Interreg CENTRAL EUROPE

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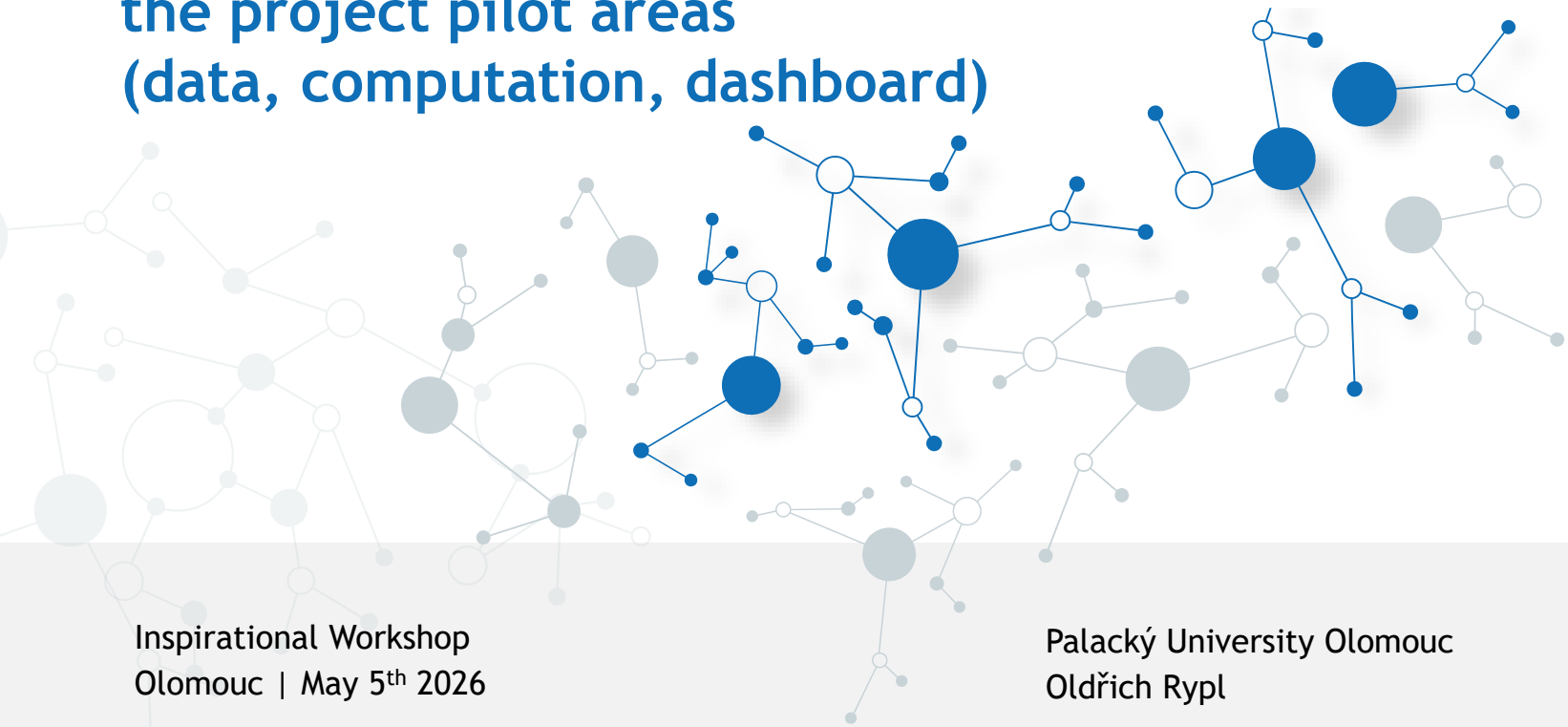
EnCLOD

A comparison of open data maturity among the project pilot areas (data, computation, dashboard)



