



# Broadband infrastructure and services mapping Polish case study

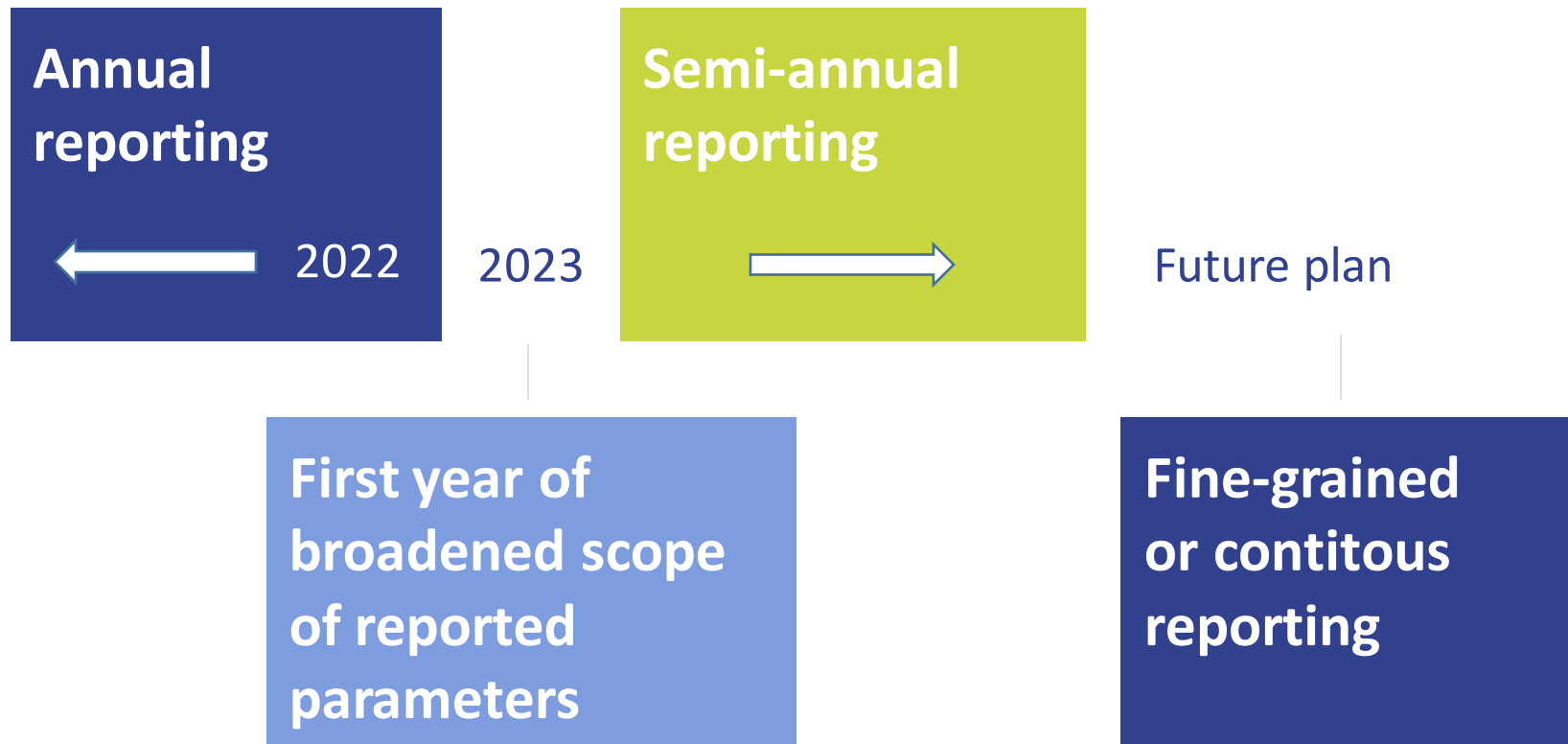
Mr. Michał Chojnowski, Ph.D.

# Key points

- legal bases and rules
- Single Information Point (codename: PIT)
  - Complementary systems and services
- UKE approach to mobile networks mapping

- Polish Act on Supporting the Development of Telecommunications Services and Networks
- Polish Telecommunications Law
- Directive 2014/61/EU Of The European Parliament And Of The Council of 15 May 2014 on measures to reduce the cost of deploying high-speed electronic communications networks (a.k.a. Broadband Cost Reduction Directive - BCRD)
  - On 23 February 2023, The Commission presented a set of actions aimed to make Gigabit connectivity available to all citizens and businesses across the EU by 2030 - Gigabit Infrastructure Act

# Inventory of telecommunications infrastructure and services



# Polish Act on Supporting the Development of Telecommunications Services and Networks

Key factors of Article 29:

TECHNOLOGICAL  
CHANNELS  
PLANNED AND EXISTING  
TECHNICAL  
INFRASTRUCTURE  
FEES FOR ROAD  
LANE USE

TELECOMMUNICATIONS  
INFRASTRUCTURE  
CABLE LINES ROUTES  
SERVICE PROVISION  
LOCATIONS

TELECOMMUNICATION  
COMPANIES  
LOCAL GOVERNMENT UNITS  
STATE ENTITIES

TWICE A YEAR

# Recent changes in regulations related to the inventory process

## Before the changes

The President of UAE prepares an inventory at least once a year

- Information about the services provided
  - Coverage with existing infrastructure

