KDI : Knowledge and Data Integration

Developing a GeoSpatial KG

KDI 2020 Project Proposal

Contents

Contents

GeoSpatial Domain

- A large part of the information we deal with on a daily basis has some kind of a geographic dimension.
- In private life, we might be looking for different mountains nearby our home for a memorable hiking or trekking experience.
- In our professional life, we may be interested in studying consumer patterns in Western Europe, perhaps characterized by the Human Development Index of the country the customer is a resident of.
- Often the information required to answer our queries is available, but dispersed among a multiplicity of geospatial information sources.

GeoSpatial Domain (Contd.)

- Geospatial data or geographic information is the data that identifies a geographic location of natural or constructed features and boundaries on the Earth (e.g. oceans, countries, rivers, mountains, landforms, administrative divisions etc).

- The aim of the project is to make information seeking easier by allowing exploration, editing and interlinking of heterogeneous information sources with a spatio-temporal dimension, by developing a modularized Knowledge Graph (KG) using the iTelos methodology.

Contents

Competency Queries

To provide a glimpse, competency queries which inform the inception of the development of the Geospatial KG can be like:

- How many administrative divisions are there under the municipality of Trento?
- List all the hikeable mountains in spring season, above a certain height in Trentino Alto-Adige?
- What are the different nature parks in Trentino Alto-Adige?
- .....

Contents

Standards

To follow the standards adopted in the datasets collected:

- INSPIRE
- ISO 19115:2014
- iCal
- .....

Contents

Knowledge Resources

The reference knowledge resources for the task are:

- The Geo-eTypes Ontological Model
- The W3C Time Ontology
- .....

Also take a look at:- USGS CEGIS and Spatial Data on the Web Best Practices

Contents

Data Resources

- Open Data Trentino (for localisation in Trentino, Italy)
- European Data Portal
- Also by web scraping from relevant websites (if needed)
- .....

Contents

Outcomes

- Extended set of geospatial standard and terminologies supported
- A generic KG and a set of localised KGs defined to support and integrate diverse geospatial data
- Geospatial datasets, cleaned and well formatted, aligned with the knowledge used to integrate them
- .....

KDI : Knowledge and Data Integration

KDI 2020 Project Proposal

Developing a GeoSpatial KG