

# SDI4apps Points of Interest Knowledge Base

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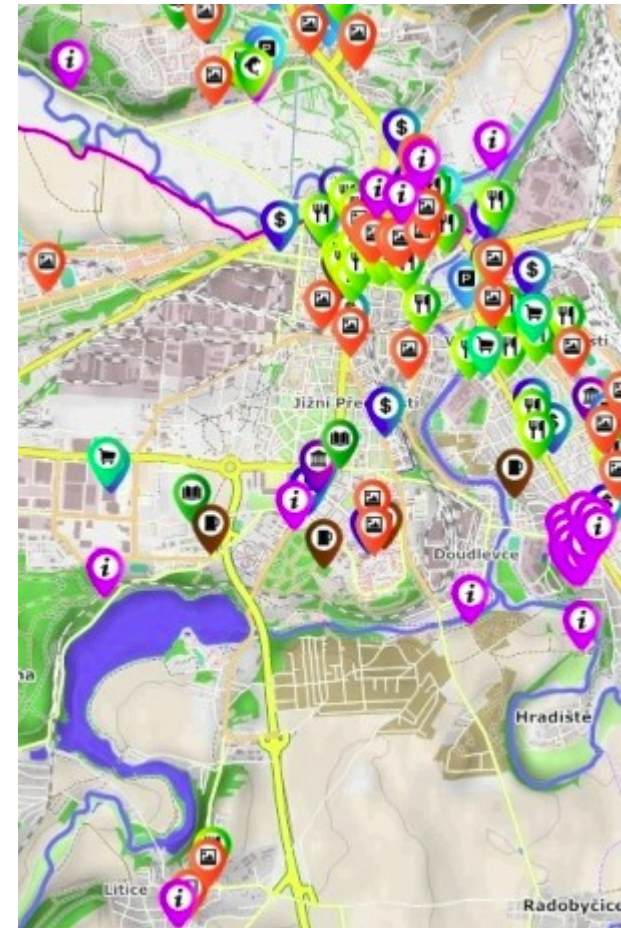
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# Objectives

- SPOI introduction
- Data model
- SPOI vs. OpenPOIs
- SPOI publication
- Future steps & Conclusions



# SPOI data set – Why?

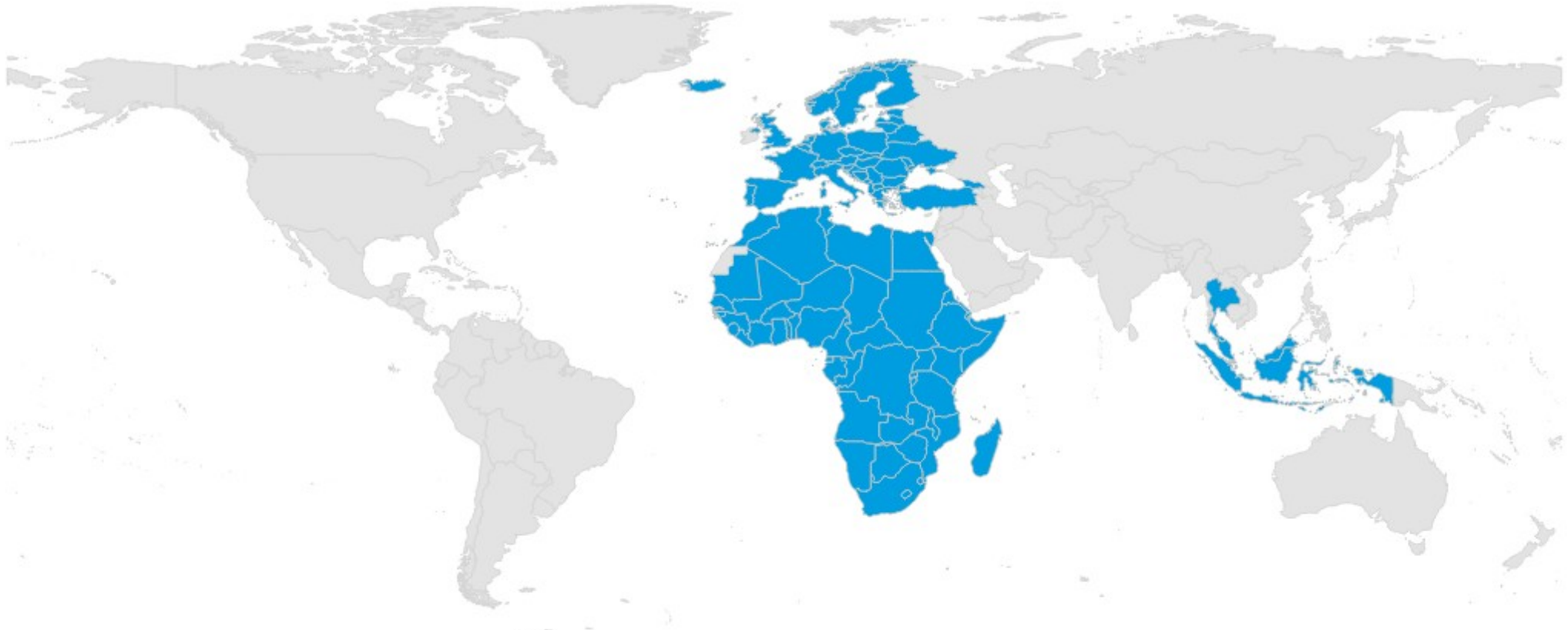
- Request of project partners and subjects participating in tourism
  - Open data
  - Seamless data
  - Accessible data
  - Editable data
  - Standardized data
  - Extendable and flexible data

