

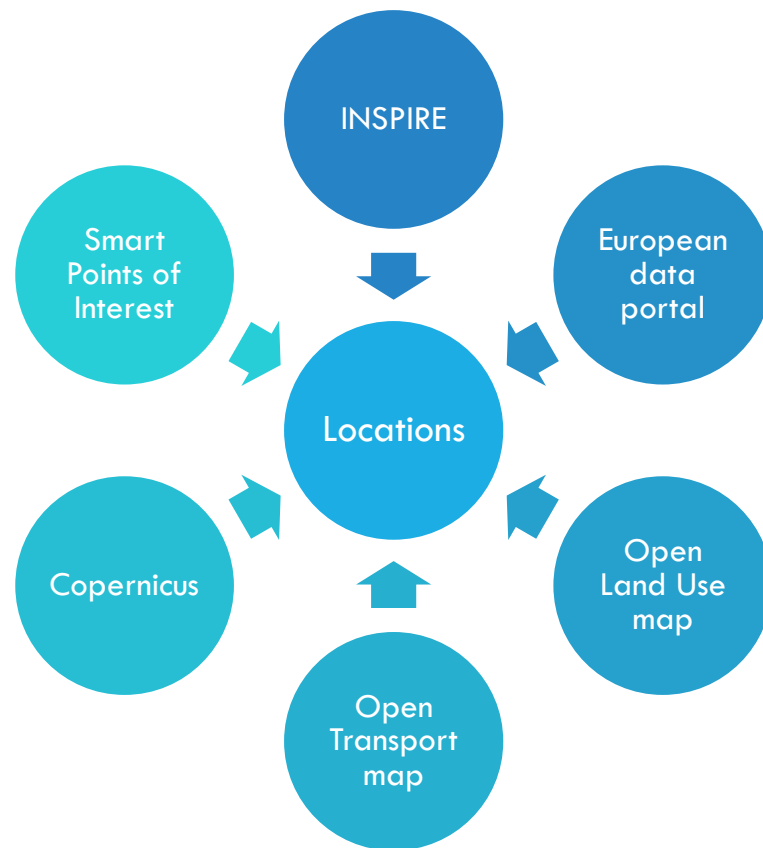


LOCATION INTELLIGENCE BASED ON MULTI-VARIATE BIG DATA ANALYTICS

Team 11

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MASSIVE INVESTMENTS INTO DATA CREATION, INTEGRATION AND AVAILABILITY



CURRENT BUSINESS VALUE OF INVESTMENTS

Dominant outputs in 2018 are still:

Metadata catalogs with downloadable files

Web map browsers with thematic layers

Proximity searches for POIs relative to user position

Paper maps (!) (!!)

WHAT WE'D LIKE TO SEE

We'd like to see the ability to build spatial models that can answer concise questions that are not necessarily answered by a map – but equally well by a yes, a no or a graduated score

For this purpose, we need a rich knowledge base of properties related to locations.

The team has focussed on the establishment of just such properties through a combination of spatial analytics and machine learning approaches on top of big data resources and a seed dataset of places

WHAT THE TEAM IS DOING: STEP 1

Integrate relevant data sources into a common storage model

Re-usable ingestion pipelines from raw data

Processing data using PostgreSQL + PostGIS and GDAL

Storing outputs as RDF on top of the Smart Points of Interest Linked Data Model to enable a flexibly growing set of properties without disrupting the data model

WHAT THE TEAM IS DOING: STEP 2

Transferring as much information as possible onto locations

Using 100k Geonames places as starting point

Inferring additional properties for each place by spatial correlation

- overlap, proximity, buffer, distance by road, distance by air, travel time etc.

WHAT THE TEAM IS DOING: STEP 3

Using machine learning techniques to enrich data

Using Keras and SkiKit Learn to do respectively text mining and numerical analysis

Building a multitude of algorithms to determine a location's score for particular **purposes** or conditions

Building training data for each **purpose**, e.g. selecting 50 places that are good for winter sports

Training a numerical prediction model with the training dataset

Establishing an artificial neural network/building a model

Predicting the match between locations and each **purpose**



WHAT THE #%&\$# DO YOU
MEAN BY «**PARTICULAR
PURPOSES**»?

We'll give two examples

IS X A GOOD PLACE FOR MOUNTAIN BIKING IN MAY

- Taking into consideration
 - Climate (temperature, precipitation, wind, sun hours, humidity, sea temperature etc.)
 - Terrain (terrain roughness, exposition, slope)
 - Trails (availability, quantity)
 - Tourism facilities (eating, sleeping, dooing, travelling)
 - Costs (travel, sustenance)
 - Safety (crime levels, peace etc.)
 - Transport modes (air, train, road)

ARE PROPERTY PRICES IN PLACE Y LIKELY TO RISE OR FALL

Taking into consideration:

- Current and planned land use
- Infrastructure
- Proximity to a wide range of assets/facilities
- Comparison with places of similar characteristics
- Etc.

Good for swimming

Algorithm

Good for Viking heritage

Algorithm

Good for nature

Algorithm

Good for hunting

Algorithm



A very limited example of answers we'll be able to provide

Good for banking

Algorithm

Good for heritage

Algorithm

Good for diving

Algorithm

NEXT STEPS

Building additional algorithms for business cases where there is a proven business case

Building user interfaces that leverages access to location intelligence for non-data analyst professionals

Identifying tangible sources of revenue

CAPTURING TRAFFIC: SEO OPTIMIZED LANDING PAGES

Titles corresponding to specific searches

Informative titles

Maps and relevant points of interest

Images

Places I'd like to Visit

Historical sites in Pilsen

This map shows interesting historical sites that are worth a visit in Pilsen including built and environmental heritage, parks and recreation areas.

Pilsen (Czech pronunciation: [ˈpɪlsɛn] (listen)), also called Pilsen in English and German, is a city in the Czech Republic. About 90 kilometres (56 miles) west of Prague in western Bohemia, it is the fourth most populous city in the Czech Republic. The city is known worldwide for Pilsner beer, created by Bavarian brewer Josef Groll there in 1842.

[Read more on Wikipedia](#)

Click to Open Full-screen Interactive Map

Quick facts

Population: 164,180
Elevation: 316 m
Country: Czech Republic
Region: Pilsen
Closest airports: Prague (PRG), Munich (MUC)
Nearby villages: Velehrad, Mělník
Nearby cities: Prague, Pilsen
Modes of transport: road, air, rail
Interests: activities, hiking, culture
Landscape: forest (20%), lakes, rivers, mountains
Land form: ripid, mountains, flat
Services: accommodations, food, automotive
Longitude: 13.37708
Latitude: 49.74747

Missing something?

[Add Points of Interest](#)

Your own map?

[Learn about our Services](#)

Photos

From Wikimedia commons:

Climate

January

The mean temperature during day time is 23.0°C. That is about the same as the month before and about the same as the month after.

Affiliate marketing

Location facts

Crowd sourcing