Cadastral information systems in dispersed cadastre
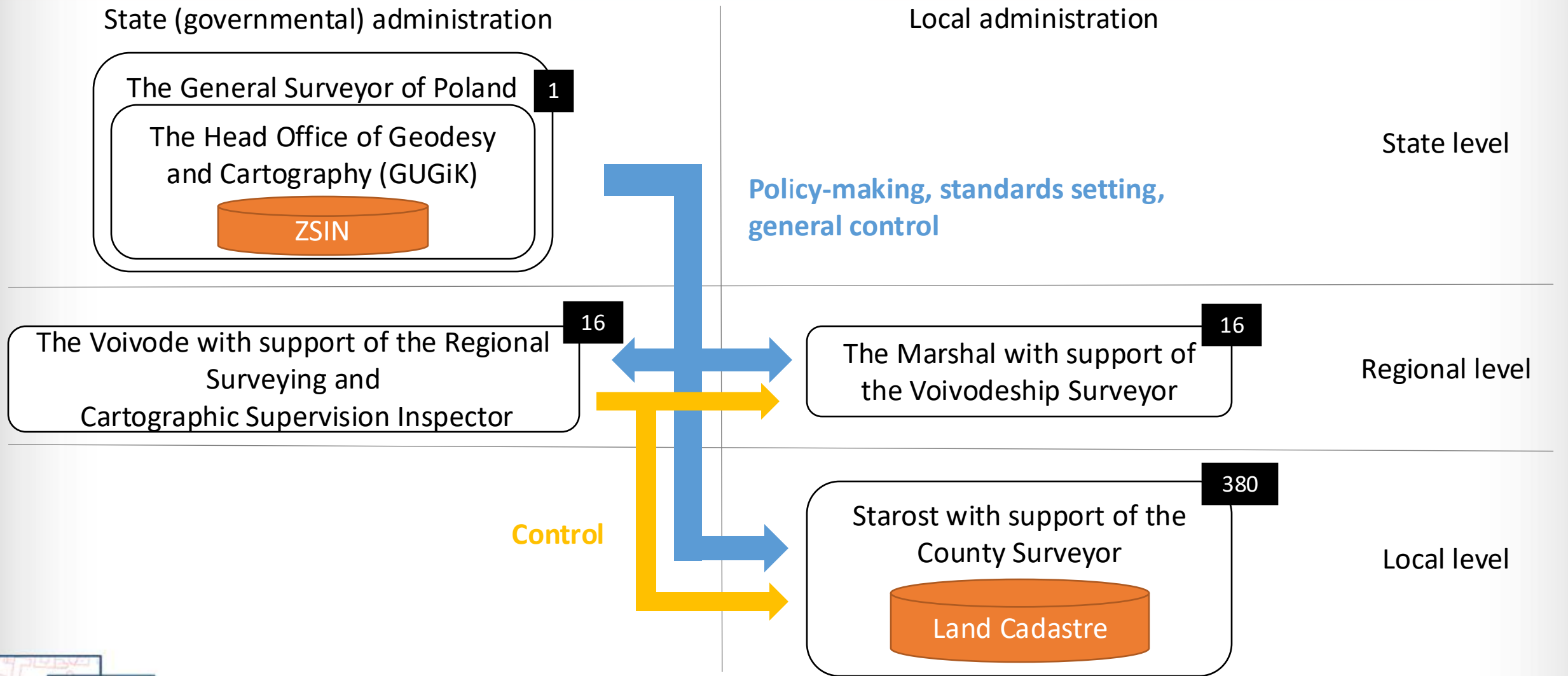
POLAND