- Data provided until March 31 as of December 31 of the previous year



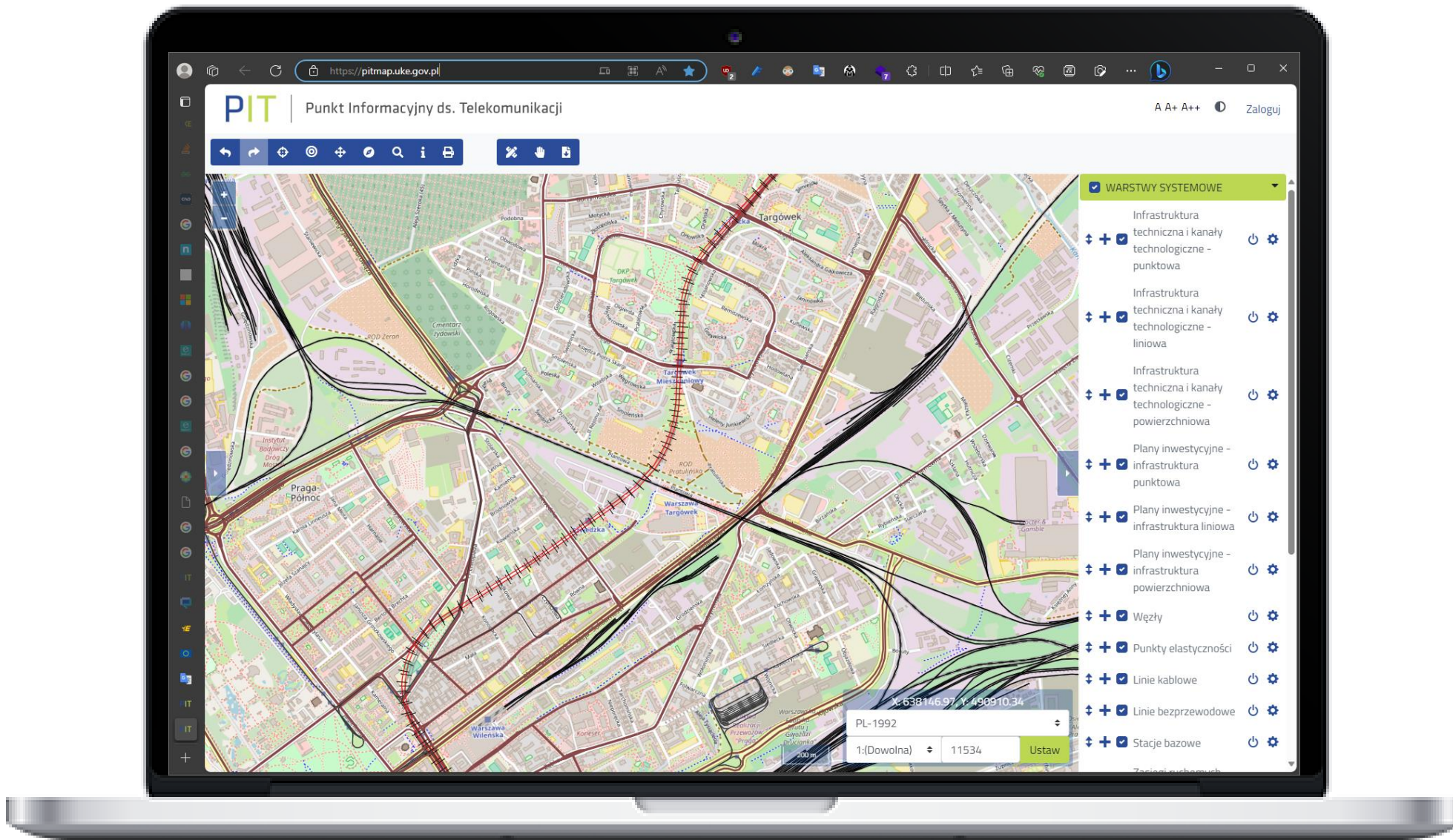
## After changes

The President of UAE prepares an inventory **twice a year**

- Information about the services provided
- Coverage with existing infrastructure
- **Information about the route of fiber optic and non-fiber optic cable lines providing or enabling broadband Internet access**