Inspirational Workshop
Olomouc | May 5th 2026

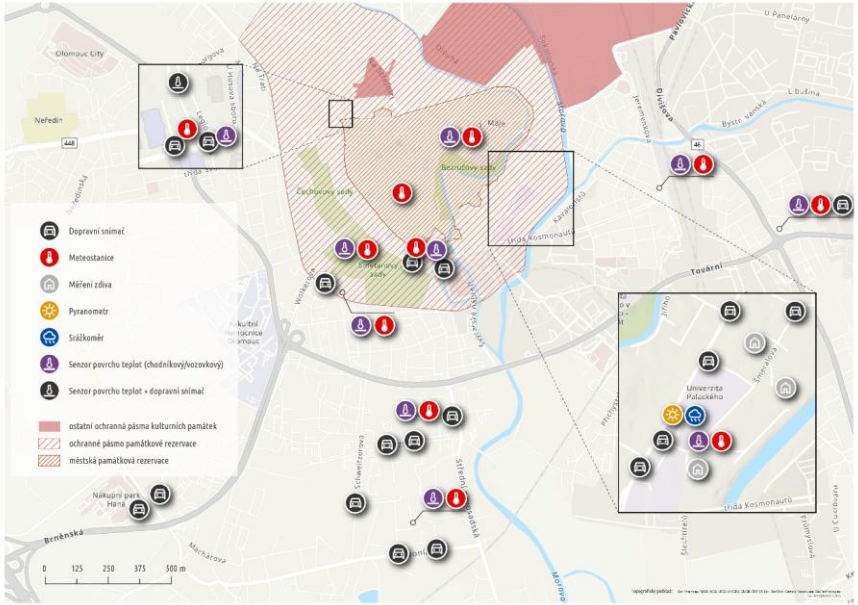
Palacký University Olomouc
Oldřich Rypl

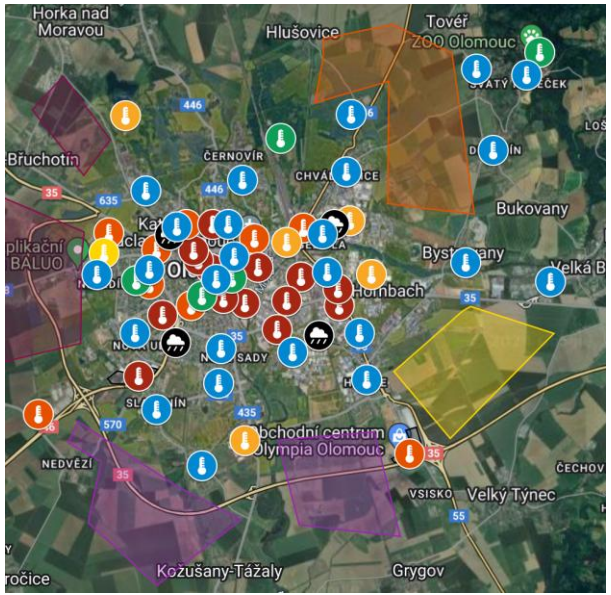
Concept of microzones

- **Small areas** inside a city
- Areas with **similar characteristics** (*urban, traffic and other characteristics*)
- A unit for **comparing urban conditions**
  - Housing estates
  - City center
  - Industrial areas
- **Olomouc** (CZ), **Žilina** (SK), **Debrecen** (HU), **Nova Gorica** (SI)
- **City management**, **decision-making** based on data

Concept of microzones

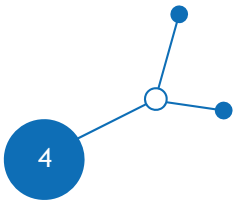
- **Each microzone also includes real-time sensor data**
  - Currently only selected microzones (e.g. housing estates, Envelopa)





Concept of microzones

- Based on **administrative units** (**ZSJ**), but **adjusted to real conditions**
- **Splitting**: when an **area is not physically connected** (e.g. *roads*, *railways*, *rivers*)
- **Merging**: when **areas function as one unit** (*same access + function*)
- **Boundaries** follow **traffic logic** (*entries/exits* – geofencing)
- Used for **sensor placement** and **data aggregation & comparison**
- **Zones** should be **flexible** and **not too small**



Thematic categories

- **Nine thematic categories of indicators**
  - *Population*
  - *Technical infrastructure*
  - *Transport infrastructure*
  - *Greenery and environment*
  - *Education*
  - *Civic amenities*
  - *Economical entities*
  - *Buildings and housing stock*
  - *Urban climate*

Dashboard content (Olomouc case)

Population

- **Total population** – *permanent residence*, *usual residence* (CZSO) and *daytime/nighttime state* (UPOL)
- **Population by age group** (0-14, 15-29, 30-44, 45-64, 65 years; 0-4, 5-14, 15-24, 25-39, 40-64, 65-74, 75 years and older)

Technical infrastructure

- **Heating pipelines, gas pipelines, non-potable water pipelines, electric power lines and sewers lenght** (km)
- **Public lightning lamps count** (abs.)
- **Buildable production areas** (ha)

Dashboard content (Olomouc case)

Transport infrastructure

- **Footpaths, pedestrian routes a cycle paths lenght** (km)
- **Parking spaces count** (abs.)