# SPOI data set

- **Linked Open data for tourism and travelling**
- **Many heterogeneous input data → data harmonization process**
- **Based on standards, semantic description and Linked data**
- **Data stored as RDF triples in Virtuoso**
- **Published on map portal and SPARQL endpoint**
- **Open Database License (ODbL)**

# SPOI

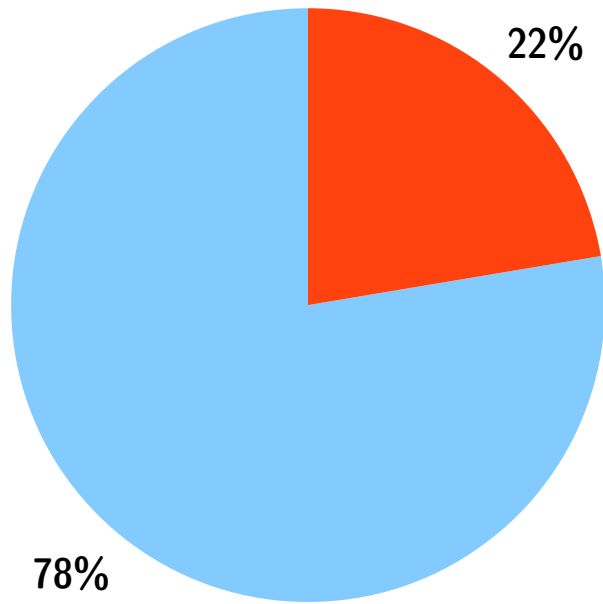
4 361 878 POIs



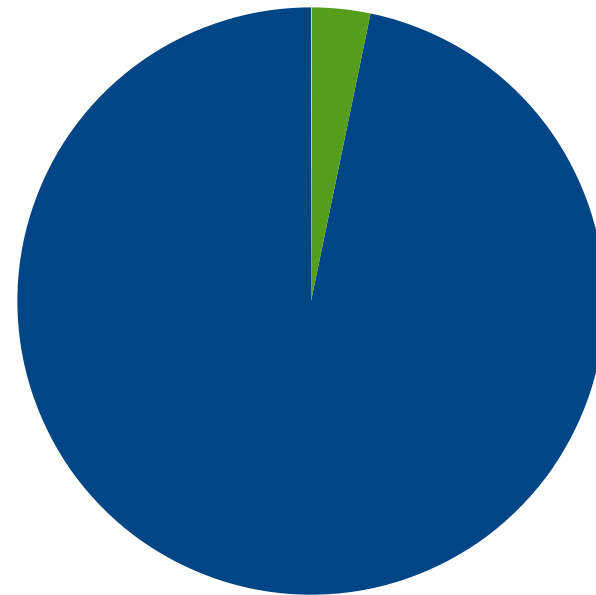
# Source data

- OpenStreetMap
- GeoNames.org (dumps)
- Natural Earth
- Open data: Prague
- Local data – documents from Posumavi region, Sicily and travel agency
- Semantic data – experimental ontologies (OWL) of UWB (ski resort, sight in Rome)

