FOSS4G
Prizren, 2023

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Territory & IT

Implementation of Statistical Geoportals in Latin America and the Caribbean

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Implementation of Statistical Geoportals in Latin America and the Caribbean

Project objectives

- It is a UN ECLAC project called **Facility**
- We implemented the Global Statistical and Geospatial Framework (GSGF)
- We target countries in Latin America and the Caribbean
- All projects are open source
- We generate spanish documentation

https://git.cepal.org/geo

NACIONES UNIDAS

CEPAL

Target countries

Guatemala

Ecuador

Argentina

Dominican Republic

Honduras

El Salvador

Paraguay

Costa Rica

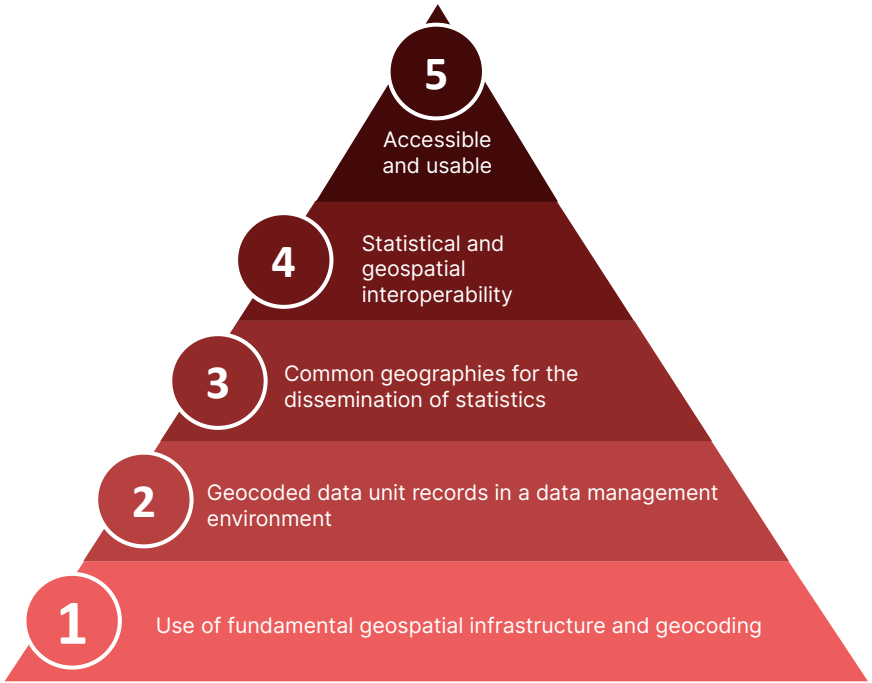
Activities

Argentina	Costa Rica	Ecuador	El Salvador	Guatemala	Honduras	Paraguay	Dominican Republic

