AKOS

View of Slovenian Regulator (AKOS) to promote digitalization

NGA CASE STUDIES

Ohrid, 15.5.2018

Introduction

Themes to be discussed:

- Short introduction of AKOS and recent regulatory activities
- Development of Slovenian electronic communications market
- Mapping and data
- Regulation of wholesale broadband markets in Slovenia
- Broadband universal service obligation
- Joint deployment intentions
- Future work on AKOS‘s mapping project

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Introduction and recent work in a field of regulation of electronic communications

About AKOS:

- AKOS is an independent body that regulates and supervises the **electronic communications market**, manages and supervises the **radio frequency spectrum** in the Republic of Slovenia, performs tasks in the field of **radio and television broadcasting**, and regulates and supervises the **postal** and **railway** service markets,

- AKOS competencies in the field of **electronic communications** is to provide conditions necessary for effective competition, to supervise the electronic communications market, to monitor cases of planned construction of civil works and to manage numbering space,

Recent regulatory activities :

- Final decisions issued recently : wholesale relevant markets **M3a, M3b** and **M4** is in a notification process,
- General acts (secondary legislation) updated recently: 3 SA for **BB USO,**
- General acts issued recently: 3 SA (BCRD).

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Development of fixed NGA networks in Slovenia

- Specific population distribution
- **4** major operators in Slovenia
- NGA Coverage was **65,70%** of HH in 2016
- NGA Coverage was **72,68%** in of HH 2017
- Currently NGA Coverage is **76,78%** of HH
- Slovenian BB plans until 2020 and until 2025
- Fibre deployment from 2016

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Mapping and data

- Agency started to develop its own geographical information system in **2015** in order to have a full and comprehensive overview about electronic communications infrastructure in Slovenia,

- Agency has few competences regarding **supervision,** on entry of electronic communications infrastructure information into public evidence, and on **monitoring** of development and state of play in electronic communications markets for ensuring sufficient level of competition,

- Most of information in our database are publicly available in Slovenia, in addition the Agency is collecting some information from operators or obtaining them from other (closed-to-public) resources,

- Such **(geo-located**) information are very important for many regulatory decisions, for example, for geographical market analysis of wholesale markets, NRA has to analyze detailed infrastructure coverage, operators retail shares in a specific locations, retail network availability, and other aspects related to its spatial location.

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Data collection

- **Publicly available data**

- Consolidated cadastre of public infrastructure (including evidence of network termination points)
- Register of spatial units
- Business register
- Population by settlements
- The building cadaster
- Base maps

- **Collected data**

- Retail connections information
- Wholesale connections information
- HQ connections information
- Mobile coverage (base stations locations and specifications for calculating coverage)

- **Data from other public and private evidences**

- Number of households by house numbers from central population register
- Coverage, MDF/ODF locations, availability and other information from SMP information system
- Data about expressed commercial interest to build NGN networks until 2020

MINISTRSTVO ZA OKOLJE IN PROSTOR
GEODETSKA UPRAVA REPUBLIKE SLOVENIJE
PROSTOR PROSTORSKI PORTAL

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AGENCY FOR COMMUNICATION NETWORKS AND SERVICES OF THE REPUBLIC OF SLOVENIA

REPUBLIKA SLOVENIJA
MINISTRSTVO ZA JAVNO UPRAVO

REPUBLIKA SLOVENIJA
MINISTRSTVO ZA NOTRANJE ZADEVE

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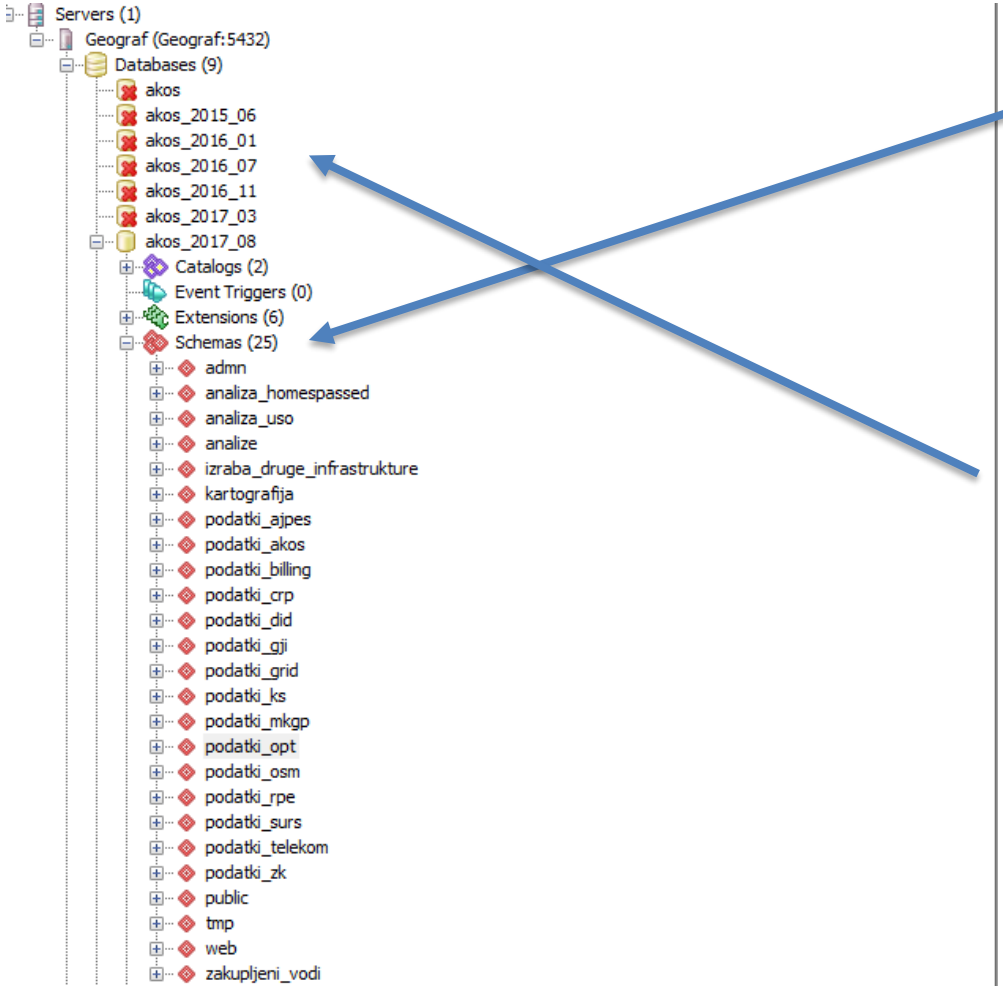
AKOS Postgres database structure