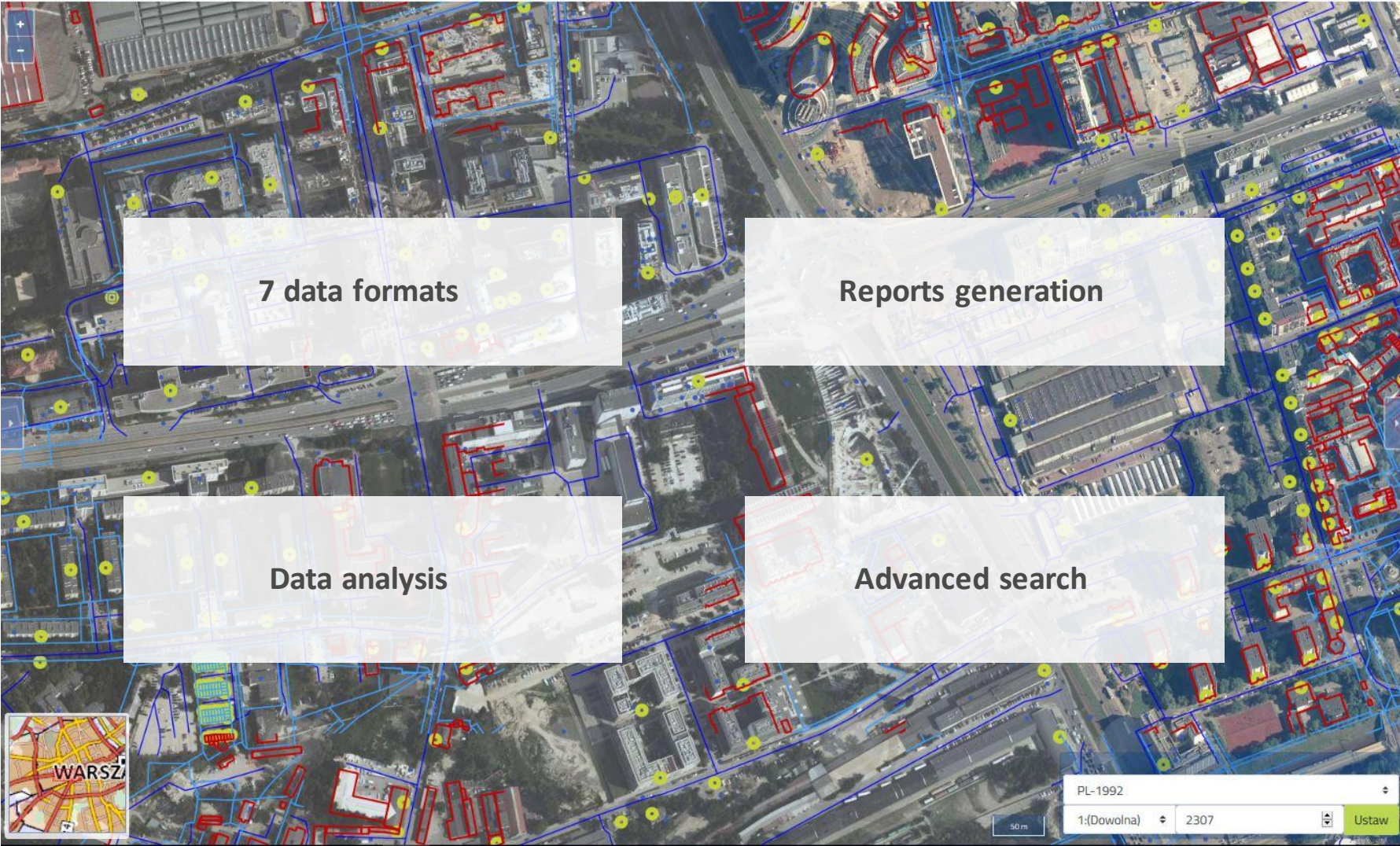
- Information about:
- owned telecommunications infrastructure and its route are provided by:
    - August 31 for the period from January 1 to June 30**
    - March 31 for the period from July 1 to December 31**
  - Buildings enabling colocation and services provided
    - annually by March 31 as of December 31 of the previous year

The changes entered into force on January 1, 2023.



<https://pitmap.uke.gov.pl/>

Navigation icons: back, forward, home, search, info, print, zoom in, zoom out, full screen, and a button labeled "Tabela atrybutów".



7 data formats

Reports generation

Data analysis

Advanced search

Layer management panel with sections "KOMPOZYCJE" and "WARSTWY".

- Budynki - KIEG
- Numery działek - KIEG
- Działki - KIEG
- Obreby - KIEG
- Granice gmin - PRG
- Granice powiatów - PRG
- Granice województw - PRG
- Granice państwa - PRG
- Stawki za zajęcie pasa drogowego
- Rejestr nieruchomości
- Nadleśnictwa
- PIT SIIS - kolokacje
- PIT SIIS - usługi
- PIT - SIIS - węzły
- K-GESUT - Przewód telekomunikacyjny (linia)
- KIUT - przewód telekomunikacyjny

Search bar containing: PL-1992, 1:(Dowolna), 2307, and a button labeled "Ustaw".



# Reporting

<i>The scope of data</i>	<i>Time limit for completion</i>
<b>Telecommunications infrastructure</b>	Until February 28 for the period: from July 1 to December 31 of the previous year Until August 31 for the period: from January 1 to June 30
<b>Services and buildings enabling colocation</b>	Until March 31 as of December 31 of the previous year
<b>Declarations of not having telecommunications infrastructure</b>	Until March 31 as of December 31 of the previous year

# Reporting – data scope



- FOREIGN ENTITIES
- NODES
- FLEXIBILITY POINTS
- ROUTE OF CABLE LINES
- BASE STATIONS
- WIRELESS LINES
- RANGE OF MOBILE NETWORKS
- SERVICES AT ADDRESS POINTS
- BUILDINGS THAT ENABLE COLOCATION