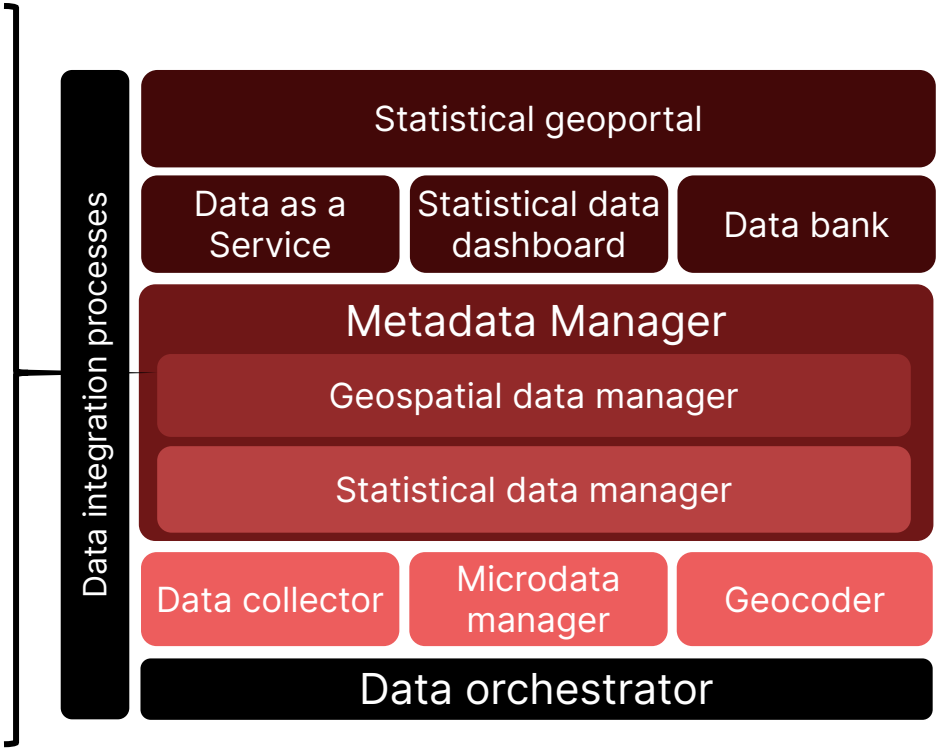
1. Specific questionnaire
2. European Geoportals Review
3. Diagnostic meetings with each country (current situation, gaps and opportunities)
4. Preparation and submission of executive summaries

Solution Architecture

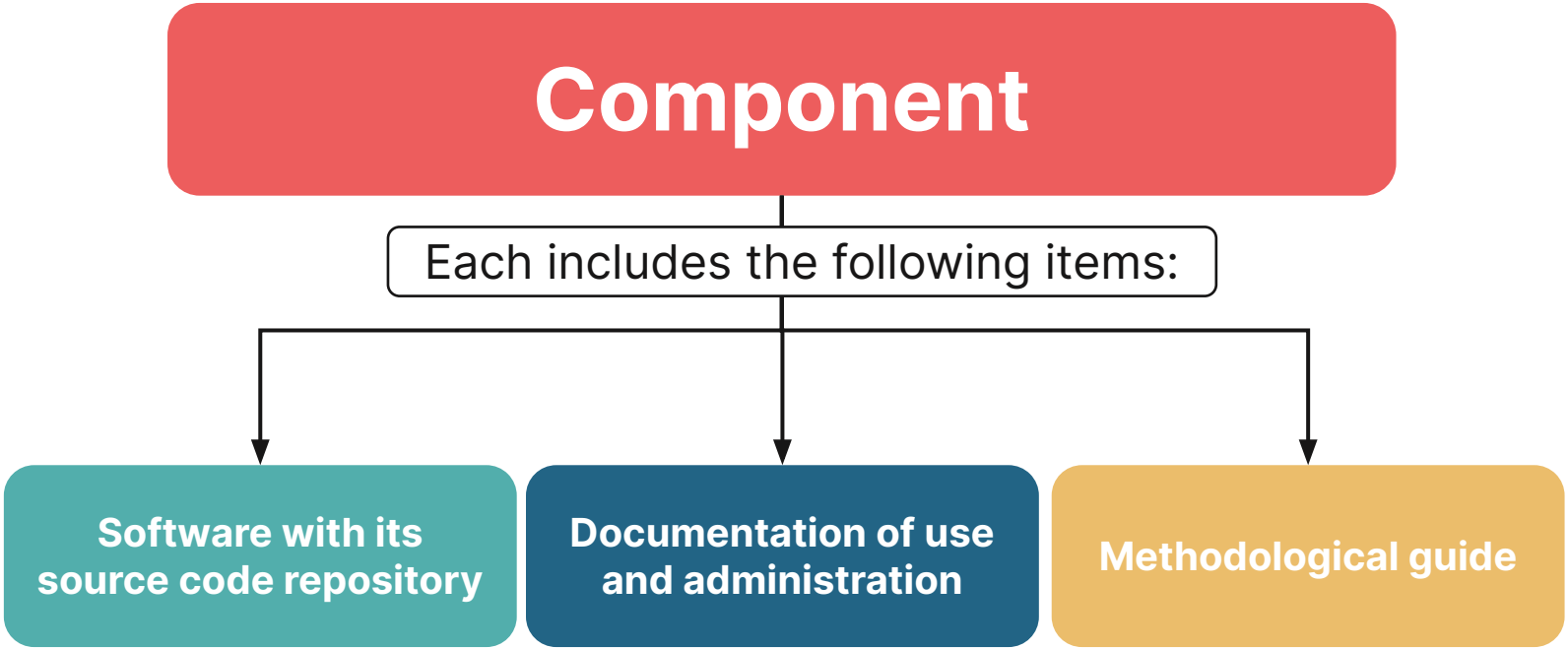
Global Statistical and Geospatial Framework (GSGF)