Marcin Grudzień – Director of Real Estate Department

The Head Office of Geodesy and Cartography
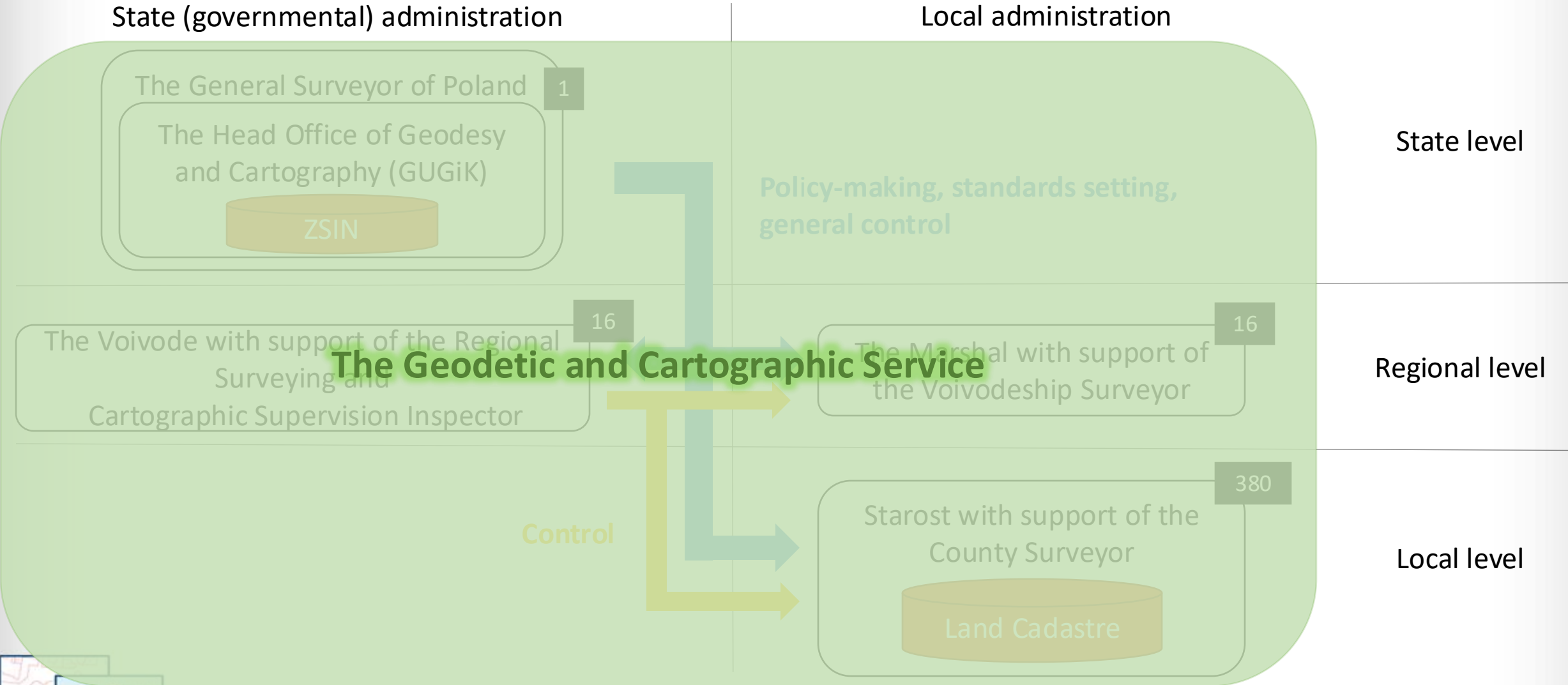
Agenda

- **Structure of Polish Geodetic and Cartographic Service**

- **Land Register vs Land Cadastre**

- **Cadastre IT Systems in Poland**

  - **Cadastre IT systems in counties**

  - **Integration of services**

  - **ZSIN**

  - **Validators**

- **Polish Presidency**

Structure of the Polish Geodetic and Cartographic Service

State (governmental) administration | Local administration

The General Surveyor of Poland `1`

The Head Office of Geodesy and Cartography (GUGiK)

ZSIN

State level

Policy-making, standards setting, general control

The Voivode with support of the Regional Surveying and Cartographic Supervision Inspector `16`

The Marshal with support of the Voivodeship Surveyor `16`

Regional level

Control

Starost with support of the County Surveyor `380`

Land Cadastre

Local level

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Structure of the Polish Geodetic and Cartographic Service