## Problems during inventory

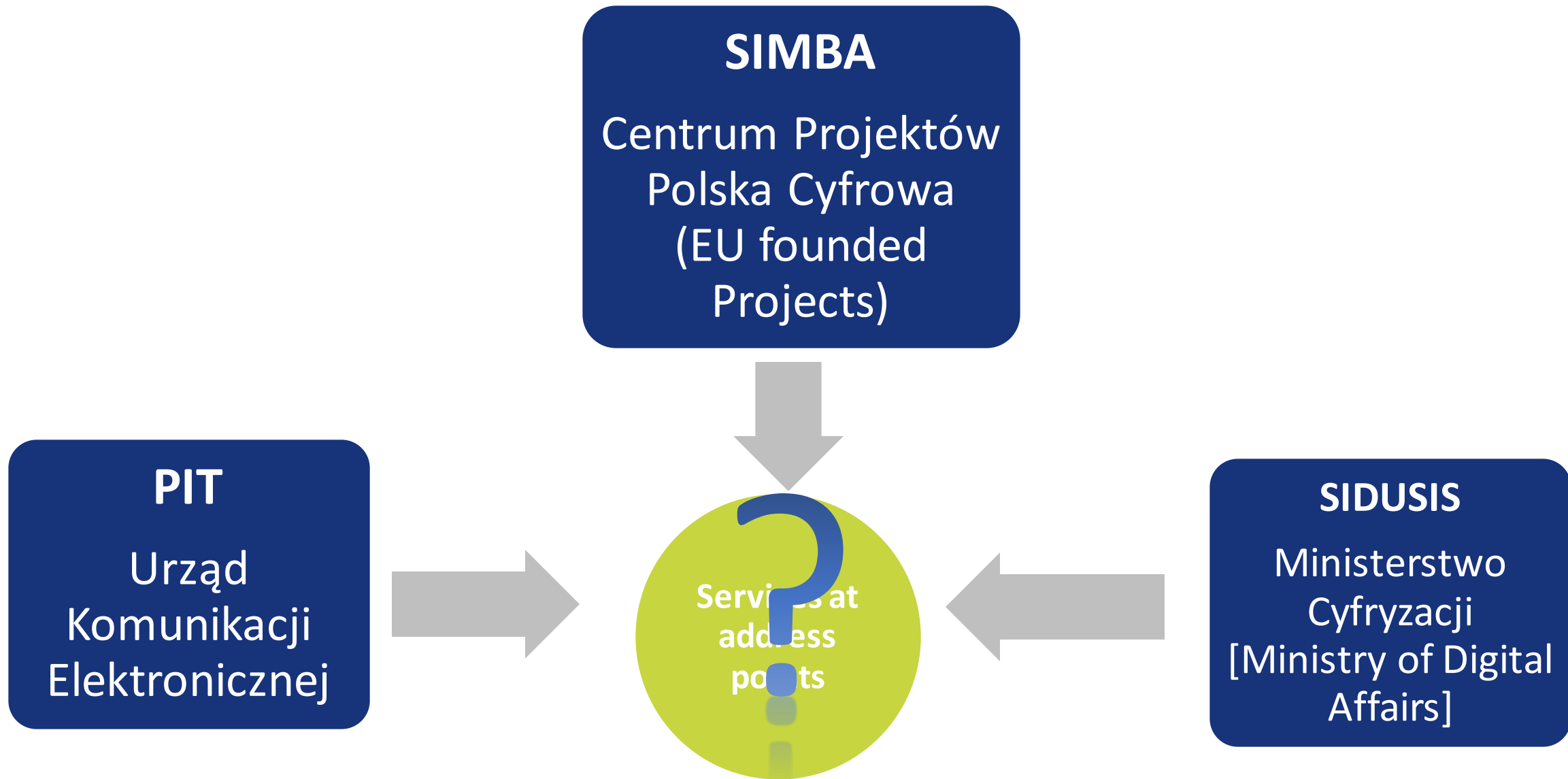


- OWNERSHIP OF INFRASTRUCTURE

- ROUTE OF CABLE LINES

- LACK OF VECTOR-FORM DATA

- INSUFFICIENT KNOWLEDGE OF TOOLS FOR DATA PREPARATION



**SIMBA**

Centrum Projektów  
Polska Cyfrowa  
(EU founded  
Projects)