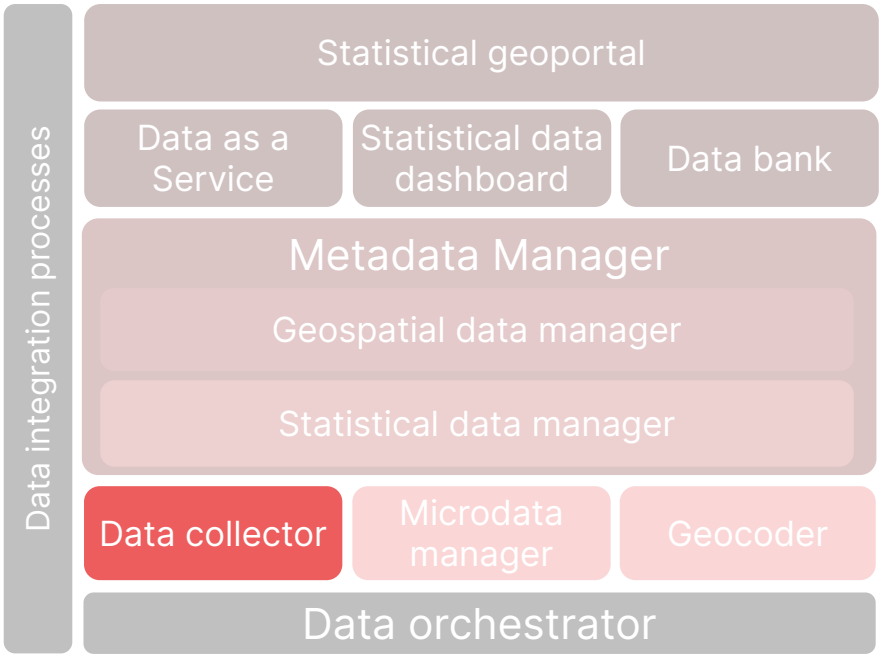
Proposal of technological components



Modular Components



Data collector



Allows the collection of data in the field in a standardized way through personalized forms

It enables the creation, collection and analysis of data both offline and online

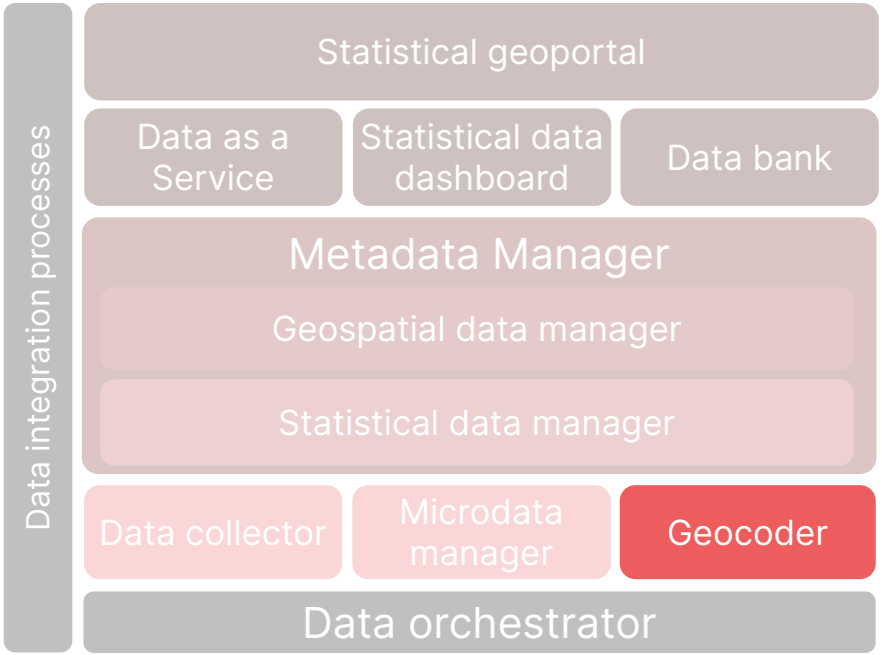
Proposed tool:

KoBoToolbox

- Custom form construction
- Collect normalized data
- Allows you to analyze and manage data

https://www.kobotoolbox.org

Geocoder



Systematized geocoding service

Seeks to facilitate statistical and geospatial interaction

Requires previously standardized information on traffic routes, numbering and names

If implemented, it will allow the standardization of data on traffic lanes

Suggested tool:

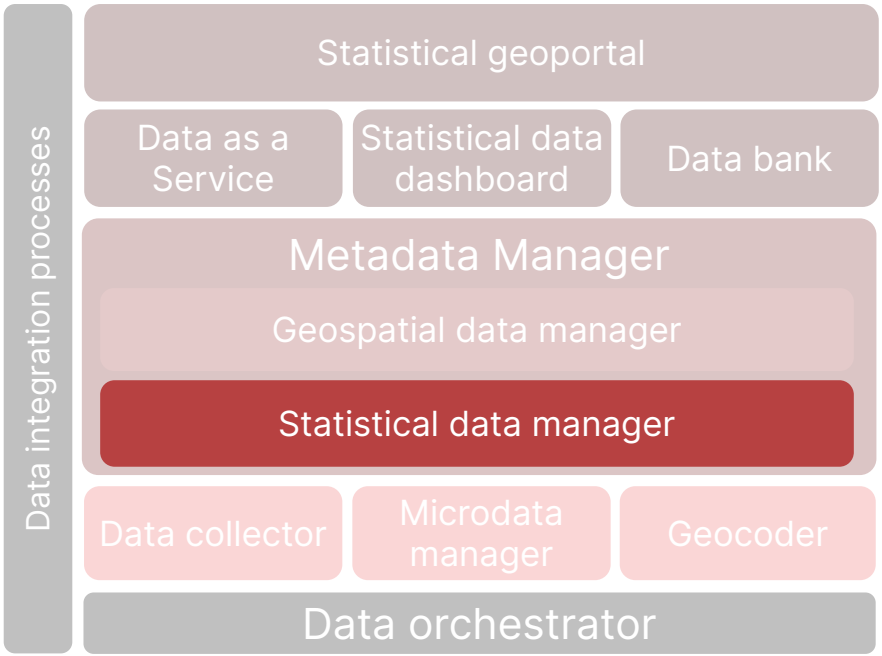
Nominatim

It can be fed from the integration of:

- Local data
- National data
- OpenStreetMap

https://nominatim.org/

Statistical data manager



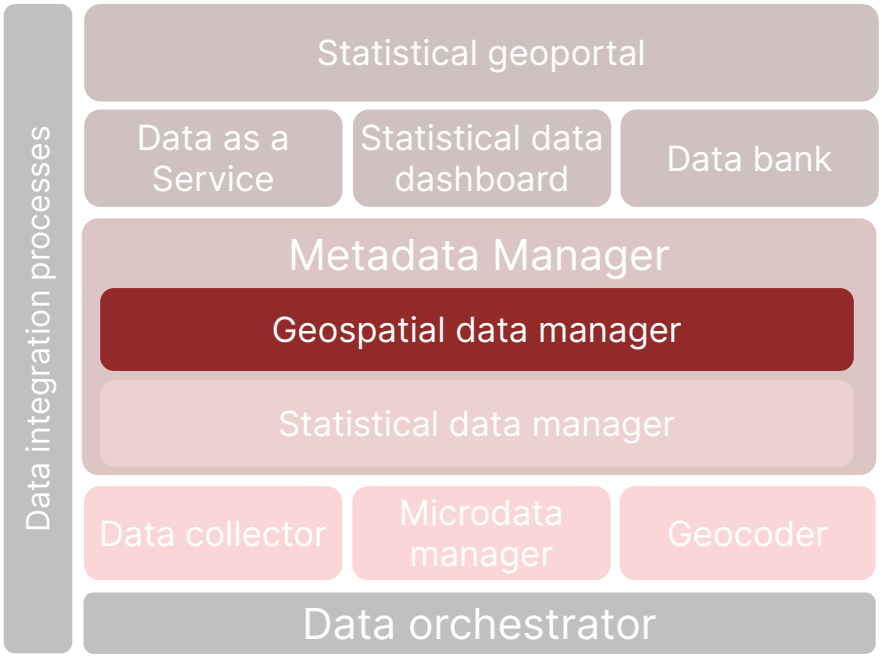
It is a custom-made development that allows the manipulation of statistical information to provide data and standardized structure to the other components.

It is a custom development that allows systematic information management.

Proposed technologies:

python + django

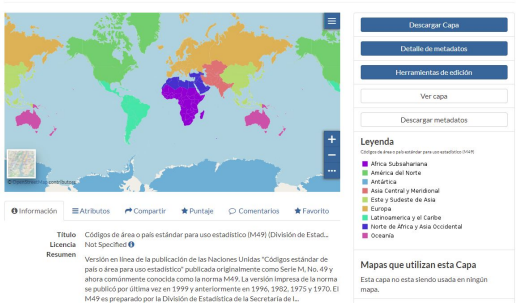
Geospatial data manager



It allows the manipulation of geographic information (vector and raster), covering the processes of creating, editing and publishing data in a standardized way

Proposed tool:

GeoNode



https://geonode.org

Metadata manager

Data integration processes

Statistical geoportal

Data as a Service

Statistical data dashboard

Data bank

Metadata Manager

Geospatial data manager

Statistical data manager

Data collector

Microdata manager

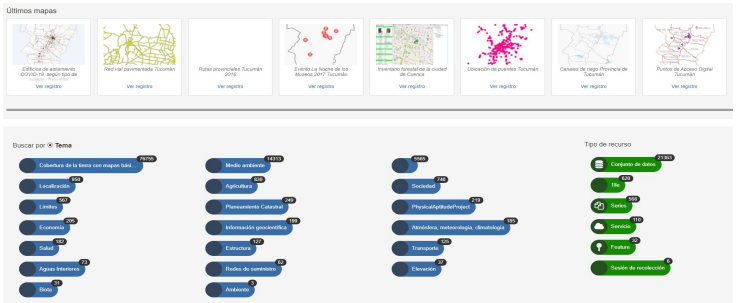
Geocoder

Data orchestrator

Enables the management and data flow of statistical and geospatial metadata under the SDMX, ISO 19100 and OGC standards, integrated into a single platform

Proposed tool:

GeoNetwork opensource



https://geonetwork-opensource.org

Data as a Service (API)

Data integration processes

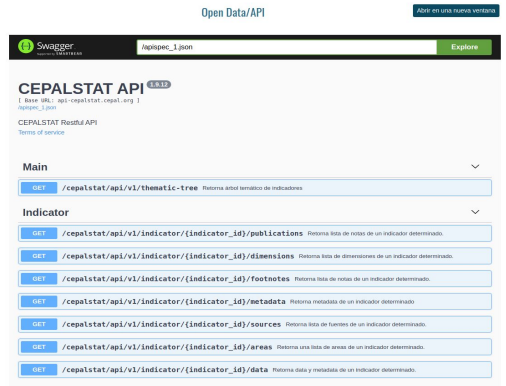
- Statistical geoportal
- Data as a Service
- Statistical data dashboard
- Data bank
- Metadata Manager
  - Geospatial data manager
  - Statistical data manager
- Data collector
- Microdata manager
- Geocoder
- Data orchestrator