State (governmental) administration | Local administration

The General Surveyor of Poland — 1

The Head Office of Geodesy and Cartography (GUGiK)

ZSIN

Policy-making, standards setting, general control

State level

The Voivode with support of the Regional Surveying and Cartographic Supervision Inspector — 16

The Geodetic and Cartographic Service

The Marshal with support of the Voivodeship Surveyor — 16

Regional level

Control

Starost with support of the County Surveyor — 380

Land Cadastre

Local level

Structure of the Polish Geodetic and Cartographic Service

- ✓ 16 voivodeships

- ✓ 380 counties

- ✓ 385 cadastral databases

  - ✓ 380 in counties

  - ✓ 5 in communes as a result of an agreement with Starost

Legend
- ▭ voivodeships
- ▭ counties

Land Cadastre vs Land Register

Land Cadastre

- Managed by the Geodetic and Cartographic Service
- Legally binding regarding spatial extent of ownership rights
- Contains information about parcels, buildings, premises (flats), land use and soil quality (for agriculture land only)
- Contains data about owners
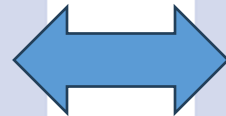
Land Register

- Managed by Ministry of Justice and courts
- Legally binding regarding ownership
- Contains information about real estates (consisting of parcels, buildings and premises), mortgage and limited real rights
- Contains data about owners
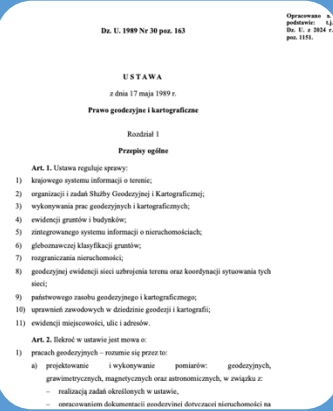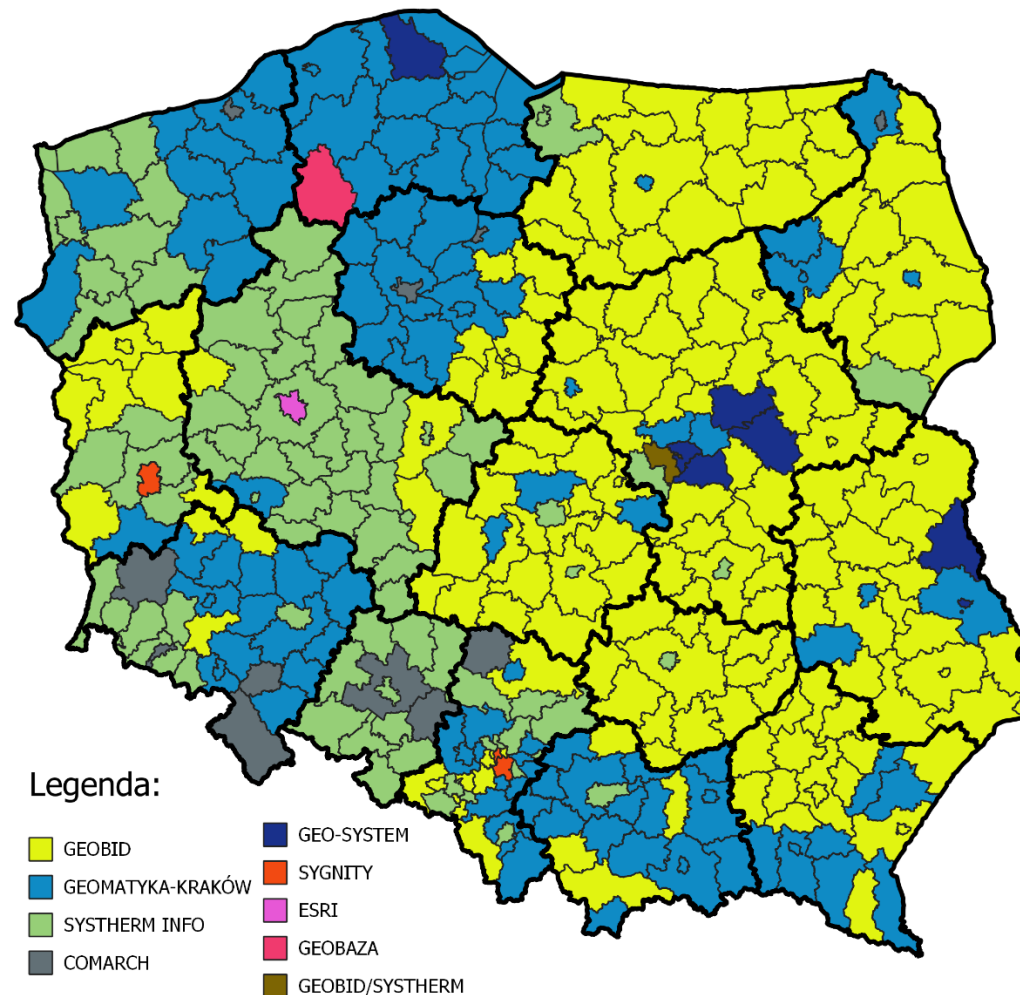
Geodetic and Cartographic Law from 17th of May 1989

