

## **Tourist mobility in smart cities**

### **General introduction**

The Energic COST action aims to demonstrate the potential of Volunteered Geographic Information such that data, generated by a wide range of participants ranging from authoritative bodies across scientists to individual citizens, can be used to provide information relevant to scientific, societal and policy in a European context. The objective of activities within the Energic Datathon is to allow anyone to participate in our activities, and demonstrate the potential of transformations of data to knowledge. To lower the barrier to entry for participants each Datathon task provides:

- a description of the underlying motivation for the task
- sets out an initial set of questions that might be explored through the data
- gives access to some prepared data and suggests potential additional sources, and
- suggests potential tools and methods which might be used in the task.

However, these guidelines are only intended to give a starting point to the activity, and we encourage you to be as creative as possible. Entries to the datathon will be judged by a panel of Energic members, and the best will be invited to present their results at the Energic closing meeting in London.

### **Specific introduction including overarching objectives**

A smart city uses ICT to improve quality of life for their citizens, to enhance performance quality of city services, to reduce costs save energy and to make the best use of resources, while preserving the environment.

It is particularly hard for cities as popular tourist destinations since the huge number of visitors in the city could drastically reduce smart city “performance” in reaching its aims. Also it influence the quality of tourist visit and has high negative impact on their tourist experience.

Successful management of tourist mobility in smart cities will provide better distribution of tourists across the city, increase visibility for tourist attractions and events with less overcrowded areas and will attract new/returned tourists who are likely to come back or recommend the locations visited. Everyone benefits from smart city tourist mobility without any negative effects – win-win situation.

The purpose of is data challenge (datathon) is to provide methods, tools and applications aiming to investigate and analyze smart city mobility for touristic purposes in European cities which are popular tourist destinations by combining volunteered GI and user-generated geo-referenced content (OSM, panoramio, Instagram, flickr, hotels.com) as well as authoritative data sources.

### **Potential questions to be asked of the data**

What is the preferred tourist mobility, visiting patterns, activities (photo, check-in, comment, review, etc.) depending on weather, public transport coverage, time of day/week/year, and spatio-temporal events happened in the city (obtained from available geo-information sources and user-generated geo-referenced content)?

How to improve tourist mobility to preserve energy, resource consumption, costs and reduce environmental pollution and enhance quality o tourist life?

### **Available datasets and potential data sources**

OSM - [http://wiki.openstreetmap.org/wiki/Overpass\\_API](http://wiki.openstreetmap.org/wiki/Overpass_API)

<http://download.geofabrik.de/>

Geonames - <http://www.geonames.org/export/web-services.html>

Instagram - <https://www.instagram.com/developer/>

Flickr - <https://www.flickr.com/services/api/>

Foursquare - <https://developer.foursquare.com/>

Panoramio API - <http://www.panoramio.com/api/data/api.html>

Twitter - <https://dev.twitter.com/>

Facebook - <https://developers.facebook.com/>

CitySDK Tourism API - <http://www.citysdk.eu>

Olery API - <http://www.olery.com/api/>

AboutMyHotel

Allevents.in <https://allevents.in/pages/api#>

### **City data sources**

London Data Store - <http://data.london.gov.uk>

Paris Data - <http://www.moovinthecity.com/>

Milan/Trento telecom data source - <https://dandelion.eu/datamine/open-big-data/>

Edinburg bus tracker - <http://mybustracker.co.uk/>

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### **Authoritative data sets**

Weather

Public event info

Public transport timetable...

### **Possible methods and tools**

Basic spatial analysis (density, point-in-polygon)...

Spatio-temporal analysis, frequent mobility pattern mining, anomalies detection...

## Reporting your results

You should prepare a report of your results which explains briefly:

- The data and methods you used (and provides links to these such that your work can be reproduced)
- Interprets your results, concentrating on what you learnt through the datathon and linking to the questions set out above
- Emphasizes challenges in carrying out the datathon
- Illustrates the originality and novelty of your approach
- References any external sources you used to help you complete the task
- A 2 minute video pitch presenting your report

Your report should be prepared as a self-contained set of HTML pages which can be accessed by the judges and uploaded to the Energic website after the challenge. All content on the website should be licensed CC-BY-SA (where you use data sources covered by other licenses you should provide tools and access to these and make clear any limitations in their use).

## Judging criteria

A panel of Energic members will judge the quality of entries to the Datathon and select the best examples for presentation at the final Energic meeting in London. The following criteria will be used in judging entries:

- Overall quality of the entry to the datathon
- Originality and novelty of the approach taken
- Quality of the description of the data and tools used, especially with respect to reproducibility
- Soundness of the approach taken
- Potential scientific, societal and policy impacts of the results
- Quality and engagement in the video pitch

## Information for organisers

The Energic Datathon is open to anyone. However, it will be most fun, and probably also most productive for small groups (typically 3-4 people). The tasks have been designed such that they can be carried out by groups with different levels of skills, ranging from basic spatial analysis using standard GIS to creation of more complex workflows using programming skills. We estimate that typical time investment for a Datathon task should be of the order of 12 hours - however, it is of course up to participants how much or how little time you invest. The only hard rule is our deadline for submissions of **31.07.2016**.

There is no need to register for the Datathon, just submit your report to [ross.purves@geo.uzh.ch](mailto:ross.purves@geo.uzh.ch) by the deadline. However, we'd like to know that you're taking part, so feel free to drop us a mail telling us who

you are, how many of you are participating in which challenges, and whether or not others are welcome to join you. Please Tweet about the event using the HashTags #Energic and #Datathon.

Some useful information about running datathons events can be found at:

- <https://hackathon.guide/>
- <http://guide.mlh.io/>

### **Contact information**

For this particular datathon:

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