It makes the data to be consumed by different computer systems available in a standardized way

Enables dynamic interaction, which contributes to interoperability between regional actors

Proposed technology:

python™



Statistical data dashboard

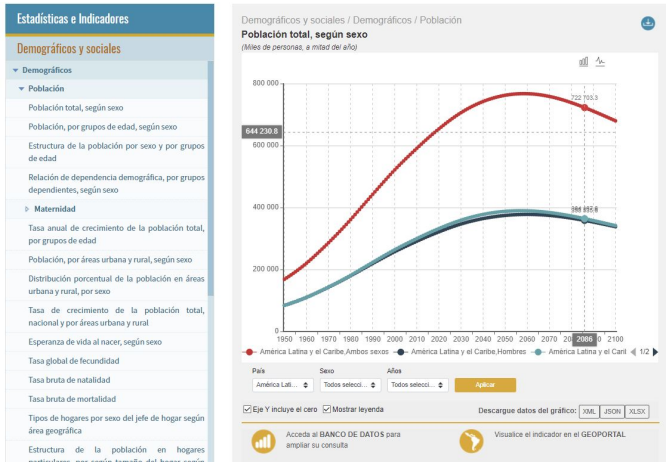
Data integration processes

- Statistical geoportal
- Data as a Service
- **Statistical data dashboard**
- Data bank
- Metadata Manager
  - Geospatial data manager
  - Statistical data manager
- Data collector
- Microdata manager
- Geocoder
- Data orchestrator

It allows graphic display from a set of visual elements that represent the information in an integrated manner.

Proposed technologies:

Metabase



Data bank

Data integration processes

Statistical geoportal

Data as a Service

Statistical data dashboard

Data bank

Metadata Manager

Geospatial data manager

Statistical data manager

Data collector

Microdata manager

Geocoder

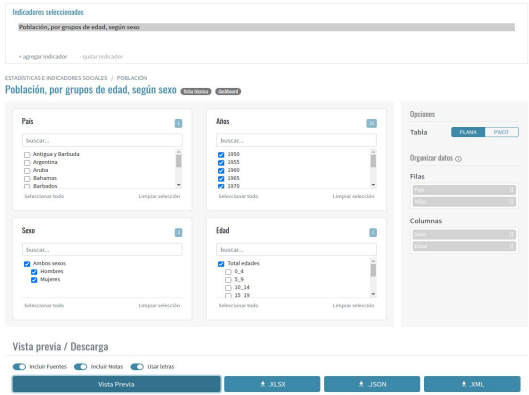
Data orchestrator

It allows the analysis of information by crossing various dimensions of the same indicator.

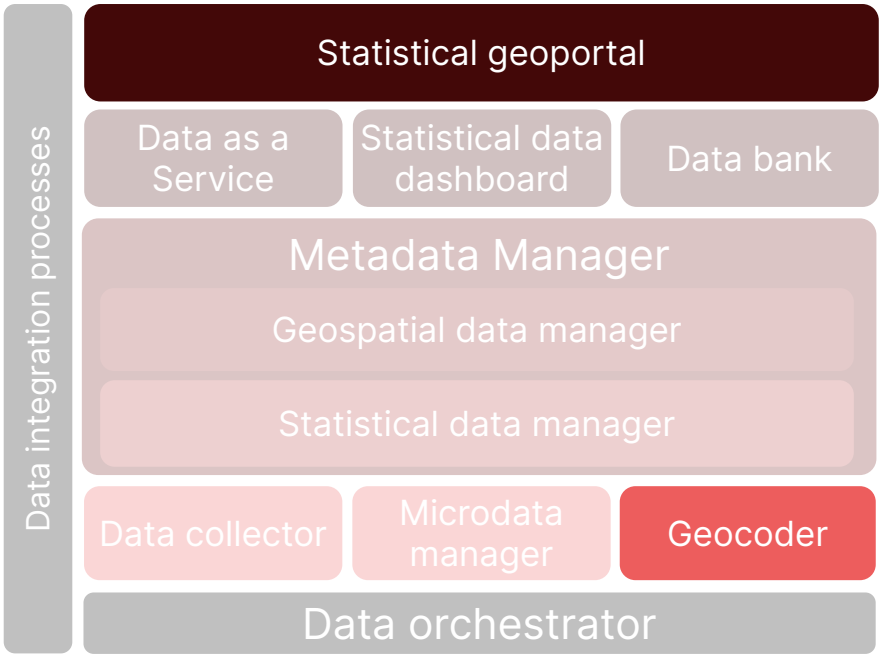
It allows the user a specific selection of data, generating customized products as required by the case study.