# Statistics



■ Europe  
■ Africa

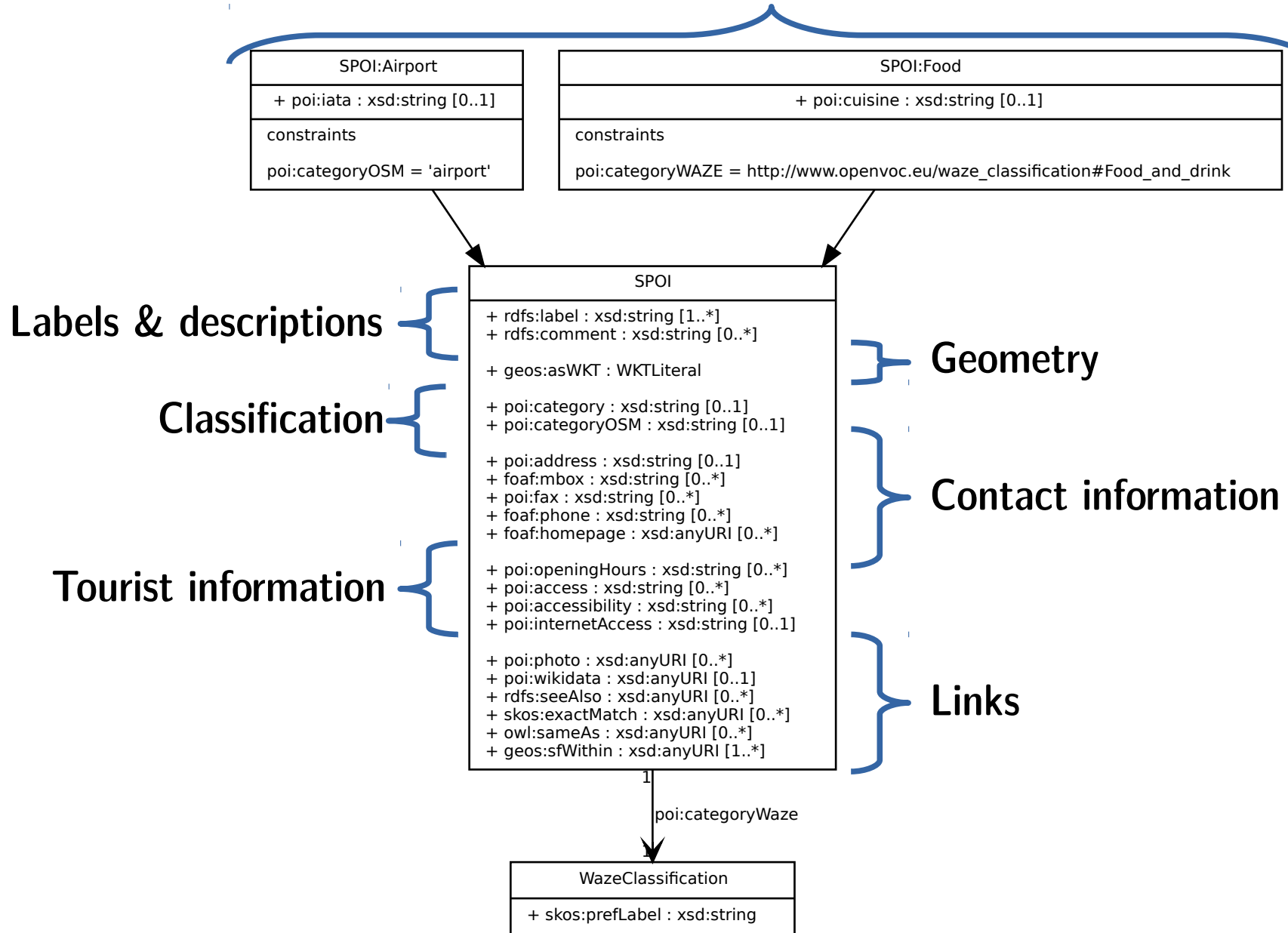


■ OSM  
■ GeoNames  
■ Other

■ 4109425  
97%

# Data model

## Tourist information





# Identifier

- URI
- Combination
  - ISO 3166-1 alpha-2 country code
  - Acronym of category of POI according Waze navigation data
  - Coordinates (long\_lat)

```
<rdf:Description rdf:about="http://www.sdi4apps.eu/poi/ML_NAT_0.8712_14.9746">
```