Regulation of Minister of Economic Development and Technology from 27th of July 2021 regarding land cadastre
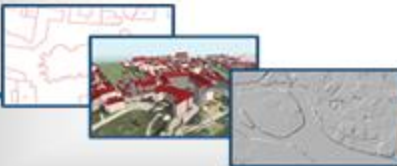
Geodetic IT systems - producers

Comarch	11
Esri	1
Geobaza	1
Geobid	166
Geobid i Systherm	1
Geomatyka	113
Geo-system	7
Sygnity	3
Systherm	82

Legenda:

- GEOBID
- GEOMATYKA-KRAKÓW
- SYSTHERM INFO
- COMARCH
- GEO-SYSTEM
- SYGNITY
- ESRI
- GEOBAZA
- GEOBID/SYSTHERM

IT systems

Typically IT systems in counties manage following databases:

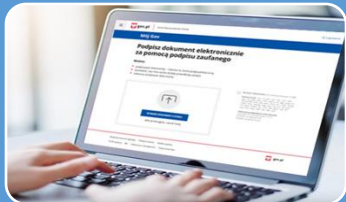|		
Land Cadastre	Cadastre of Utilities	Basic Topographic Database
Prices of Real Estate Register	Register of Geodetic Detailed Control Points	Documents of Geodetic and Cartographic Resource

