Group of Experts on Population and Housing Censuses
Geneva, 26–28 September 2018

The development of the Istat GeoPortal

Pina Grazia Ticca
Directorate for Environmental and Territorial Statistics (DCAT) - Istat

Gigantino Antonella
Directorate for Information and Communication Technologies (DCIT) - Istat

The development of the Istat GeoPortal

- History of GIS at Istat and reference directives of the development
- The Istat GeoPortal
- The GeoMetadata and the Catalogue
- The Istat GeoViewer
- Conclusions

History of GIS at Istat and reference directives of the development

- In 20 years' experience, geospatial activity applied to statistics had a significant growth at the Italian National Institute of Statistics.
- Istat produces and disseminates geospatial and georeferenced statistical information since 1995, when the census mapping cartography was firstly digitized.
- A geographic information system, named Gistat, has been developed and enhanced to support past and future censuses and many other projects based on territorial frameworks.
- Gistat is also available on the Internet.

In this context the GeoPortal is a **unique access point** for geographic and georeferenced statistical data.

History of GIS at Istat and reference directives of the development

Geospatial information linked to statistical data

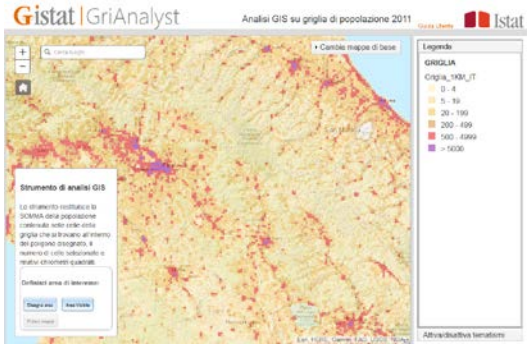
The integration of statistical and geospatial information is a common theme at local, national, European and global level.

The INSPIRE directive (Infrastructure for Spatial Information in Europe)

INSPIRE gives directives and specifications to Member States to share geospatial information through **discovery**, **viewing** and **download** services published on standard National Spatial Data Infrastructure (NSDI). The INSPIRE directive, is also driving in the direction of enhance the ESS (European Statistical System) through the harmonization of **statistical units** and **population distribution**.

Population distributions are defined as
"datasets of statistical information describing how some phenomenon regarding human population is spread within some part of the 2D space"

(D2.8.III.10 INSPIRE Data Specification on *Population Distribution* – Technical Guidelines. https://inspire.ec.europa.eu/id/document/tg/pd)



The 1KM population grid

History of GIS at Istat and reference directives of the development

National Repertoire for Territorial Data – RNDT

At national (Italian) level there are several on-going initiatives regarding the harmonization and dissemination of geospatial data.

AGID, the national agency supervising the adoption of the digital code for public institutions in Italy, in terms of geospatial information defined the rules for “cataloguing territorial data” for public institutions.

AGID implemented a National Repertoire for Territorial Data (Repertorio Nazionale Dati Territoriali – RNDT) geoportal to which public institutions have to contribute to make geospatial information discoverable and interoperable.

The Istat GeoPortal

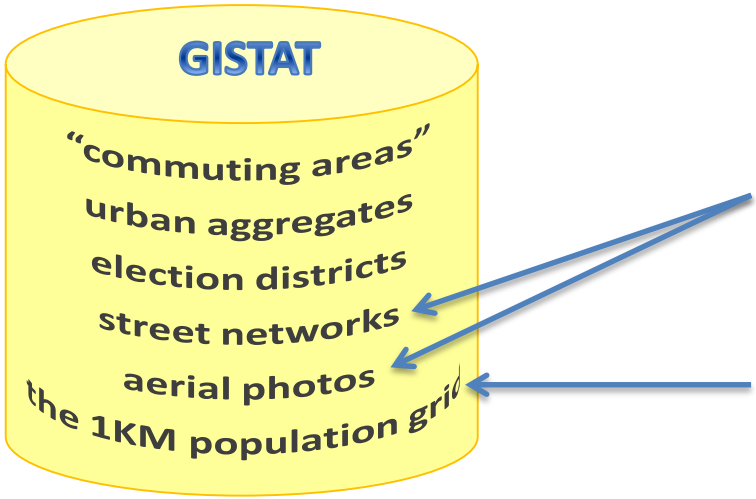
The development of GISTAT has led to build a GeoPortal

- both to make data and geospatial services **discoverable** and **interoperable**
- both to **promote** and **enhance** the use of geospatial data and tools for statistical users

The Istat GeoPortal

As already mentioned, Istat (the Italian National Institute of Statistics) has developed a geographic information system named Gistat.

