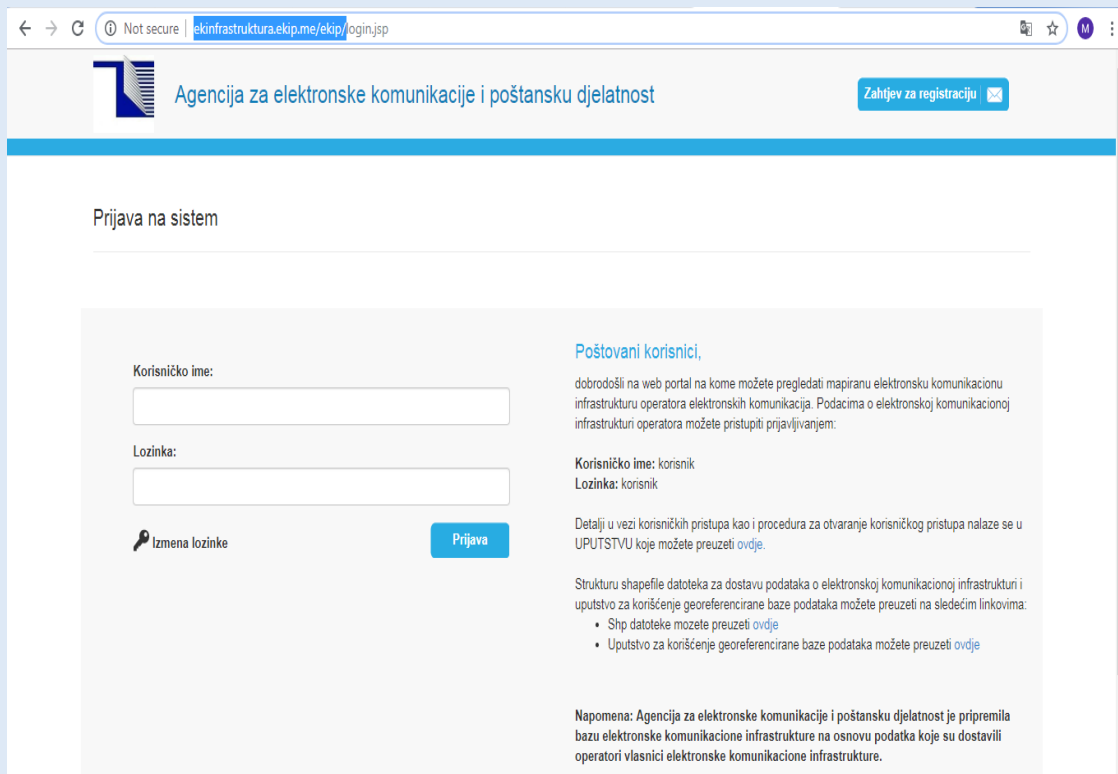
## ACCESS TO THE CURRENT WEB PORTAL

Link:

<http://ekinfrastruktura.ekip.me/ekip/>

User name: korisnik

Password: korisnik



The screenshot shows a web browser window with the address bar displaying "ekinfrastruktura.ekip.me/ekip/login.jsp". The page header includes the logo of the Montenegro Agency for Electronic Communications and Postal Services and the text "Agencija za elektronske komunikacije i poštansku djelatnost". A button labeled "Zahtjev za registraciju" is visible in the top right corner.

The main content area is titled "Prijava na sistem" (Login to system). It contains a login form with the following fields:

- Korisničko ime: (Username)
- Lozinka: (Password)

Below the password field is a link "Izmena lozinke" (Change password) and a blue "Prijava" (Login) button.

To the right of the login form, there is a section titled "Poštovani korisnici," (Dear users,) which contains a welcome message and a list of links for more information:

- Shp datoteke mozete preuzeti [ovdje](#)
- Uputstvo za korišćenje georeferencirane baze podataka mozete preuzeti [ovdje](#)

At the bottom, a note states: "Napomena: Agencija za elektronske komunikacije i poštansku djelatnost je pripremila bazu elektronske komunikacione infrastrukture na osnovu podatka koje su dostavili operatori vlasnici elektronske komunikacione infrastrukture."