- Tables are included in schemas, each table contains several attributes,
- Such „big data“ is impossible to manage in Excel,
- Older data is also available in our system.

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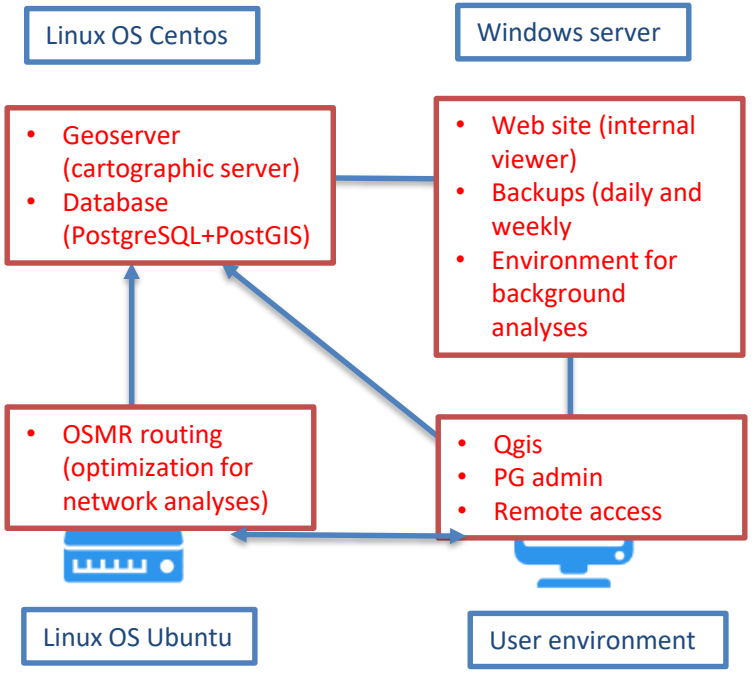
AKOS GIS structure

Hardware & Software



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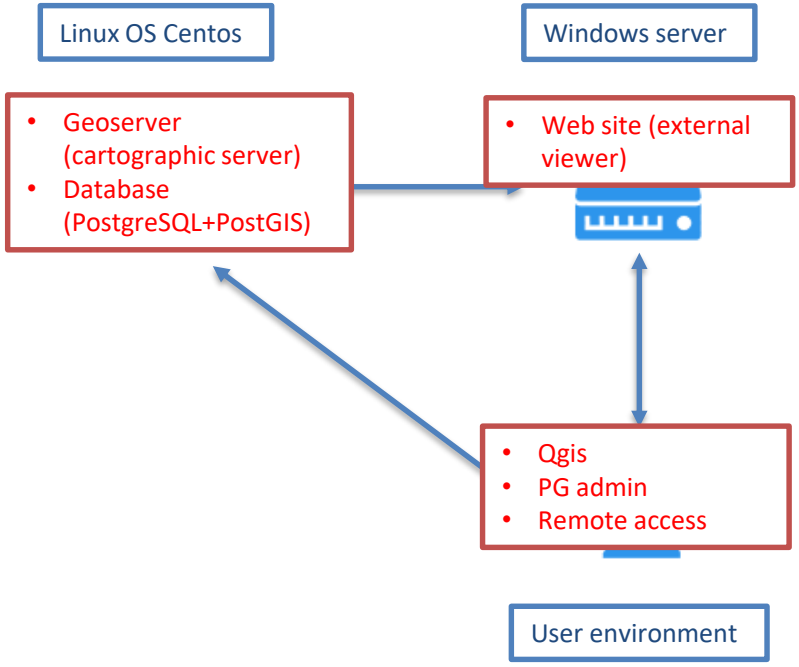