Gistat stores in a **spatial-temporal geodatabase,** at various time periods, census mapping cartography as well as many geographic datasets such as:

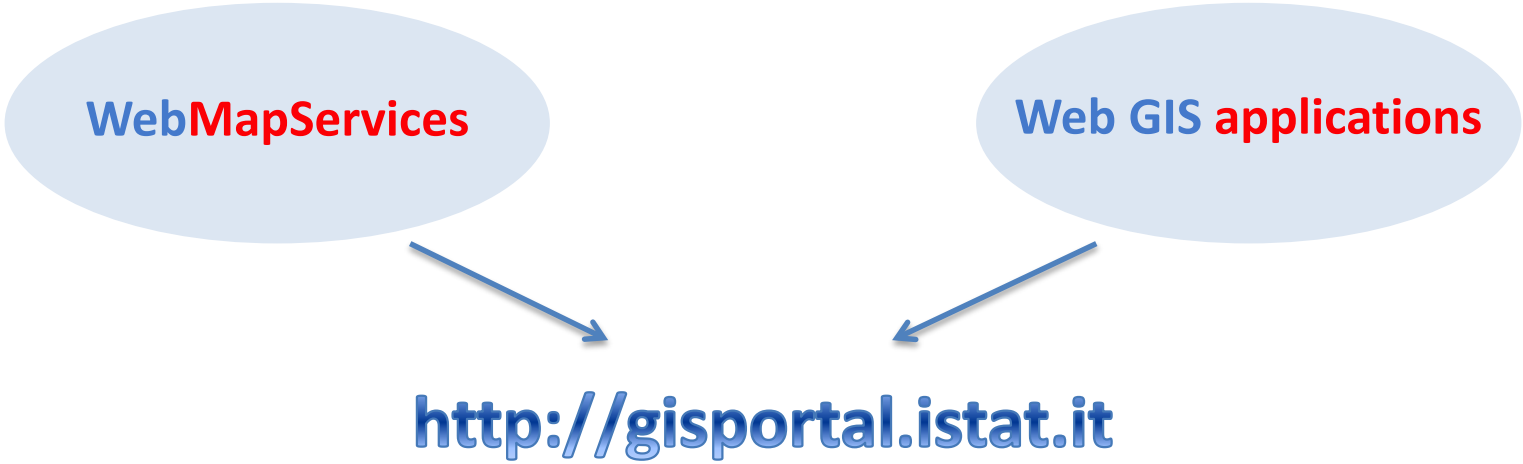


These data come from external sources

This population grid has been built according to EU specifications to support the cross-border statistics in the ESS (European Statistical System).

