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# OpenStreetMap and its synergies with INSPIRE

OpenStreetMap (OSM, https://openstreetmap.org) is the largest, most complete and most up-to-date crowd-sourced geospatial dataset in the world, including a wide variety of vector features at various levels of detail. Almost 6 million users have created an OpenStreetMap account and about 5000 of them, on average, are contributing data on a daily basis.

The fact that anybody can contribute and update information in OSM and that the database is openly-licensed, makes data reuse straightforward and stimulating to build third-party applications. However, although OSM-derived basemaps are currently used by many popular applications (e.g. Foursquare, Strava and Facebook), the details of OSM data structure, the ease of contributing data and the possibilities to reuse are not equally known and appreciated.

When compared to INSPIRE, OSM has a much simpler data model that is essentially formed by three possible feature types (nodes, ways, relations) and a flat data structure described by an indefinite number of attributes or tags (key-value pairs). Seen from the opposite perspective, its inherent openness and community-based approach make it also very difficult to achieve a harmonised set of codelists to describe real world features [1].

Nevertheless, OSM and INSPIRE have many commonalities and there are multiple reasons to make efforts towards their integration. Typical use cases are the combination of data retrieved from INSPIRE with OSM data that are out of scope for INSPIRE (for example buildings and points of interest within them) or the update of INSPIRE data through OSM information (e.g. for land use/land cover maps, a domain where crowdsourced information is able to describe environmental changes much faster than authoritative sources).

During the webinar, participants will first learn the basics of OSM: how data in OSM is organised and managed, the types of datasets that can be described, its data structure and the simple but powerful tagging system that constitutes its backbone. Through some practical use cases, participants will also learn how to query and extract data from the OSM database in different ways, e.g. using Overpass Turbo (https://wiki.openstreetmap.org/wiki/Overpass_turbo), the popular web frontend of the Overpass API (https://wiki.openstreetmap.org/wiki/Overpass_API), and using the QGIS plugin QuickOSM (https://plugins.qgis.org/plugins/QuickOSM). Afterwards, a comparison with the INSPIRE framework will show up commonalities and differences in the conceptual and organizational approach as well as in the technical implementation. Examples of data transformation flows and use of mapping tables to compare INSPIRE and OSM models for one or more selected INSPIRE data themes will also be presented and discussed. Finally, an example of upload and integration of such datasets inside a desktop GIS application (e.g. QGIS) will be presented.

[1] Minghini M., Kotsev A. & Lutz M. (2019) Comparing INSPIRE and OpenStreetMap data: how to make the most out of the two worlds. The International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences, Volume XLII-4/W14, 167-174. doi:10.5194/isprs-archives-XLII-4-W14-167-2019.

## Sub-category

2.10 Tools: Data models - transformation

## IJSDIR

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