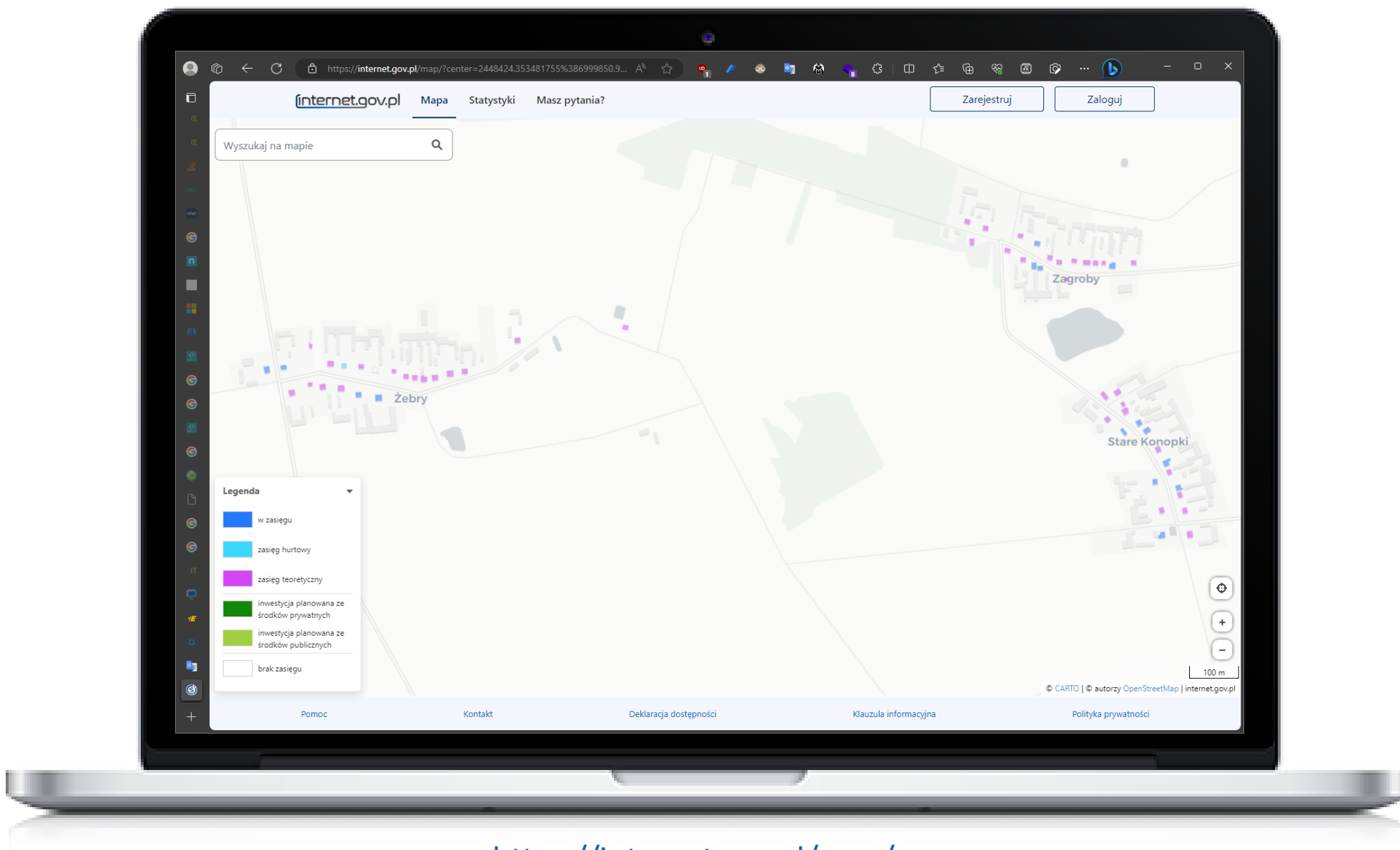
**PIT**

Urząd  
Komunikacji  
Elektronicznej

Services at  
address  
points

**SIDUSIS**

Ministerstwo  
Cyfryzacji  
[Ministry of Digital  
Affairs]



<https://internet.gov.pl/map/>

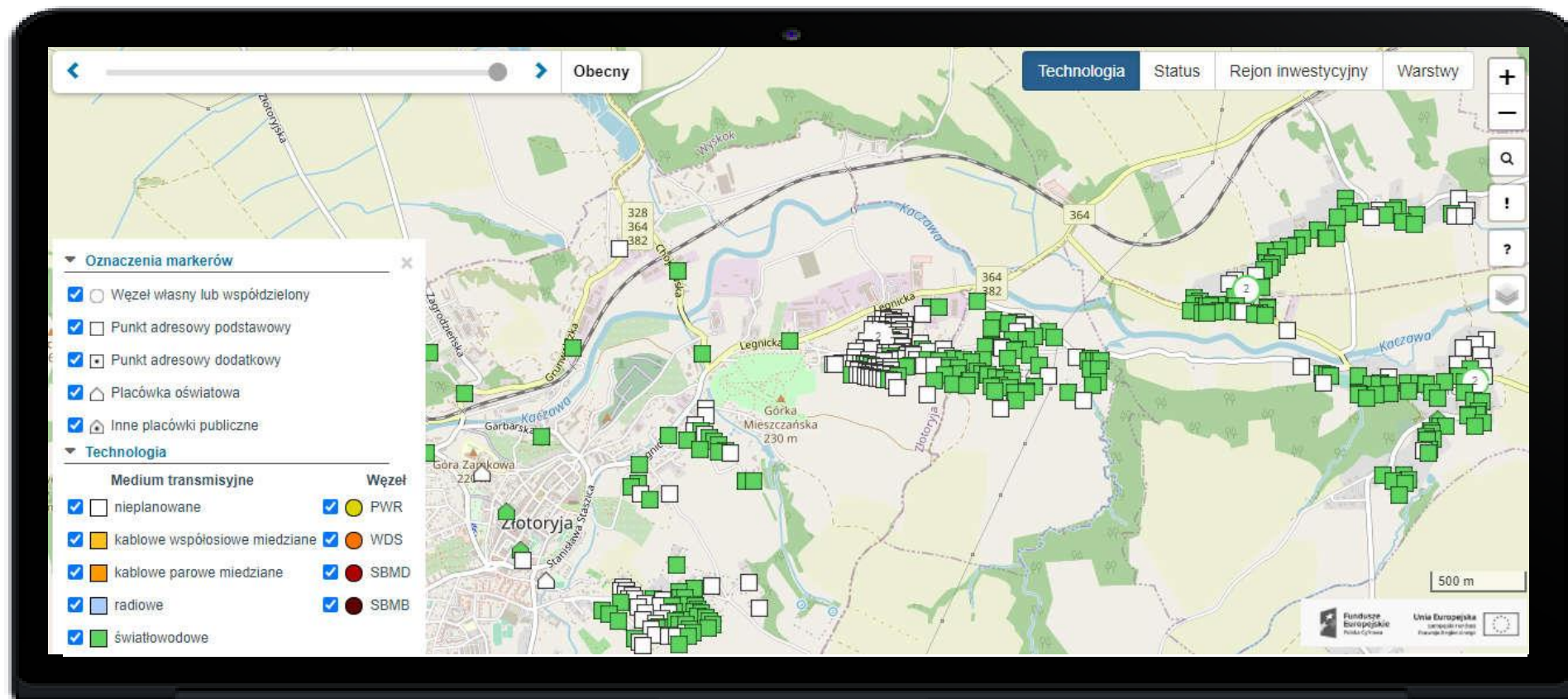
# Information System on Access to Fixed Broadband Internet Services - SIDUSIS

The screenshot displays the SIDUSIS web application interface. At the top, the URL [internet.gov.pl](http://internet.gov.pl) is visible, along with navigation links for 'Mapa', 'Statystyki', and 'Masz pytania?'. There are buttons for 'Zarejestruj' and 'Zaloguj'.