Greenery and environment

- **Broadleaved forest, coniferous forest and total forest area, small woody features and grasslands area** (ha)
- **Tree cover density** (%)

Education

- **Primary and secondary schools, kindergartens** (abs.)

Dashboard content (Olomouc case)

Civic amenities

- **Pharmacies, post offices and libraries** (abs.)
- **General practicioners for adults, general practicioners for children and adolescents, dentists** (abs.)
- **Cycloservices points** (abs.)

Economic entities

- **Natural persons count joint stock companies, limited liability company count** (abs.)
- **Community residential units owners, cooperatives count** (abs.)

Dashboard content (Olomouc case)

Buildings and housing stock

- **Building count** (abs.)
- **Family houses (%)**
- **Residential buildings (%)**
- **Buildings from family recreation (%)**
- **Building materials (%)** – stone, bricks; combination of stone, bricks and blocks
- **Address places** (total)
- **Flats** (total), **average number of flats in buildings**
- **Average price of a plot** (in CZK)

Dashboard content (Olomouc case)

Urban climate

- **Minimum and maximum surface temperature** (°C)
- **Surface temperature range** (°C)
- **Surface temperature average** (°C)

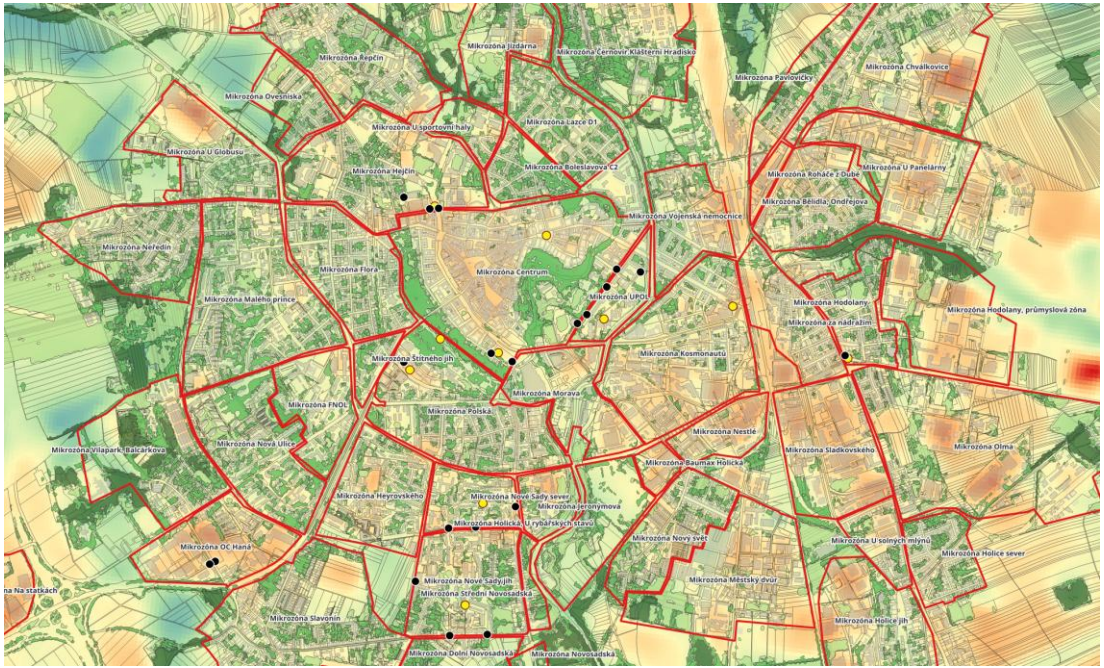
From raw data to microzone indicators

- **Obtain data** from available sources or measure them
- **Assign data to microzones**
  - Different data types require different processing
    - Point data (e.g. population)
    - Area data (e.g. forests)
    - Linear data (e.g. paths)
  - Disaggregation when needed (estimating data for smaller areas)
- **Calculate comparable indicators**
- **Visualize**