Cadastral data distribution
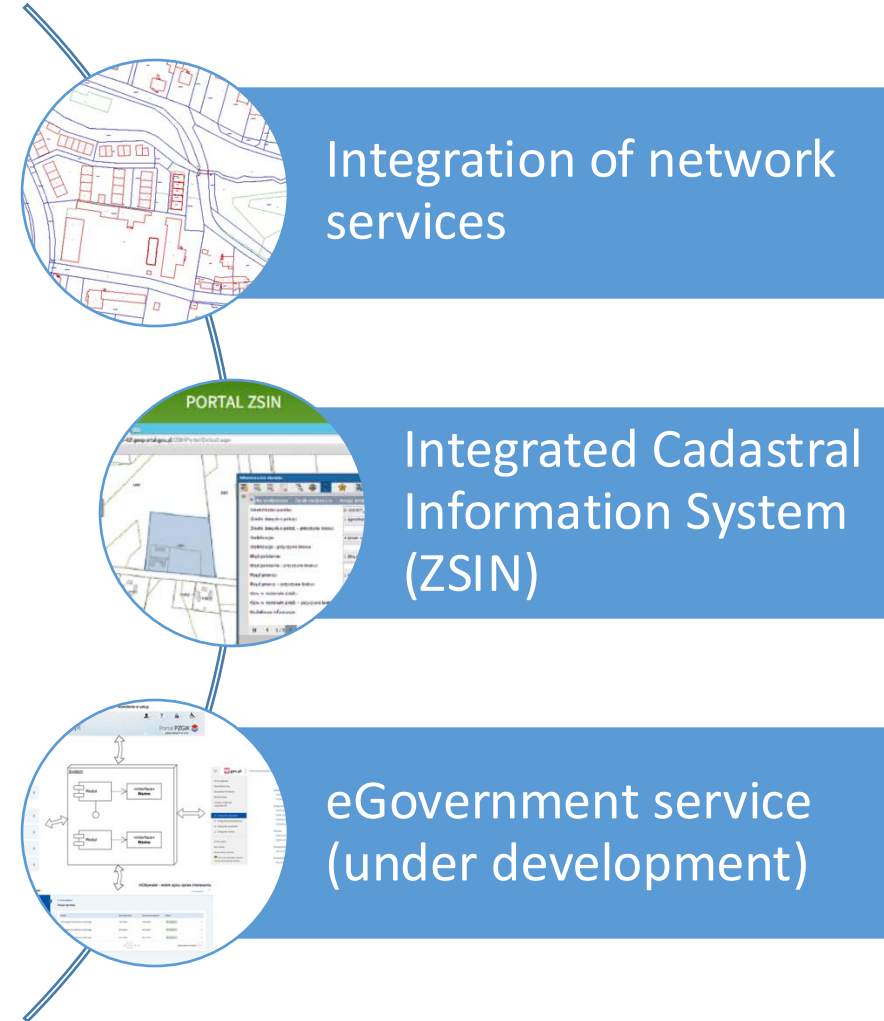

Network services
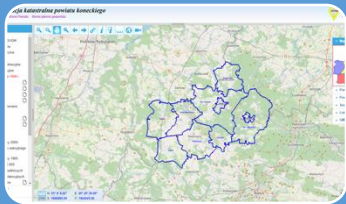
Counties (geo)portals

Other digital means (email, eGov)

Visit in the office

How GUGiK integrates fragmented cadastre?

Integration of network services

Integrated Cadastral Information System (ZSIN)

eGovernment service (under development)

Land Cadastre dissemination – network services (1)

Subset of Land Cadastre is published as **Open Data** via network services

Web Feature Service (WFS)

Cadastral parcel	Building
• geometry • cadastral parcel identifier • parcel number • identifier of cadastral zone • identifier of cadastral unit • name of cadastral zone • name of commune • date of data publication	• geometry • building identifier • type of building • date of data publication

Subset of Land Cadastre is published as **Open Data** via network services

Web Map Service (WMS)

Cadastral Parcels	Building	Land use	Soil quality
• cadastral parcel identifier • number • identifier of cadastral zone • Identifier of cadastral unit • name of cadastral zone • name of the commune • area • land use classes • ownership category	• building identifier • type of building • number of above ground floors • number of underground floors	• land use category	• soil quality category

✓ GUGiK integrates local WMS and WFS services published by local governments (counties)

✓ Integrating service allows users to access cadastral data from one endpoint instead of 385 local endpoints