For external viewer (in a preparation)

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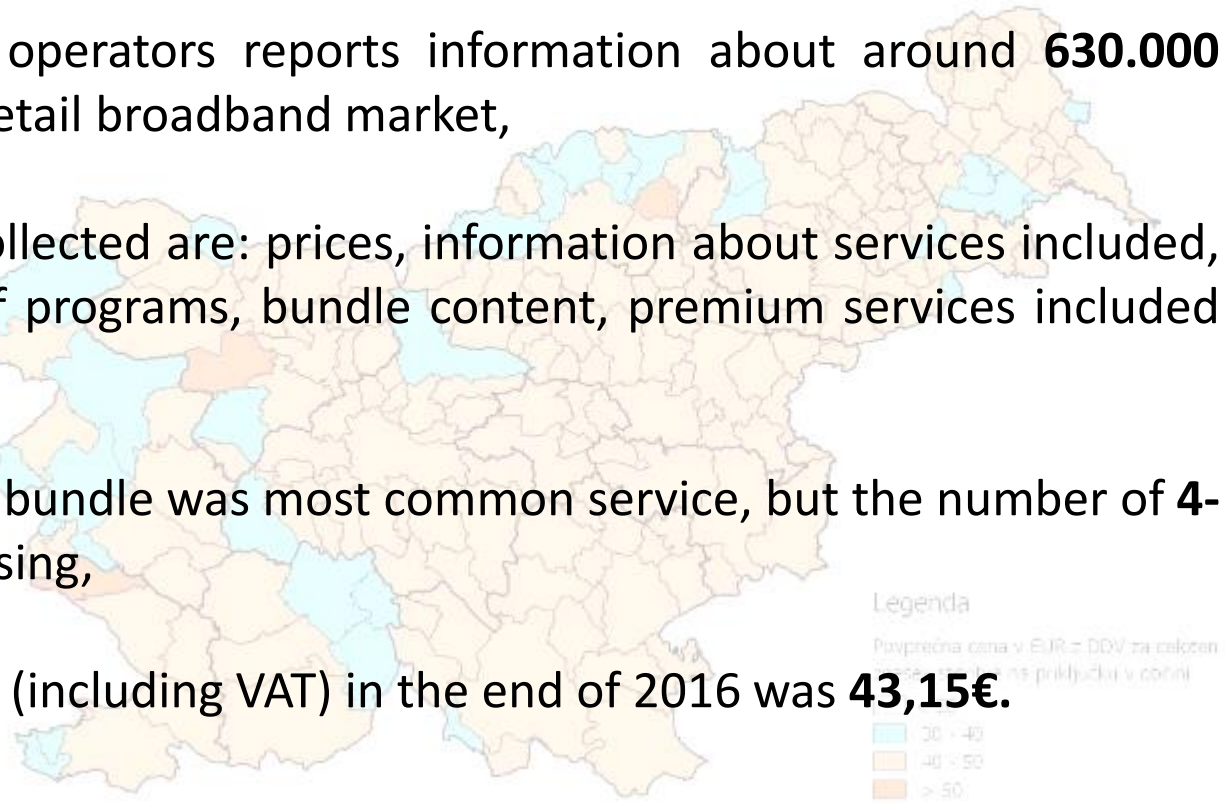
Retail mapping

- Agency is periodically collecting information about retail services from operators billing systems,
- Yearly around **55** operators reports information about around **630.000** connections on a retail broadband market,
- Attributes being collected are: prices, information about services included, speeds, number of programs, bundle content, premium services included and many others,
- In a last report **3-P** bundle was most common service, but the number of **4-P** bundles is increasing,
- Average total price (including VAT) in the end of 2016 was **43,15€.**



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Regulation of wholesale broadband markets in Slovenia- aims of regulation

- Promoting development of innovative, high-quality and affordable services and reducing barriers for switching between operators,
- Promoting equal competitive conditions for all players on the market
- Promoting service competition
- Promoting investments in deployment of NGA networks based on technological neutrality
- Promoting migration of operators and consumers to NGA networks
- Taking into account developments and market trends
- Taking into account changes in regulatory approach
- Ensuring stable and predictable prices for access to copper network
- Defining flexible wholesale prices for access to NGA networks based on competitive conditions by imposing economic replicability instead of fixed cost based prices
- Taking into account investment plans of operators for deployment of NGA networks
- Taking into account geographical differences of market conditions
- Pursuing objectives of the DAE and national development plan for development of broadband networks till 2020

Regulation of wholesale broadband markets in Slovenia- market definitions

- Agency issued **regulatory decisions** on wholesale markets **3a** and **3b** in the end of 2017,

Market definitions:

3a – Wholesale local access at fixed location:

- Local unbundled access to copper and fiber networks including virtual unbundled local access (VULA) in case of GPON/Vectoring
- Market is national

3b – Wholesale central access at fixed location:

- Bitstream access to copper and fiber networks (regional and national PoH)
- Market is national