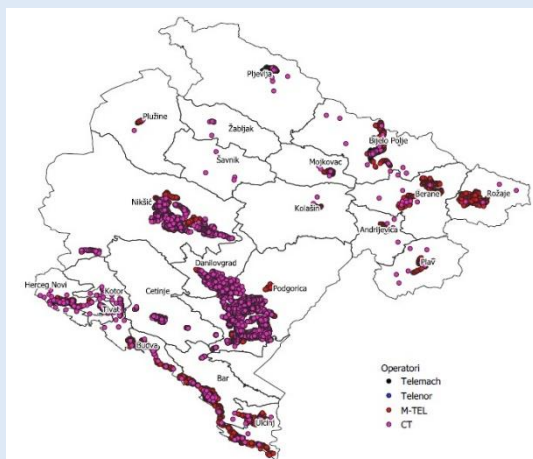
## STRATEGIC GOALS FOR DEVELOPMENT OF INFORMATION SOCIETY 2020

| Indicator   | Data for 2016 | Data for 2018 | Goals for 2018 | Goals for 2020 |
|---|---------------|---------------|----------------|----------------|
| <b>NGA coverage</b><br>% of HH with NGA coverage NGA (30 Mb/s)  | 26,5%         | <b>70,6%</b>  | 60%            | 100%           |
| <b>HH penetration of fixed BB connections</b><br>% of HH using fixed BB access (2 Mb/s)   | 53,3%         | <b>78,4%</b>  | 80%            | 100%           |
| <b>Share of fast broadband access connections</b><br>% of fast BB fixed Internet access connections (30 Mb/s) In total number of fixed BB connections | 3,6%          | <b>51,9%</b>  | 30%            | 70%            |
| <b>HH penetration of ultrafast broadband connections</b><br>% of HH using ultrafast broadband fixed access (100 Mb/s)                                 | 0%            | <b>4,2%</b>   | 20%            | 50%            |

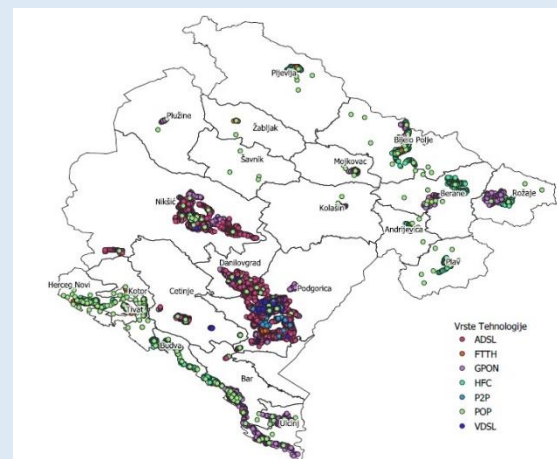


## BROADBAND MAPPING THAT HAS BEEN CARRIED OUT IN EKIP

- *EKIP has mapped network termination points of the available networks, as the part of current georeferenced database.*
- *Network termination points have been used for the purpose of mapping the coverage by operators and by technologies.*