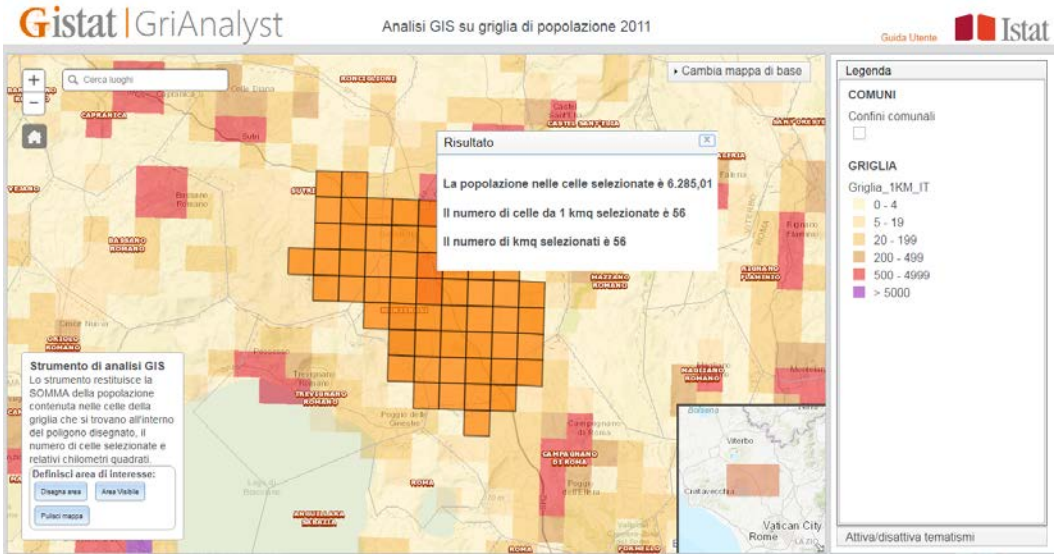
The Istat GeoPortal

Most of the data coming from the geographic information system GISTAT are available on the Internet through



The Istat GeoPortal

The Istat GeoPortal exposes an interactive web GIS application which allows the user to interact with the population grid.



This application provides a tool that returns the sum of the population contained in the selected cells.

The GeoMetadata and the Catalogue

The GeoMetadata Catalogue is the base for sharing geospatial data and facilitates the discovery and reuse of spatial and georeferenced information.

Many types of resources are made available through a catalogue service for web, such as: **Datasets, MapServices, WebGIS Applications** and many others.

The GeoMetadata and the Catalogue

The main functions provided by the system are:

- the creation of metadata for the resources, so that could be shared according to OGC CSW standard
- the search for data using spatial queries or attribute keys
- the publication of the services for **discovery**, **view** and **download** the data
- the search in federate catalogues, that use the same standards
- the integration of a GeoViewer to support the users to better discover, view and navigate geospatial and georeferenced statistical information.

The Istat GeoViewer

The Istat GeoViewer is a new WebGIS application oriented to

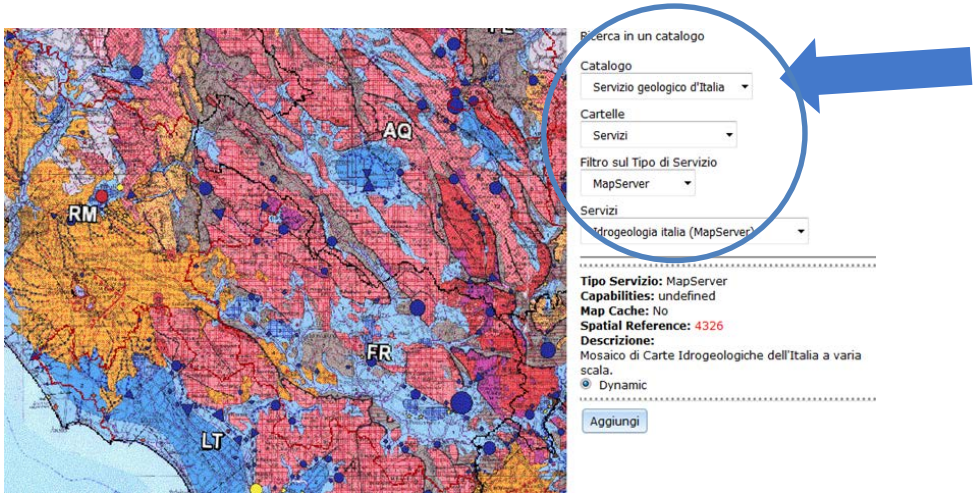
- search
- view
- navigate

→ the MapServices discovered on the Web.