The main content area features a search bar with the text 'Wyszukaj na mapie'. Below it, the address 'ul. Józefa Piłsudskiego 84D' is entered, with 'Ząbki' as the location. The interface shows filters for 'Usługi internetowe' (set to 'WAWTEL Sp. z o.o.') and 'Planowane inwestycje' (set to 'Inwestycja światłowodowa').

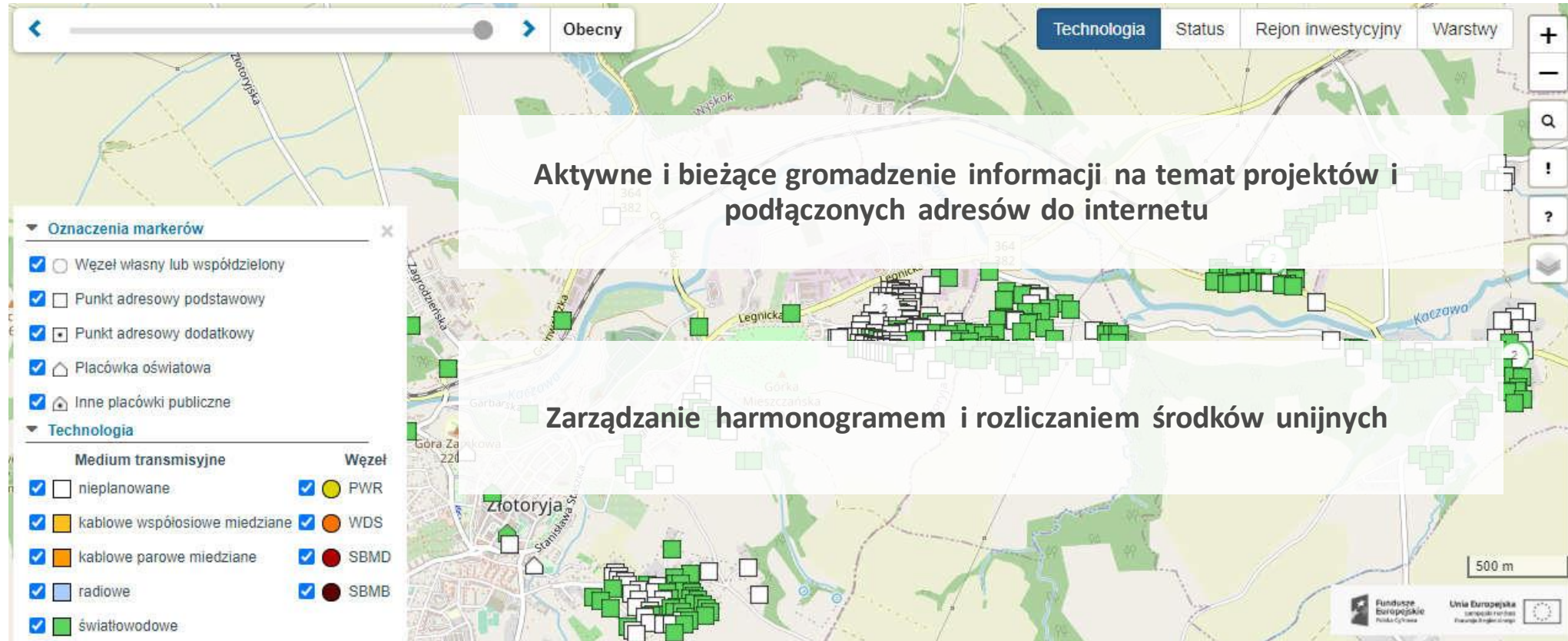
A map displays various colored markers indicating service status: blue circles for 'w zasięgu', cyan circles for 'zasięg hurtowy', magenta circles for 'zasięg teoretyczny', green circles for 'inwestycja planowana ze środków prywatnych', light green circles for 'inwestycja planowana ze środków publicznych', and white circles for 'brak zasięgu'. A legend titled 'Legenda' provides a key for these colors.

At the bottom of the map area, there are buttons for 'Chcę Internet', 'Zweryfikuj dane', 'Zgłoś pustostan', and 'Pobierz szczegółowe dane'. The footer contains links for 'Pomoc', 'Kontakt', 'Deklaracja dostępności', 'Klauzula informacyjna', and 'Polityka prywatności'.