From raw data to microzone indicators

Raw data layers look good

…but without aggregation they’re hard to interpret



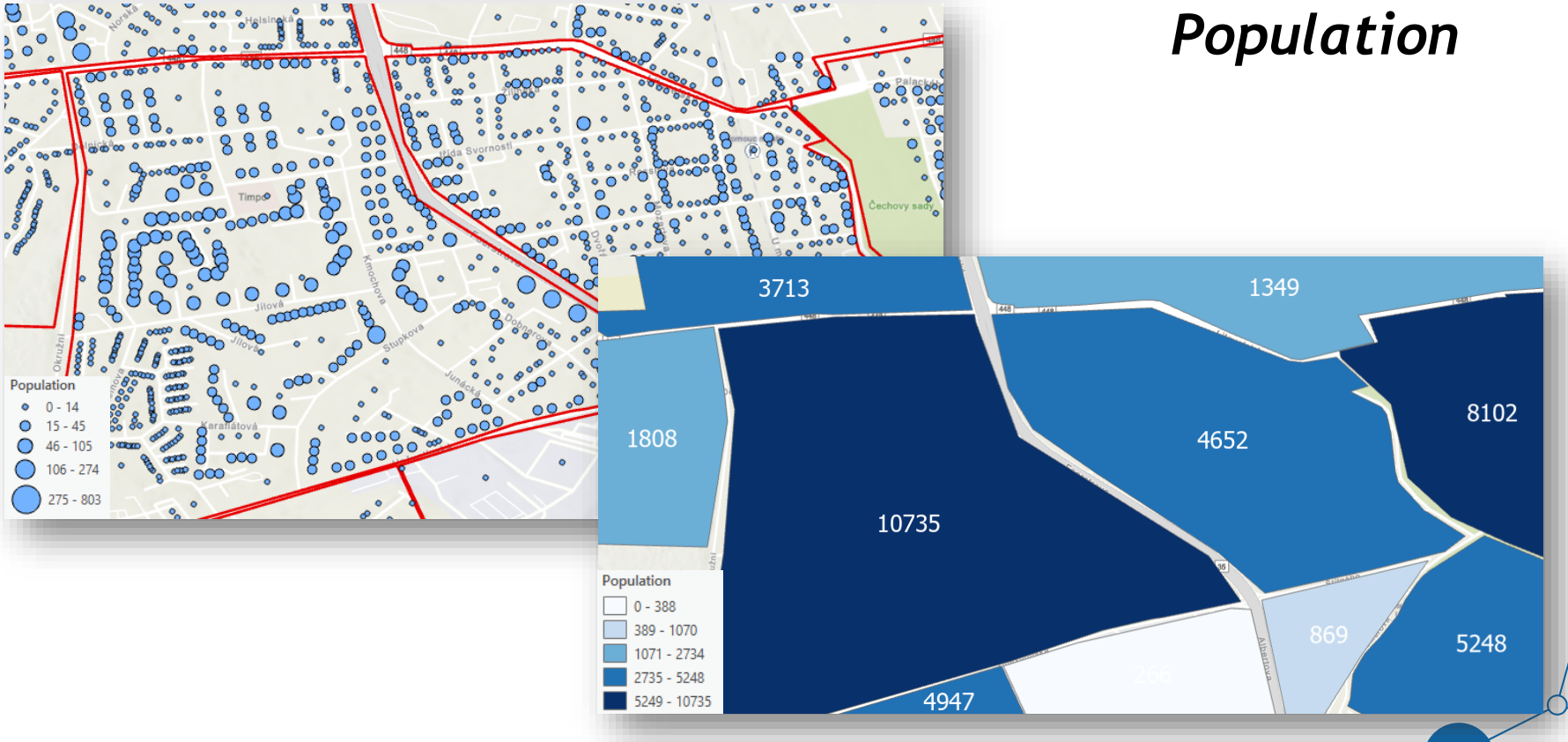
Population

Greenery

Surface temperature