# Links

- **Classification – vocabulary to re-use**
- **Photos and pictures**
- **Same features**
  - **Web pages (Wikipedia, Wolfram|Alpha)**
  - **Linked data resources (DBpedia, GeoNames.org)**
- **Topological relation – to countries (GeoSPARQL)**

# SPOI & 5-star rating system

- \* **Accessibility: SPARQL endpoint & Open Database License (OdbL)**
- \*\* **Structured data: JSON, XML, CSV or RDF**
- \*\*\* **Non-proprietary format: RDF and other exports**
- \*\*\*\* **URIs: Identifiers of each POI**
- \*\*\*\*\* **Links: see the previous slide**

# Data harmonization

- Transcription to structured data (table, text → XML)
- Preparation of common vocabularies (Waze) and mappings (OSM, GeoNames.org → Waze)
- Filtering of input data
- Adding information (links to countries)
- Transformation to common data model
- Export to common data format (RDF)

# Data harmonization – technology

- XSLT 2.0 templates
  - Transformation language based on XML
  - Process XML based files and non-structured files
- Saxon processor
  - Java-based
  - XSLT + input data

# SPARQL endpoint

## Virtuoso SPARQL Query Editor

Default Data Set Name (Graph IRI)

Query Text

```
select distinct ?Concept where {[] a ?Concept} LIMIT 100
```

<http://ng.hslayers.org:8890/sparql>

*(Security restrictions of this server do not allow you to retrieve remote RDF data, see [details](#).)*

Results Format:

HTML ▾

Execution timeout:

0 milliseconds *(values less than 1000 are ignored)*

Options:

Strict checking of void variables

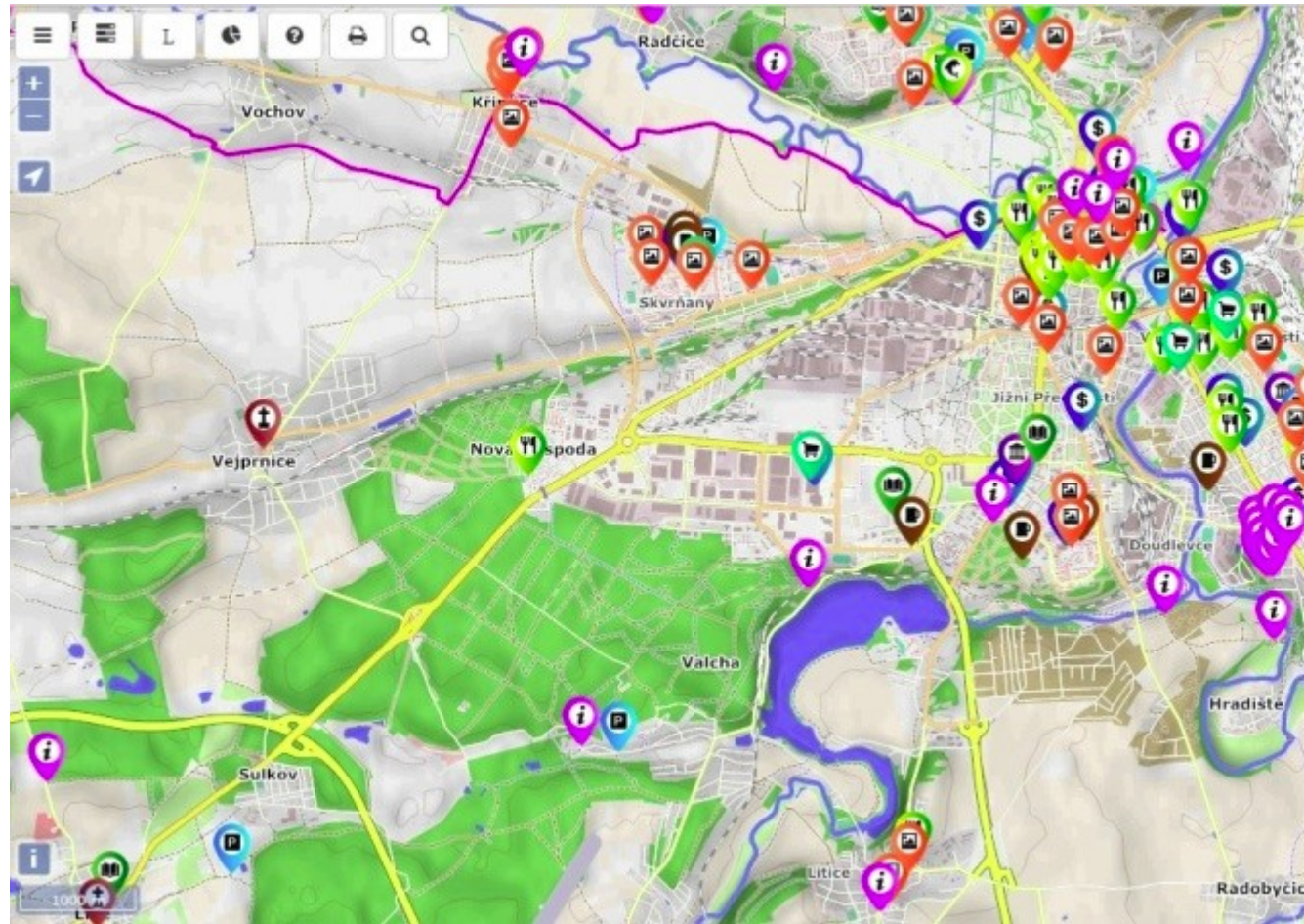
*(The result can only be sent back to browser, not saved on the server, see [details](#))*