Proposed technologies:

python + React



Statistical geoportal



Allows integrated visualization of geospatial and statistical information

It brings together a set of tools and functionalities for browsing, exploring and interacting with data.

Proposed technologies:

React

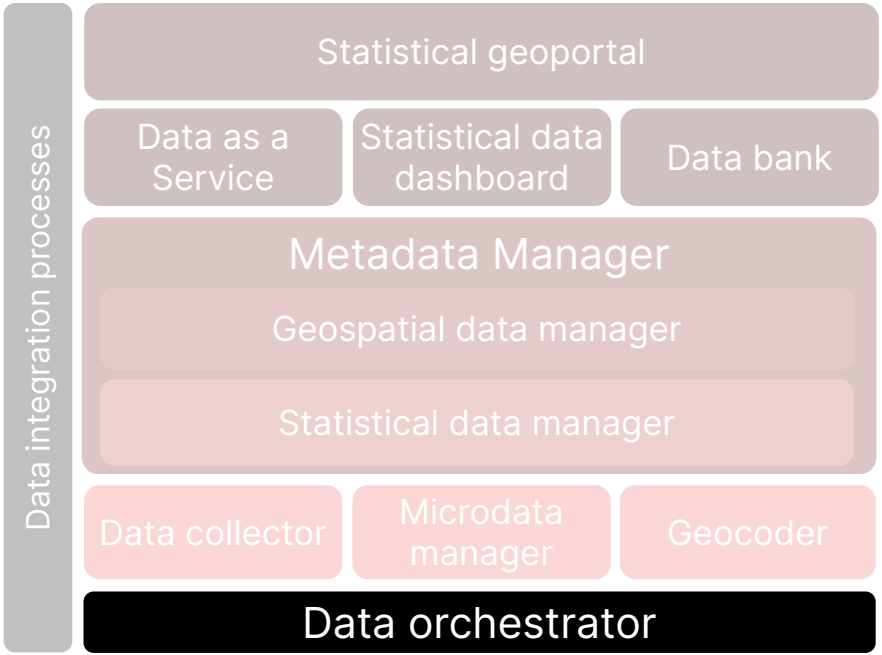
+

MapLibre

+

ECHARTS

Data orchestrator



Platform that allows to create, program, monitor and plan data flows in a centralized and programmatic way

Integrates various data sources towards each of the products

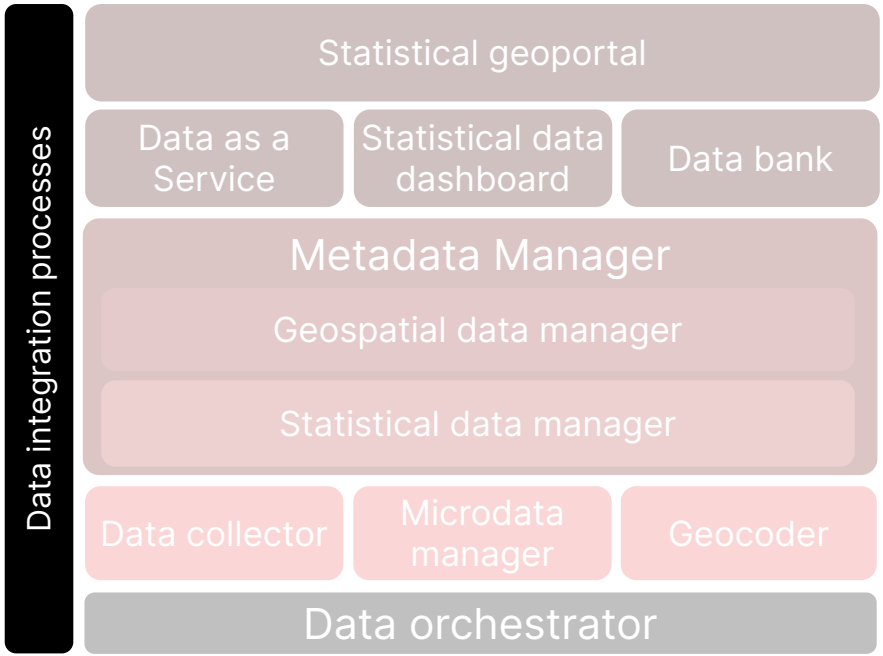
Proposed tool:

Apache Airflow

- Error management.
- Process automation.
- Integration with other platforms.
- Testing, validation and execution of workflows.

https://airflow.apache.org

Data integration processes

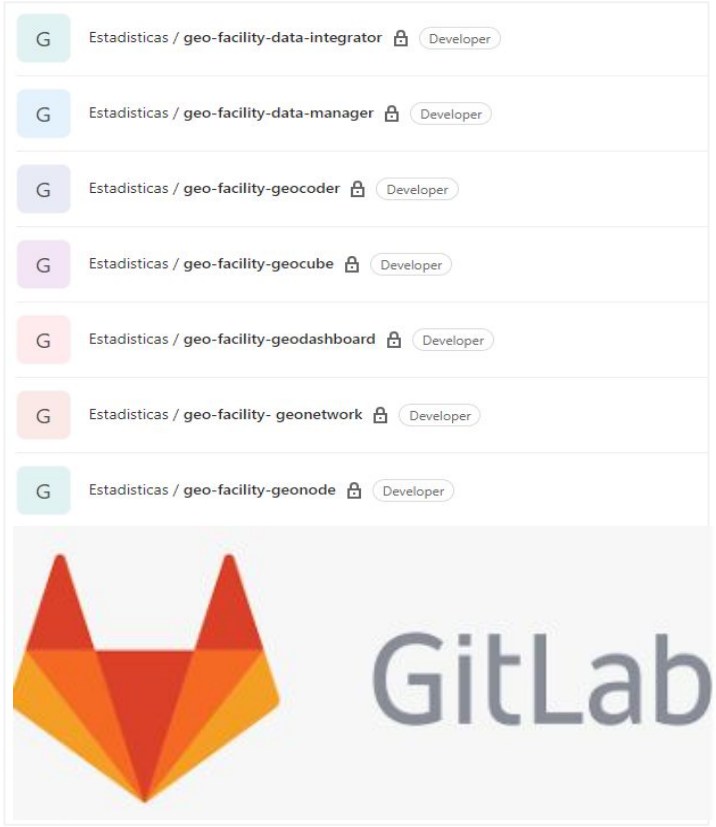


Documentation of the methodology of Extraction, Transformation and Loading (ETL) processes, for the manipulation of the data flow from the acquisition to the publication

Proposed technology: Python

- OSM data integration.
- Segmentation.
- Sources integration.
- Consumption of satellite images.
- Processes from higher nodes.

Gitlab Repository



- Data collector
- Statistical data manager
- Geospatial data manager
- Statistical data dashboard
- Statistical geoportal

7 más ...

https://git.cepal.org/geo

Results

1. The components may or may not be implemented, depending on the needs of the National Statistical Office.
2. The components can be integrated in the existing technological infrastructure within the institution, since they are based on Open Source technology.
3. As the design stage progresses, the need to develop other components or adapt them as the case may be evaluated.
4. The idea is to generate an **active technical community**, with the necessary knowledge and skills to manage the platform in the long term, ensuring sustainability.
5. The proposed components help fulfill the five principles of the Global Statistical and Geospatial Framework.

Thanks