Regulation of wholesale broadband markets in Slovenia- remedies imposed

Market 3a

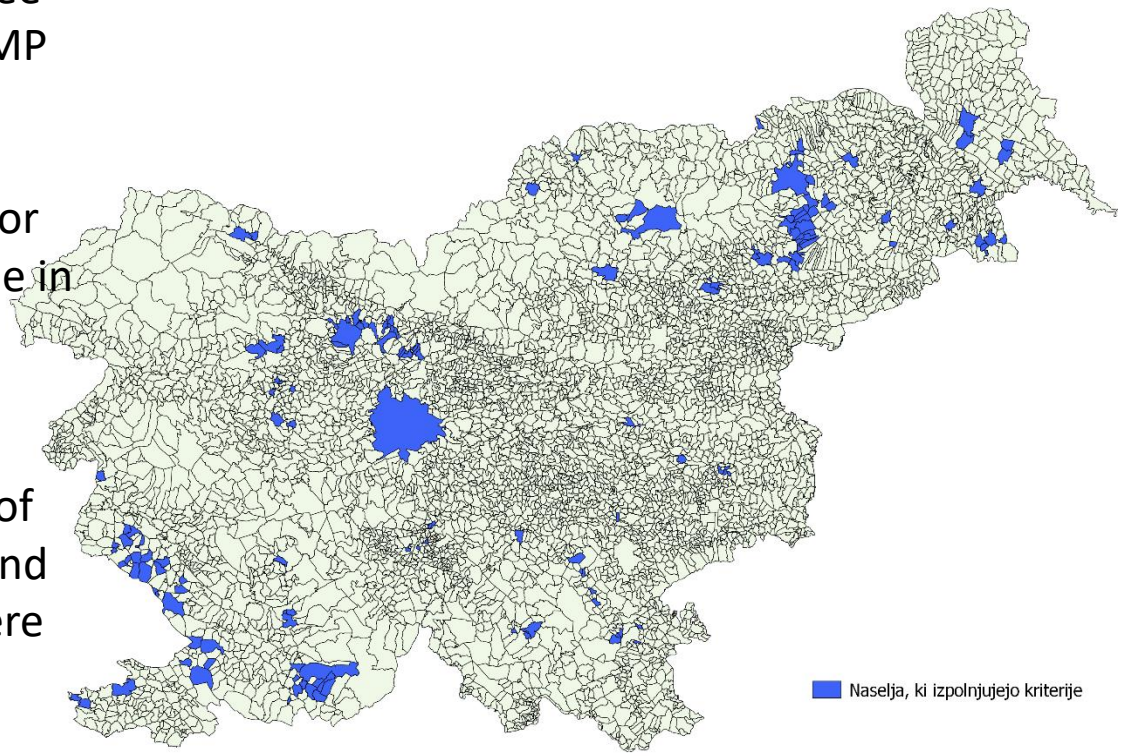
- **Access obligation:** Copper LLU and SLU, Fiber LLU, VULA, In-house wiring, passive infrastructure (ducts and poles), backhaul (dark fibre), Conditions for migration from copper to NGA networks
- **Non-discrimination obligation:** EoI and Technical replicability
- **Transparency obligation:** Publication of a reference offer
- **Price controls:** BU LRIC+ and ERT model, account separation

Market 3b

- **Access obligation:** bitstream access on copper network, bitstream access on fiber network (P2P/P2MP), Regional bitstream access (four PoH locations), National bitstream access (one PoH location), Conditions for migration from copper to NGA networks
- **Non-discrimination obligation:** EoI, Technical replicability
- **Transparency obligation:** publication of a reference offer
- **Price controls:** LRIC+ and ERT model, account separation; price remedies has been lifted in some areas (next slide)

Market 3b- differentiation of remedies

- Based on geographical analysis Agency found that is Slovenia some settlements exist, where a degree of competition constraints to SMP operator are different,
- Agency adjusted the remedies for SMP operator- Telekom Slovenije in those settlements,
- **159** settlements with **260.128** households (a bit less then 1/3 of all HH in Slovenia) has been found as competitive settlements where price remedies has been lifted.



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Market 3b- differentiation of remedies: criteria

3 Cumulative Criteria for differentiation of remedies in a competitive settlements:

- Homespassed coverage of alternative fibre or copper access network infrastructure is at least 65% of HH;

- Retail share of Telekom Slovenia fibre, copper and cable connections in a settlement is below 40% of HH (In the Commission's decision-making practice, single dominance concerns normally arise in the case of undertakings with market shares of over 40 %);

- LLU is economically feasible- 65% of HH in the settlements is connected to TS MDF/ODF with at least 500 lines (LLU is regulated nationally in M3a, and Agency estimates that 500 lines is high enough to ensure economies of scope

159 settlements passed

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Broadband universal service obligation

- Agency recently (based on analysis) decided **to include broadband internet access** into the scope of the universal service obligation,
- Broadband speed included in USO is **4Mbps/512kbps**,
- Universal access to a broadband internet in Slovenia will provide an option for everyone to have access to advanced future services,
- Broadband internet access is designed **technology neutral**,
- Agency amended three General Acts, necessary for the implementation of changes,
- All amended General Acts has been published in Slovenian Official Gazette and will entry into a force in the middle of the next month (June 2018),
- Mobile and fixed coverage and expected future deployments of USO designated operator‘s network has been geographically analyzed and the estimated number of households eligible for BB USO services is **0,3%** of households in Slovenia.