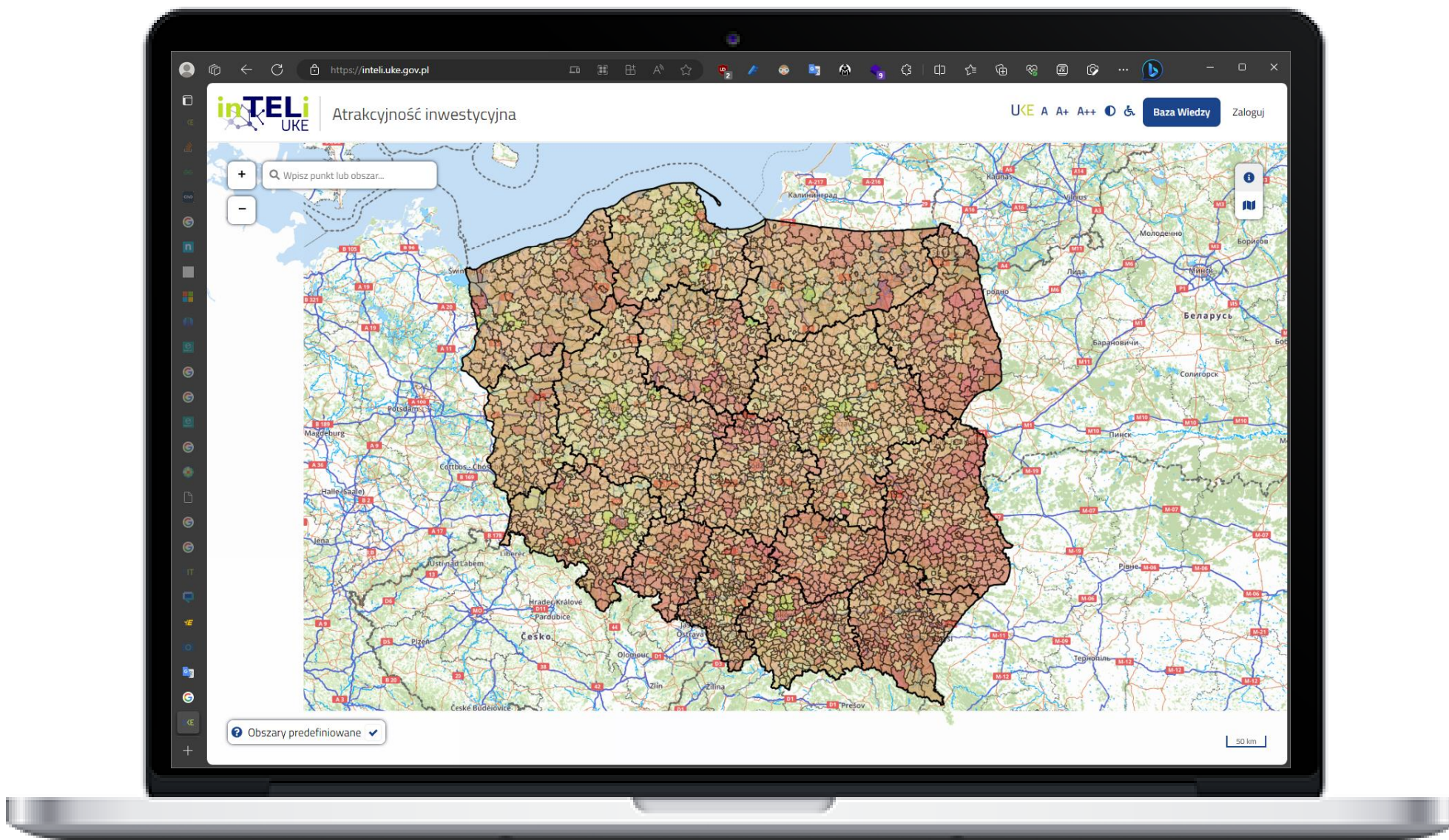


<https://simba.itl.waw.pl/>

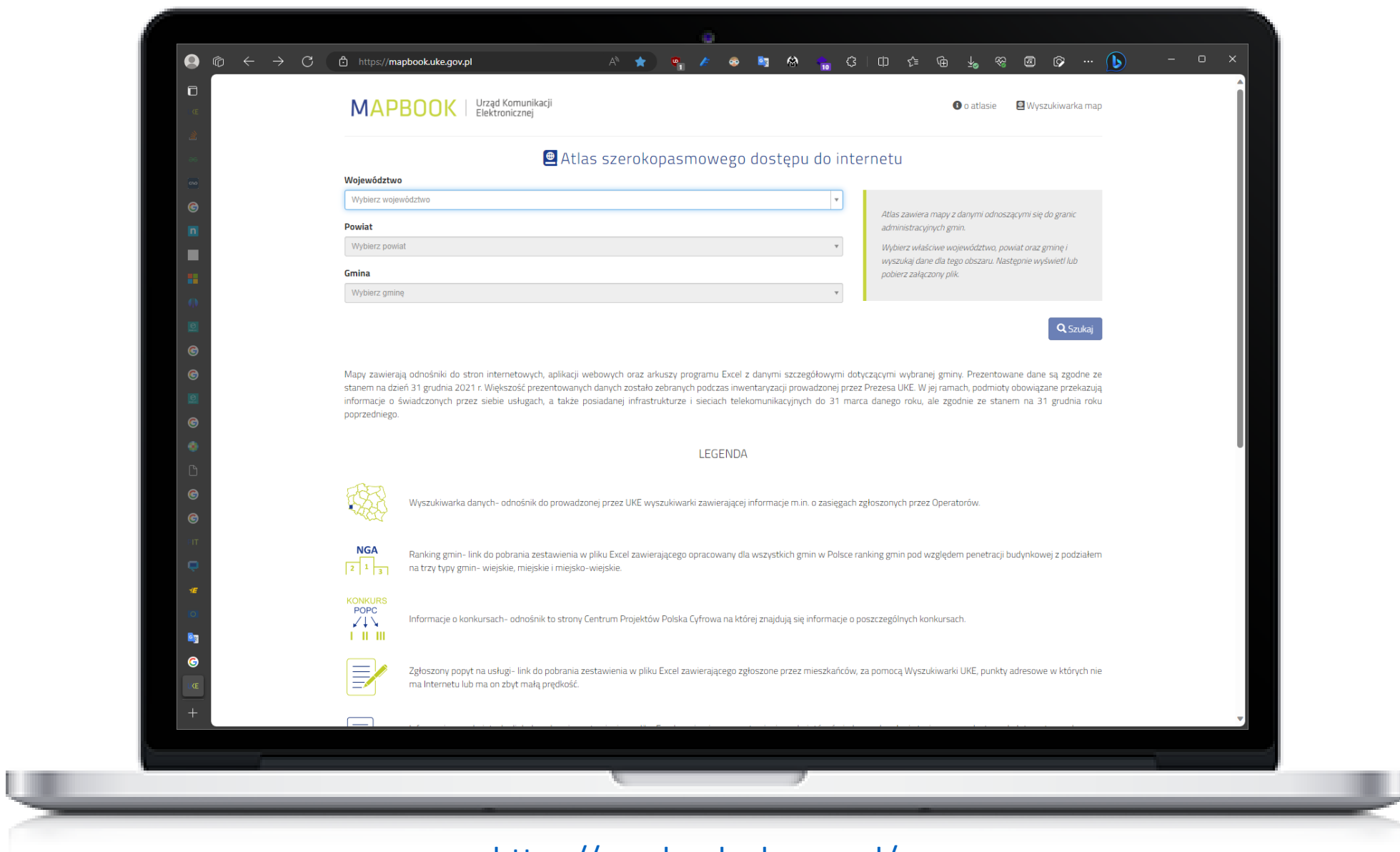
# Information System for Monitoring, Research and Analysis - SIMBA