✓ The European Commission endorsed this way of integrating spatial data as INSPIRE Good Practice
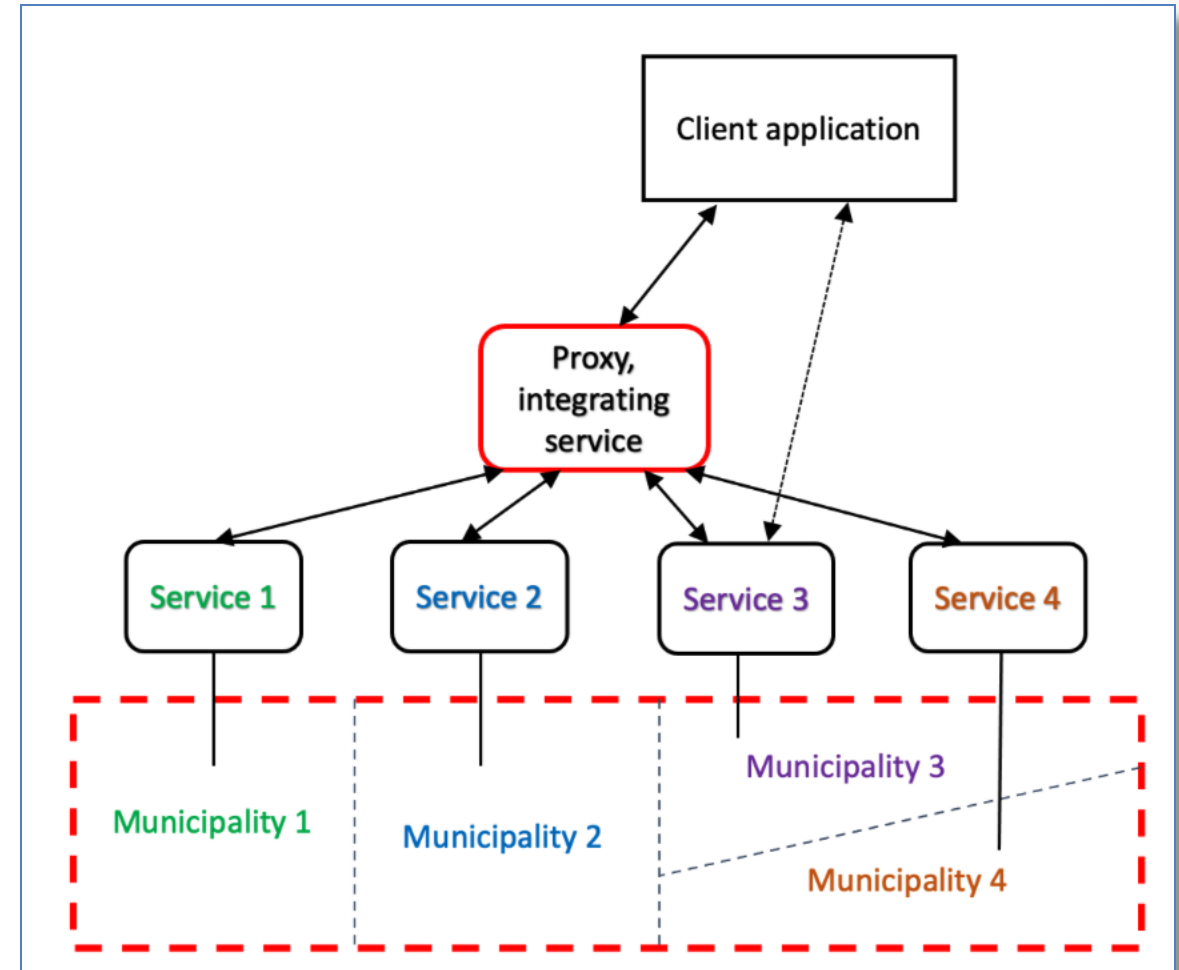
State Integration of Land Cadastre Service (KIEG)

- WMS API
- Works on top of local view WMS services
- Allows to display a cadastral map for any part of Poland
- Allows to display attributes of any cadastral parcel in Poland

Cadastral Data Localisation Service (ULDK)

- Custom API
- Works on top of local download WFS services
- Allows to find any cadastral parcel or building in Poland using different parameters e. g. id, geometry, cadastral zone name and parcel number