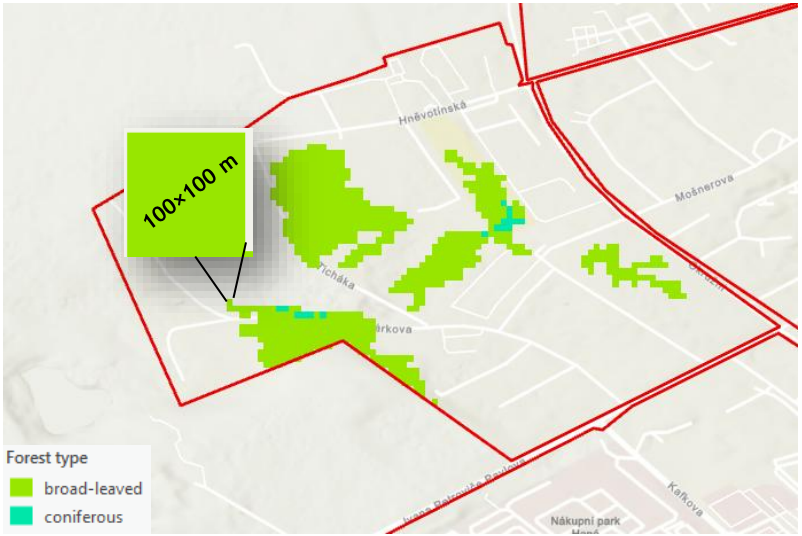
From raw data to microzone indicators

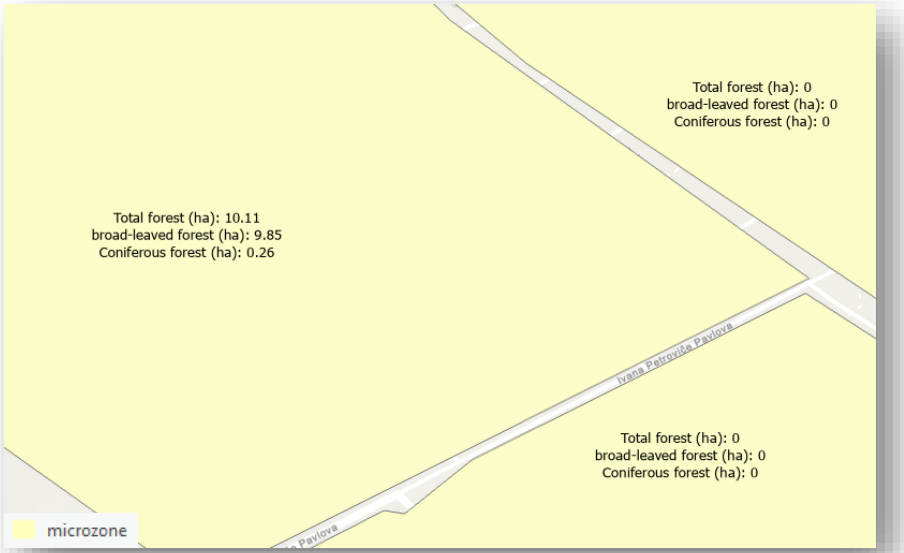
Population



From raw data to microzone indicators

Forest area





Overview of indicators (current state)

