

ESSnet WPL – Trusted Smart Statistics

Task 3 – The use of IoT for Smart Cities

Case study 3 (FR, IT)

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Kick-Off meeting, Wiesbaden, 15-16 November 2018

Task 2 – Case study 3 - Introduction

NATIONAL STATISTICS INSTITUTE INVOLVED

- Italian Institute of Statistics (ISTAT - IT)
- National Institute of Statistics and Economic Studies (INSEE - FR)
- Others ?

TOPIC

- Smart Environment Statistics

THE GOAL

- To study the socioeconomic characteristics of people exposed to pollution with the aid of smart sensor

In compliance with the European regulation, ISTAT provide a set of traditional official statistics on this topic; every year an official environment statistic is published, and it is based on data about air pollution for the 120 main cities of the country.

The data are collected by the statistical regional offices inside the cities, and are provided by the regional agencies for environmental protection (ARPA).

The micro-data refer to some polluting substance such as PM10, PM2.5 (particulate matter) , NO2 (nitrogen dioxide), O3 (ozone), etc. captured by the devices located in the cities

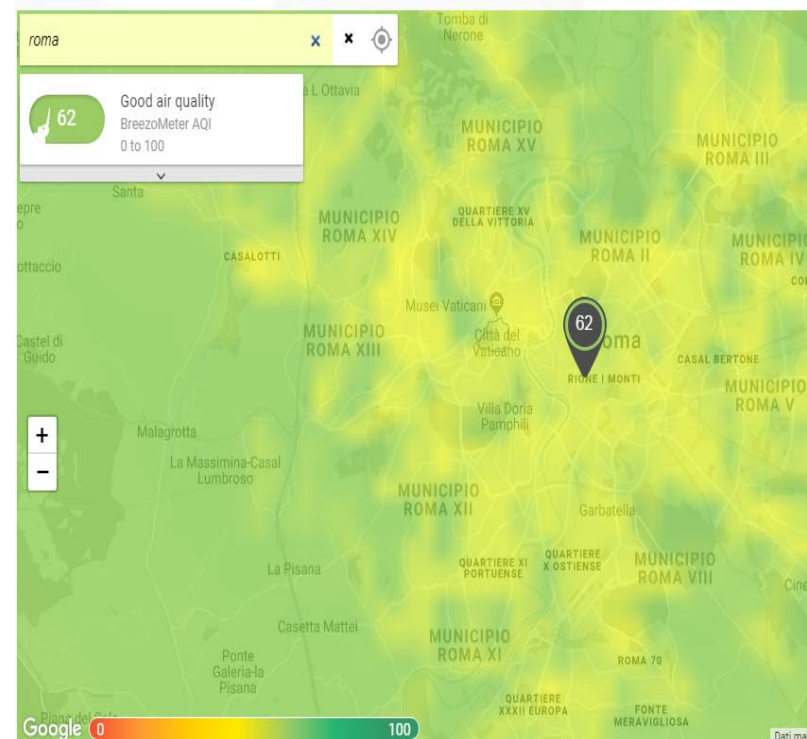
Smart Environment Statistics: the project idea

- Our idea is to provide a more detailed statistics:
 - ***in spatial terms*** (from cities to single streets or census area statistics)
 - ***In temporal terms*** (from annual to monthly/daily statistics)
- In this use case we would study the socioeconomic characteristics of people exposed to pollution. To reach this aims we would use the same micro-data used by statistical office on pollution, enriched with the implementation of a geo-spatial model to represent a more detailed map of pollution (a sort of Google Traffic map applied to the pollution)

Smart Environment Statistics: the project idea

- There are some models that are able to estimate how the pollution is distributed on the geographical space. This models use as input, pollution data, weather data (temperature, wind, sunning/raining, ...), chemical data refer to the characteristics of each substance measured by the sensor devices; this models provide as outcome a chromatic map on pollution.

<https://breezometer.com/air-quality-map/>



Smart Environment Statistics: the project idea

We would link the micro-data of the ***pollution map*** with the data of the ***census*** and in particular the ***official data of dwellings*** and ***resident population*** at very low level (at census area level or single street level) with the aim of analyze the socioeconomic characteristics of people exposed to pollution.

Smart Environment Statistics: open issues

- Are the data used by geo-spatial map on pollution available ?
- In alternative, how to implement a model to estimate how the pollution is distributed on the geographical space ?
- Let's define at what level it's possible to link the census data with the data on pollution.
- Others open issues ?

Thanks for your attention

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