Integrated Cadastral Information System (ZSIN) (1)
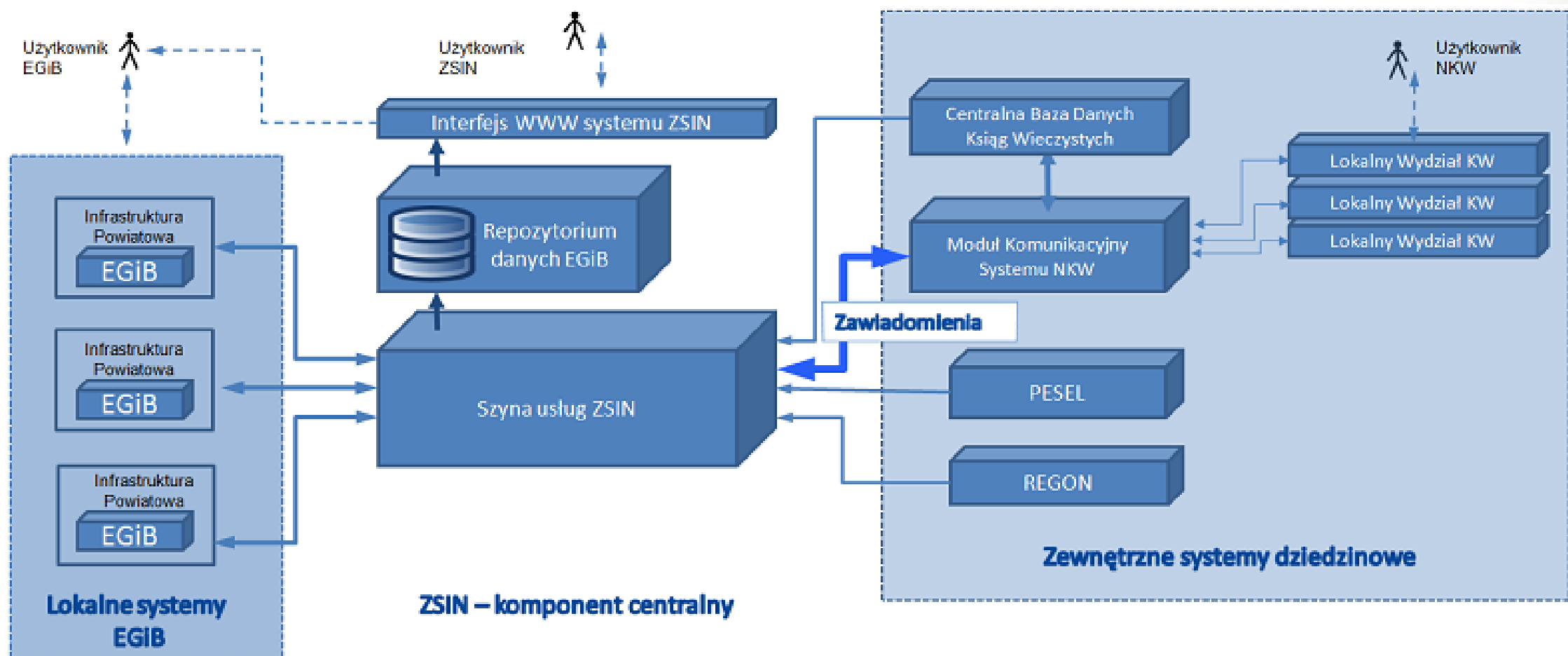
Cadastral data backup and integration

- Integrated database containing data from all counties (updated at least once a year)
- Cadastral data quality verification
- Provides access to cadastral data for authorised users

Integrates local cadastral systems with state registers

- EKW (Land Register)
- PESEL (Register of individuals)
- REGON (Register of business entities)

Data and services validation

Service validation

- Web service
- Validates local WMS and WFS services against rules from data specifications

Data validation

- QGIS plugin
- Validates cadastral data against GML application schemas and additional rules from data specifications

On January 1st, 2025, Poland will assume the Presidency of the Council of the European Union for the second time, so the next conference of the Permanent Committee on Cadastre (PCC) will be held on **May 5-6, 2025**, at the **PGE National Stadium** in Warsaw as part of the program of meetings organized under the Presidency.
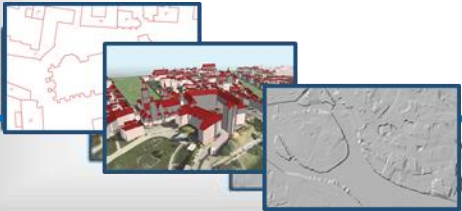
Software

- Operational model (centralised, distributed)
- Maintenance model (external or internal, funding)
- Other (cybersecurity, AI, etc.)

3D, 4D cadastre

- Legal and organisational frameworks
- Data models
- Technological challenges

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Thank you for your kind attention

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