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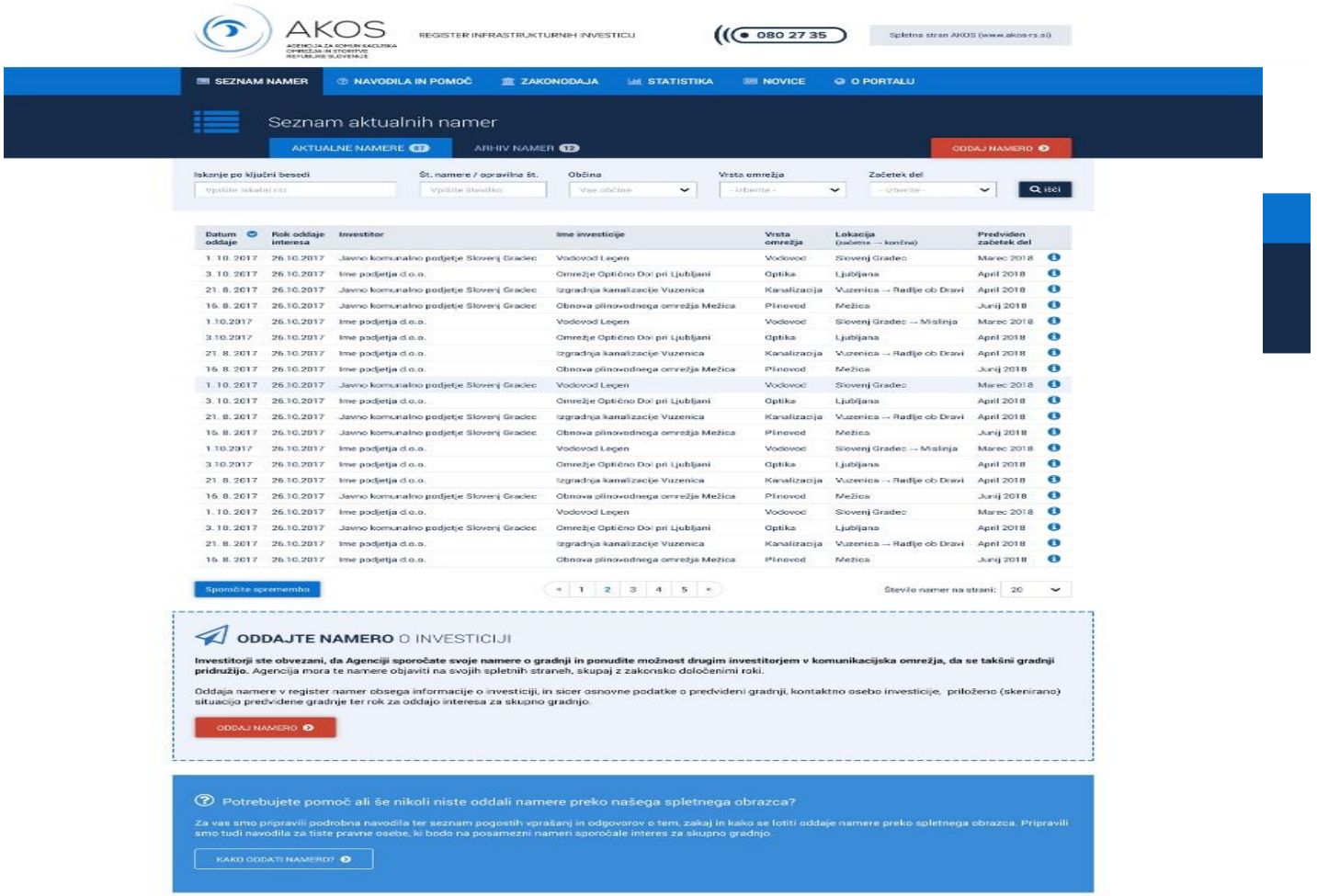
Joint deployment intentions

- Slovenian Electronic Communications Act 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 the NRA**, together with **the callout for co-investment in electronic communications networks,**

- All notifications are published on the NRA website,

- New portal for investors for e-notifications to the agency about planned joint deployments has been developed.

Joint deployment intentions portal



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Future work on AKOS mapping project

- We are currently developing public GIS viewer (will be available on the web site of the Agency), and public will have an option to see detailed map of electronic communication infrastructure, coverage (fixed and mobile), random geographical analyses, intentions for joint constructions of electronic communication networks and others, **a lot of information, not marked as confidential will be disclosed to public,**

- Currently all servers are up and running, application is in the test phase,

- A Few screenshots follows on the lasts slides.