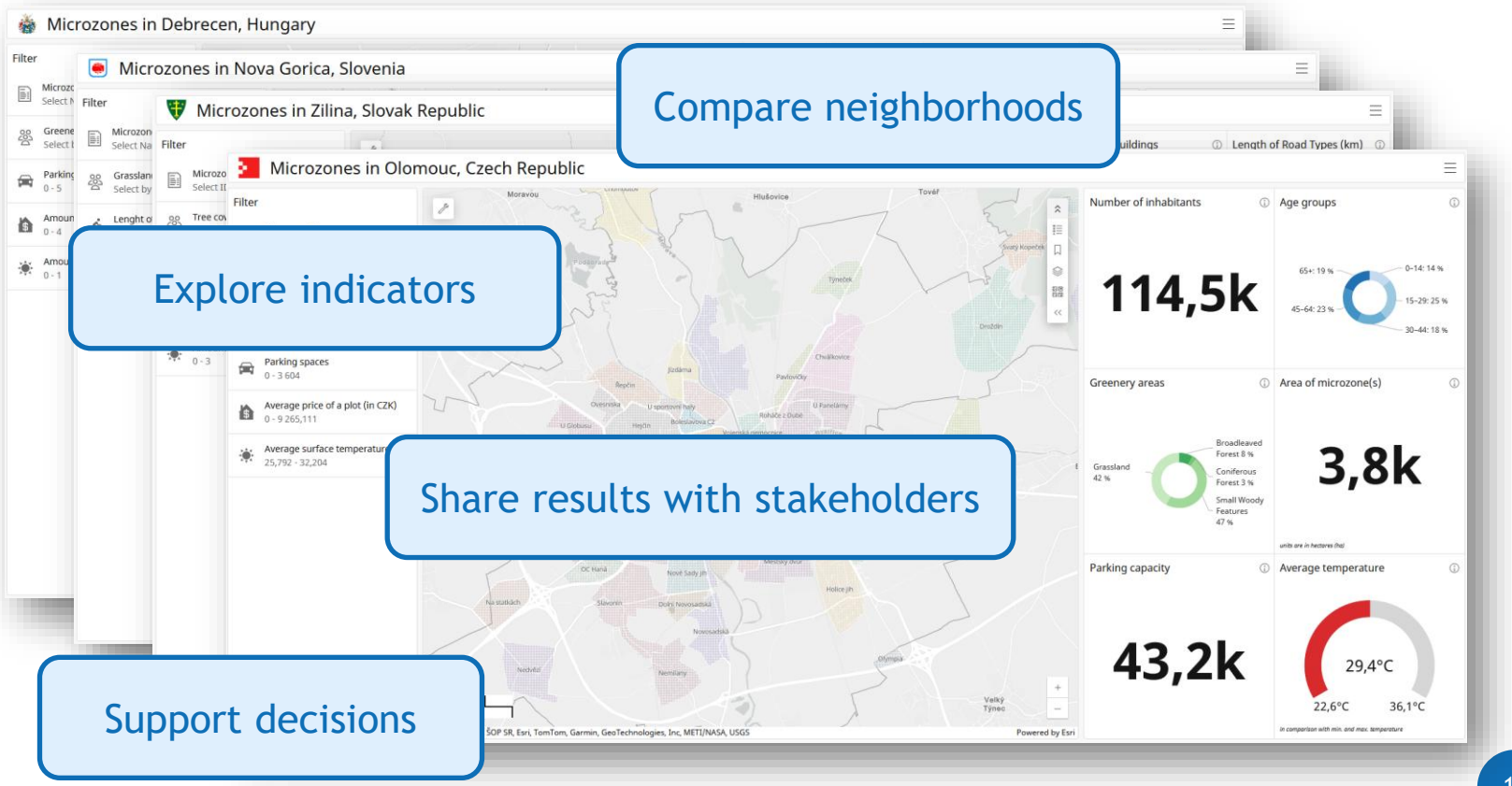
- Differences reflect **starting conditions** (not necessarily quality)
- Olomouc benefits from **long-term cooperation** with the city
    - Higher level of **open data availability**
- Stronger **GIS know-how** → gives Olomouc a head start over other pilot area

Category	Number of indicators			
	Olomouc (CZ)	Žilina (SK)	Debrecen (HU)	Nova Gorica (SI)
Population	11	-	-	-
Technical infrastructure	7	-	-	3
Transport infrastructure	3	4	4	3
Greenery and environment	6	5	7	9
Education	3	-	-	-
Civic amenities	7	-	-	-
Economic entities	5	-	-	-
Buildings and housing stock	12	3	8	9
Urban climate	4	-	-	-

Dashboards

ArcGIS Dashboards

esri



Compare neighborhoods

Explore indicators

Share results with stakeholders

Support decisions

Live demos

Olomouc, Czechia
(https://www.arcgis.com/apps/dashboards/71442d500c424230b0b917e8363a7d1d)

Žilina, Slovakia
(https://www.arcgis.com/apps/dashboards/4382b05e1b624a2db442ae17f36aa6a8)

Debrecen, Hungary
(https://www.arcgis.com/apps/dashboards/e41d819486c14b1385919b9fa592a310)

Nova Gorica, Slovenia
(https://www.arcgis.com/apps/dashboards/03433511e0cf4de68d5d723ae63d163b)