The Istat GeoViewer

Main functionalities: **accessing to catalogues**

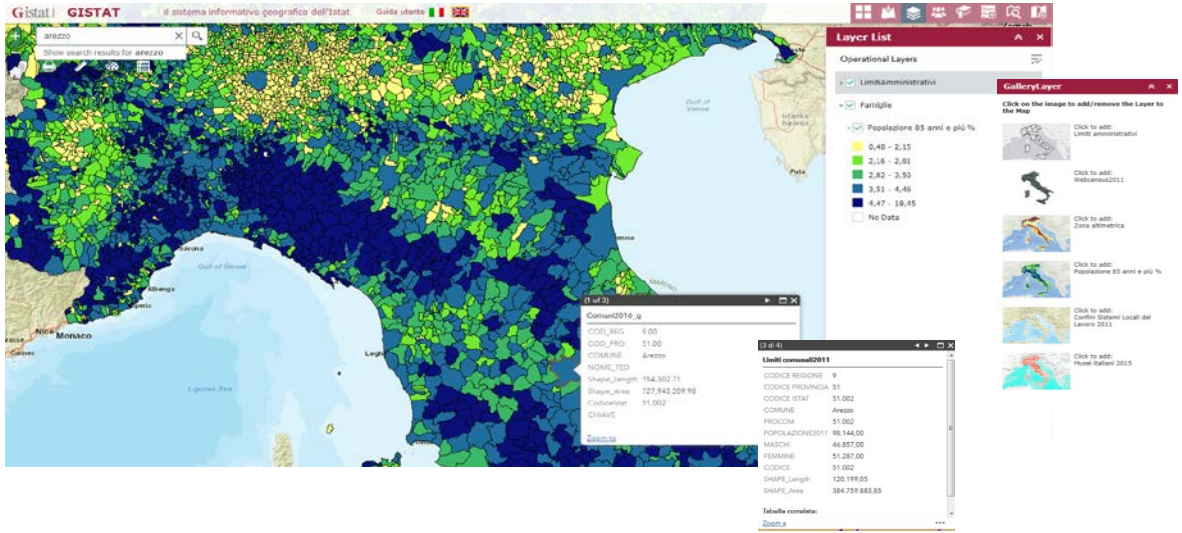
The overlay of geospatial data coming from different sources is easily possible. Interoperability is guaranteed through the access to discovery services to standards CS-W catalogues (Catalogue Service for Web) available in other GeoPortals.



The Istat GeoViewer

Main functionalities: **Gallery Layer**

User interaction is facilitated by a custom ‘Gallery layer’.



The user simply *click* on the image and the corresponding map is displayed on top of the other layers.
Then the new added map is listed on the layer contents.

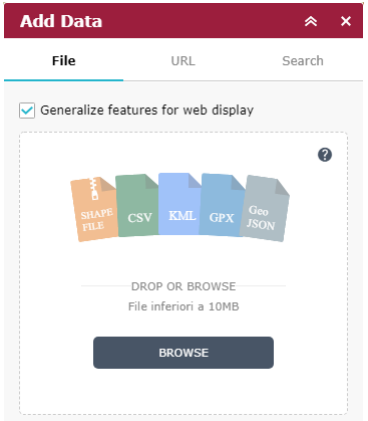
For example, the new added map represents a census population indicator.

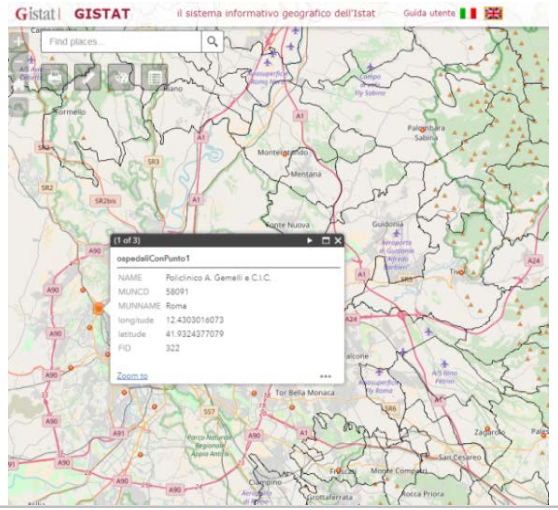
The Istat GeoViewer

Main functionalities: **Add Data**

The users can dynamically load data on the map, accessing to geometries stored locally to their own computers that is possible for different file formats, such as: CSV, JSON, and Shapefiles

In the example beside:
the widget panel and
Hospital added from a X,Y
file coordinates





Conclusions

Users and citizens are increasingly demanding for more sophisticated statistics to be able to describe and analyse :

the people	the society	the economy	the world

- Most of statistical data are related to places so data can be geo-referenced (or location-enabled) to become **geospatial statistics**.
- The GIS tools make easy to access and use those data and help the users to **navigate** and **geo-process** data to produce new information.
- The development of an Istat GeoPortal is a new challenge for **future censuses** (dissemination and geospatial analyses), through optimized WebMapServices and WebGIS Application. The context is the definition of a point-based framework to have new territorial dimensions in the statistical production.