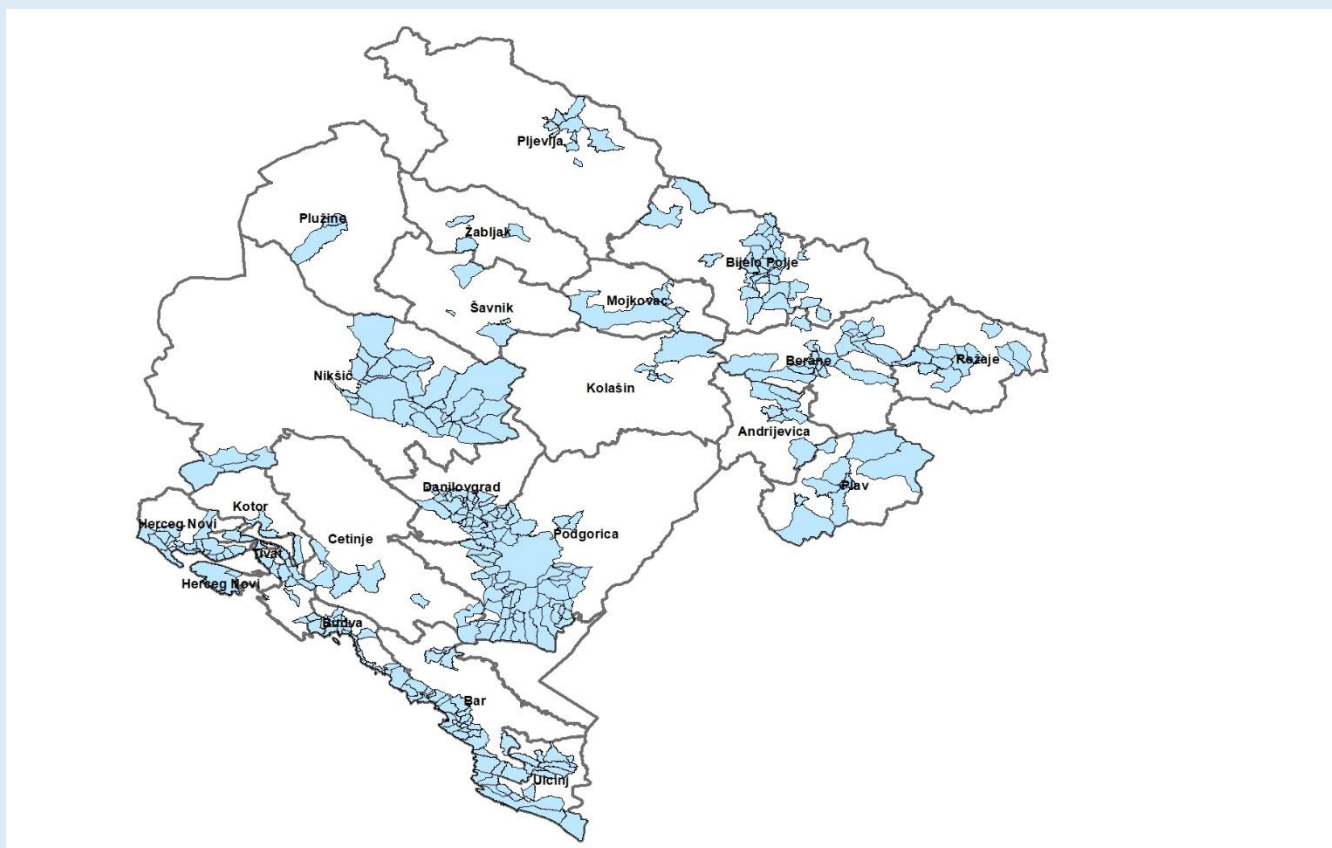
*Coverage by  
operators*



*Coverage by  
technologies*



## BROADBAND MAPPING – SETTLEMENTS COVERED BY BROADBAND



## **FUTURE STEPS FOR THE DEVELOPMENT OF GEOREFERENCED DATABASE AND ASSOCIATED WEB PORTAL THAT IS IN FORCE IN EKIP**

*As Montenegro have set the goals within its Strategy for Development of Information Society 2020, EKIP is going to improve activities related to broadband mapping.*

*Therefore, EKIP is carrying out public procurement for Improvement of Georeferenced database and associated web portal, that wil provide:*

- an upgrade and simplifications of the current software for electronic communications infrastructure mapping*
- developement of the broadband mapping based on data related to the location of the network termination points, buildings and demographical data that will be provided by operators, national statistical and catastral institutions*
- developement of mapping of the plans related to new electronic communications infrastructure that will be provided by operators.*

# Thank you for your attention!

## Q/A

[dubravka.aleksic@ ekip.me](mailto:dubravka.aleksic@ ekip.me)