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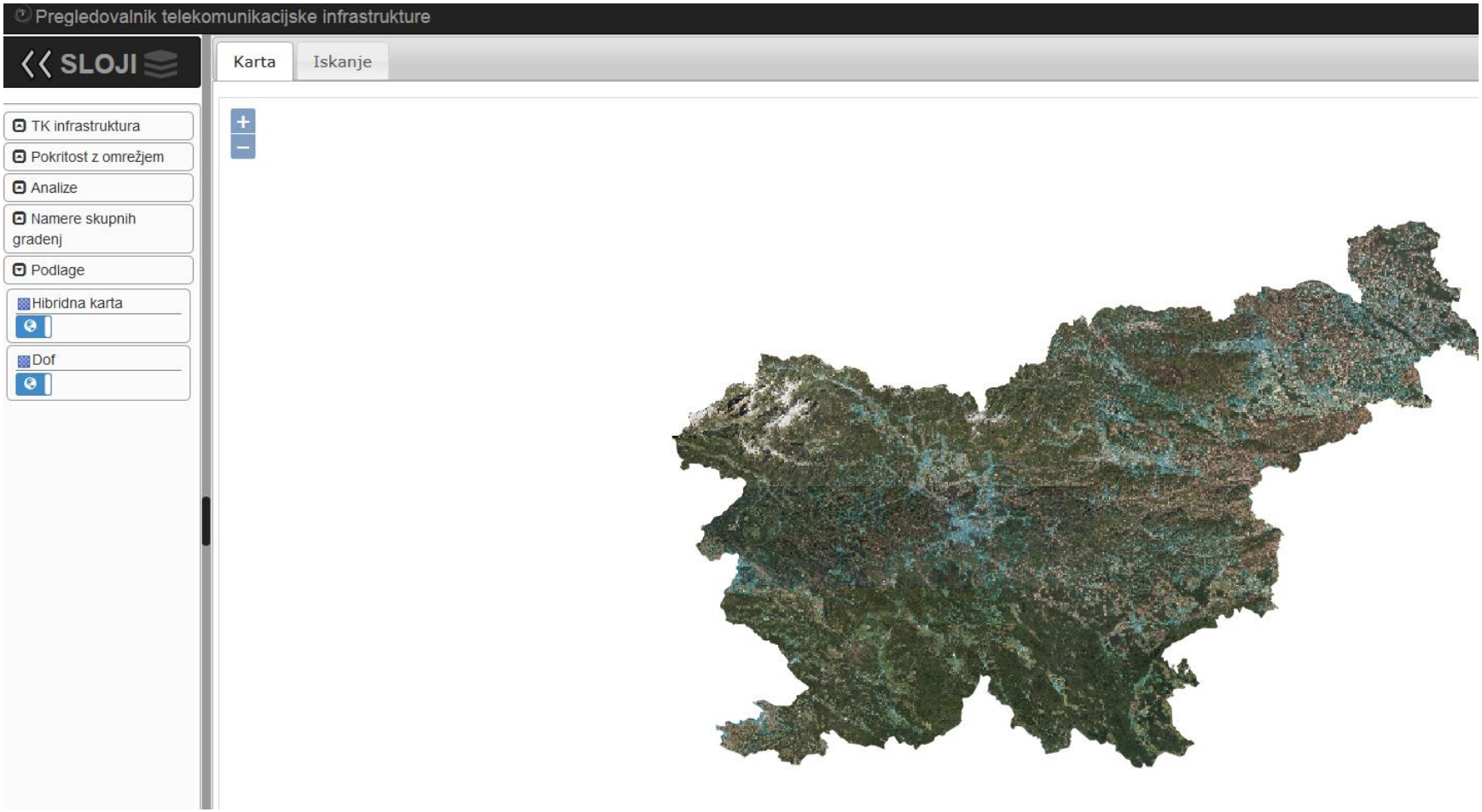
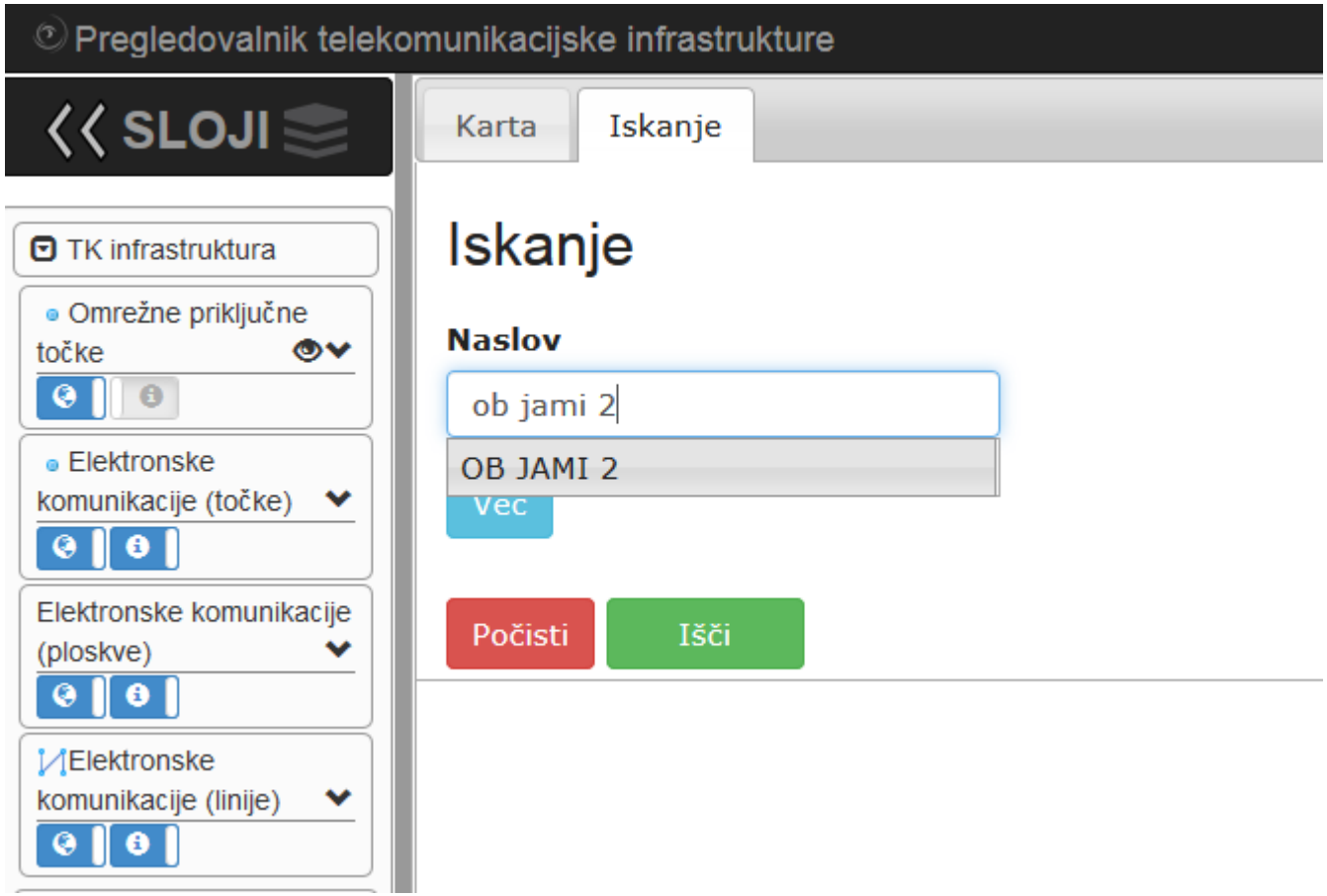
AKOS External Viewer