<https://inteli.uke.gov.pl/>



# Example report



UKE | Urząd Komunikacji Elektronicznej

Wyszukiwanie

ADRES  
PODLASKIE-ŁOMŻYŃSKI-ŚNIADOWO

Województwo - Powiat - Gmina

ŻEBRY

Ulica\* Nr

\*pole obowiązkowe

WSPÓLRZĘDNE

X Y

Wyczyść Szukaj

WARSTWY

- USŁUGI
- WĘZŁY
- KOŁOKACJE
- BTS
- Planowana rozbudowa (POPC)
- HOTSPOTY
- ZGŁOSZENIA POPYTU
- LINIE

Wyniki wyszukiwania

Adres: ŻEBRY

Węzły

Gmina	Miejscowość	Ulica	Nr budynku	Typ obiektu	Warstwa szkielec
ŚNIADOWO	ŻEBRY	-	8	studnia kablowa	-
ŚNIADOWO	ŻEBRY	-	8	studnia kablowa	-
ŚNIADOWO	ŻEBRY	-	15	budynek mieszkalny	-

Usługi

Nazwa podmiotu	Maksymalna prędkość	Medium	Internet	Telefon stacjonarny	Te
INTER-NETT JACEK DĄBKOWSKI	DO 80	RADIOWE	TAK	NIE	NI
INTER-NETT JACEK DĄBKOWSKI	DO 80	RADIOWE	TAK	NIE	NI
INTER-NETT JACEK	DO 80	RADIOWE	TAK	NIE	NI

Eksport do

PDF CSV XLSX

© OpenStreetMap contributors

mobile broadband  
Internet Access Services

Regulation of the Minister of Digital Affairs, specifying data set reported within an inventory proces, addresses *inter alia* the cells parameters of base stations of mobile public telecommunications networks

**Key parameters within total of 44:**

- antenna location
- cell characteristics (38 parameters of 44 total parameters):
  - height of the antenna's electrical center in reference of ground level
  - band and channel parameters
  - antenna model and manufacturer
  - electrical and spatial parameters of antenna emission

The purpose of the draft document of April 6, 2023 is to define the parameters, criteria, conditions and estimation methodology that will be used in the process of estimating the capacity of the 4G/5G access network

### **Key factors**

- reference grid [100 m × 100 m]
- location of measurement point [3 m from the wall, antenna direction, direct visibility]
- both: passive and active measurements
- elementary and aggregated bitrate
- RSRP – Reference Signal Receive Point
- CQI – Channel Quality Indicator

## Presentation of the results

When presenting the measurement results, the following information will be specified:

- type and serial number of the measuring devices and the number of the calibration/calibration certificate,
- measurement record number,
- date and time of measurement,
- location of the measurement point, i.e. its geographical coordinates and the corresponding raster number in the reference grid,
- name of the operator and optionally the identification number of the analyzed base station,
- the results will be presented in the form of tables, specific for active and passive measurements as well as FDD and TDD technologies respectively,
- description of the measuring device (type, accuracy class),
- measurement instrument certificate or application information.

The estimated throughput value at a given measurement point is the sum of the resulting throughput for FDD and TDD technologies.



## Throughput Measurement Methodology

- throughput measurements used to analyze area coverage
- throughput measurements used to analyze communication routes coverage

## Interpretation of Measurement Results

- throughput measurements used to analyze area coverage
- throughput measurements used to analyze communication routes coverage

## Presentation of the results of bandwidth measurements

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Expert

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Office of Electronic Communications



**UKE**