Run Query

Reset

# Map client

- HS layers
- Specific tiles for cycling and biking
- OpenCycleMap, MTB map, OSM...
- Panoramio, OpenWeatherMap



# Web page

SDI4Apps **POI** data set

HOME

VISUALIZATION

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## Visualization



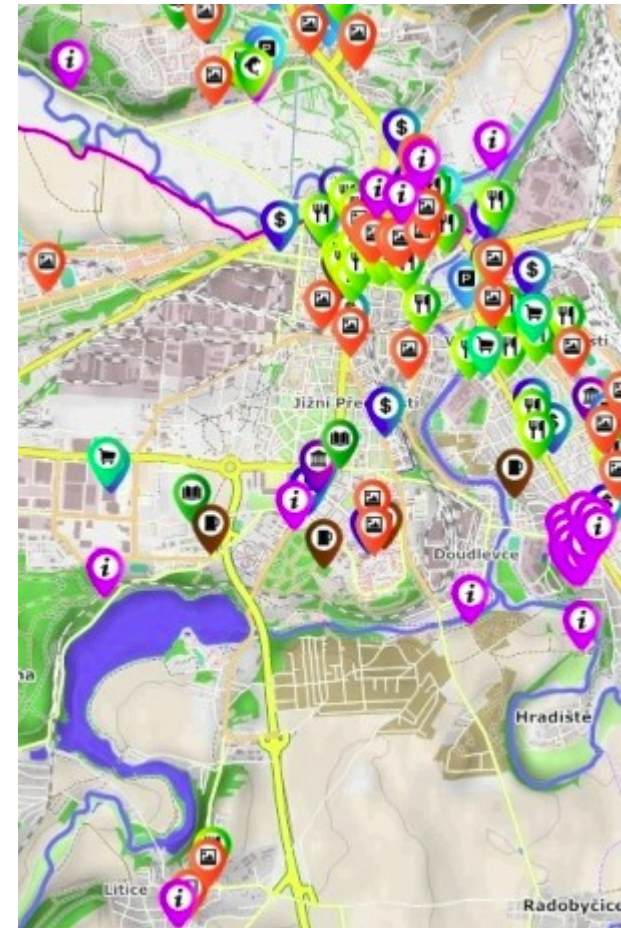


# Future steps

- Extension of information resources (imported data, links, APIs)
- Optimization of data model, data storage, data harmonization & data refining
- Cartographic challenges (clustering, generalization)
- Context-based application (user will get only information related to concrete needs)
- Analyses & itineraries & routing

# Conclusions

- Common data model
- Re-using existing standards
- Linked data
- SPARQL endpoint
- Chance for cooperation



# Thank you for attention

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