Search field



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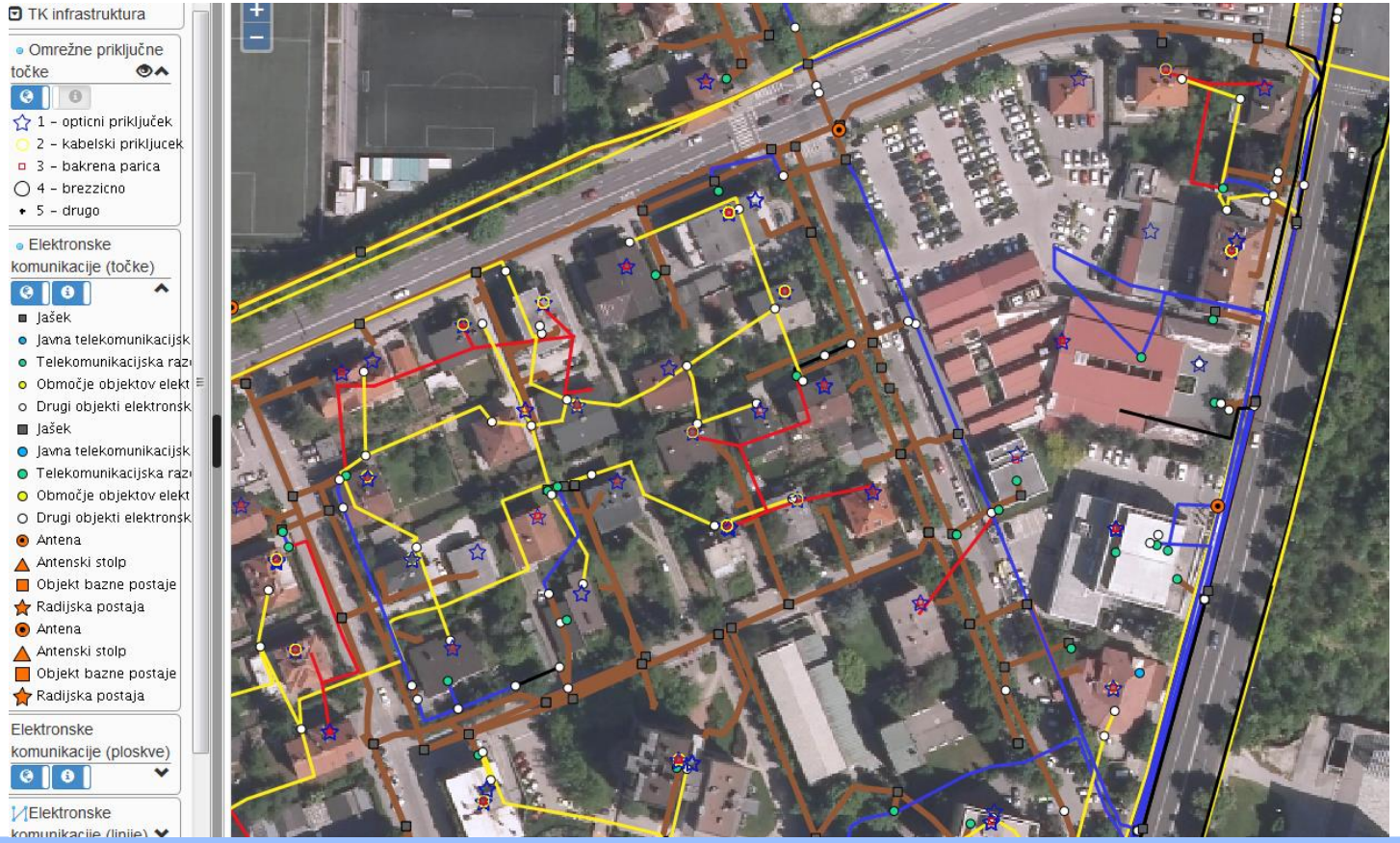
AKOS External Viewer

Infrastructure view (network termination points and electronic communication infrastructure)



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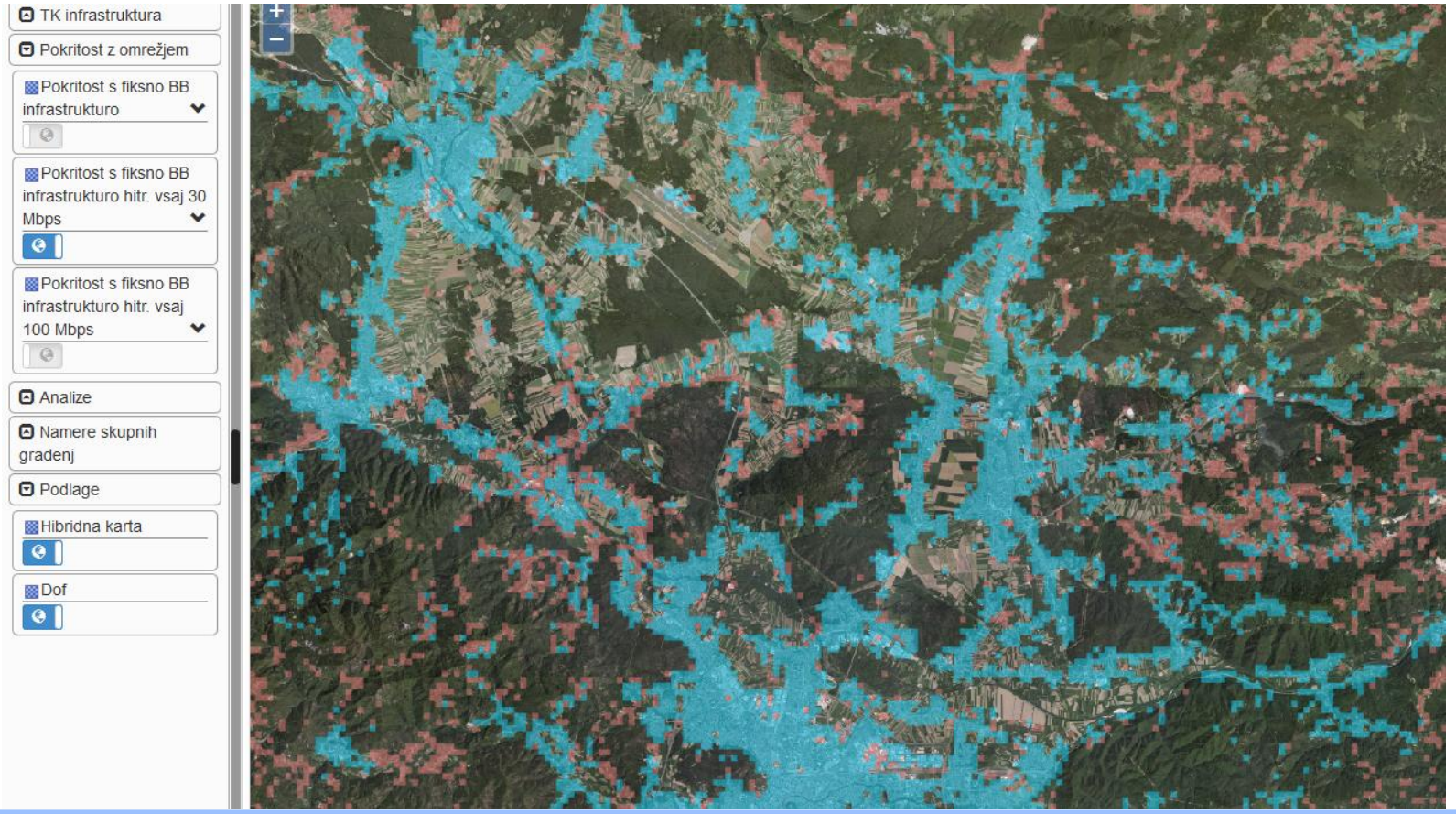
AKOS External Viewer

NGA broadband coverage



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AKOS External Viewer

High resolution data (for each house address is available)

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Thank you

gregor.baliz@akos-rs.si