



Food and Agriculture
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GloSIS developments

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10th Meeting of the
International Network
of Soil Information
Institutions (INSII)

15-16-17 January 2025



Presentation outline

- SIS components
- Where are the Standards?
- Discovery hub request

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GloSIS Federation



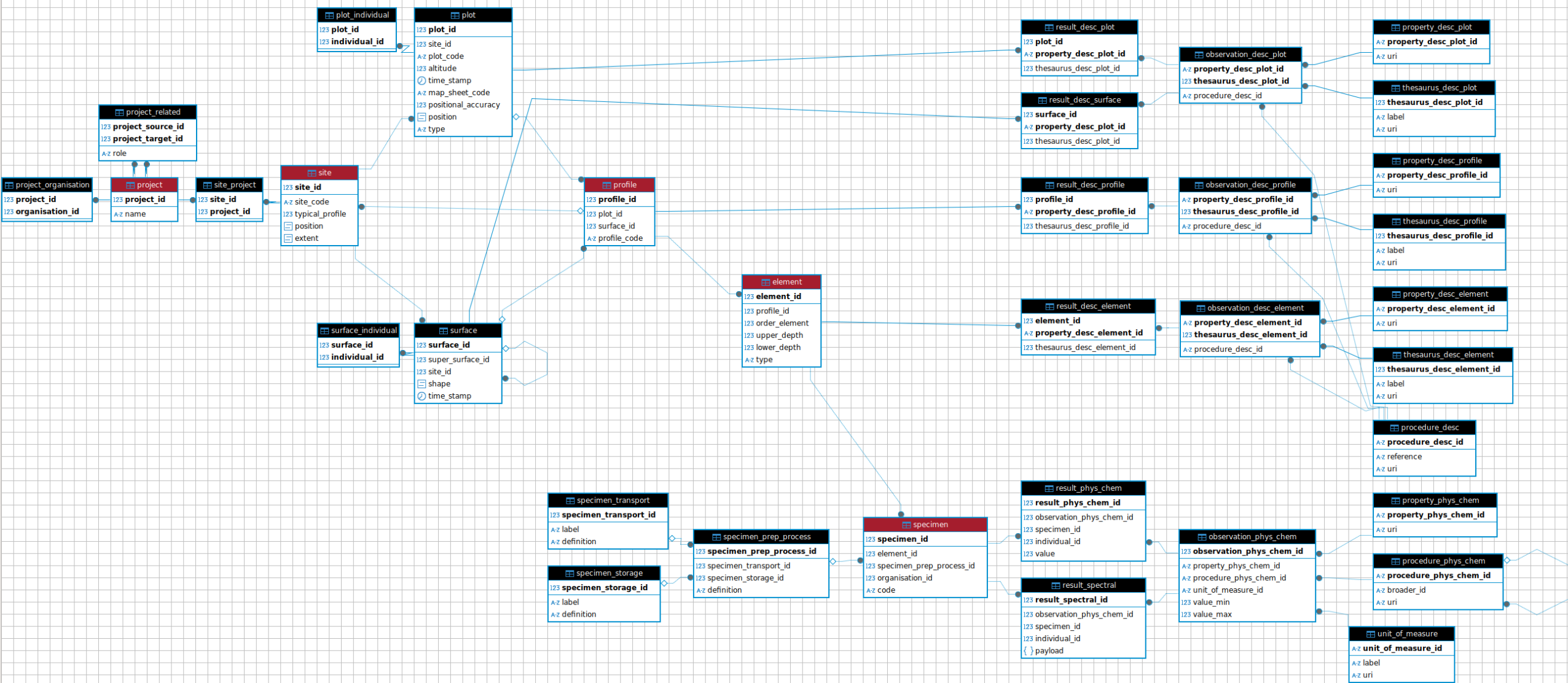
SIS components - Database



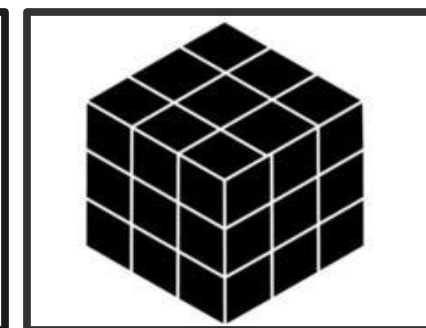
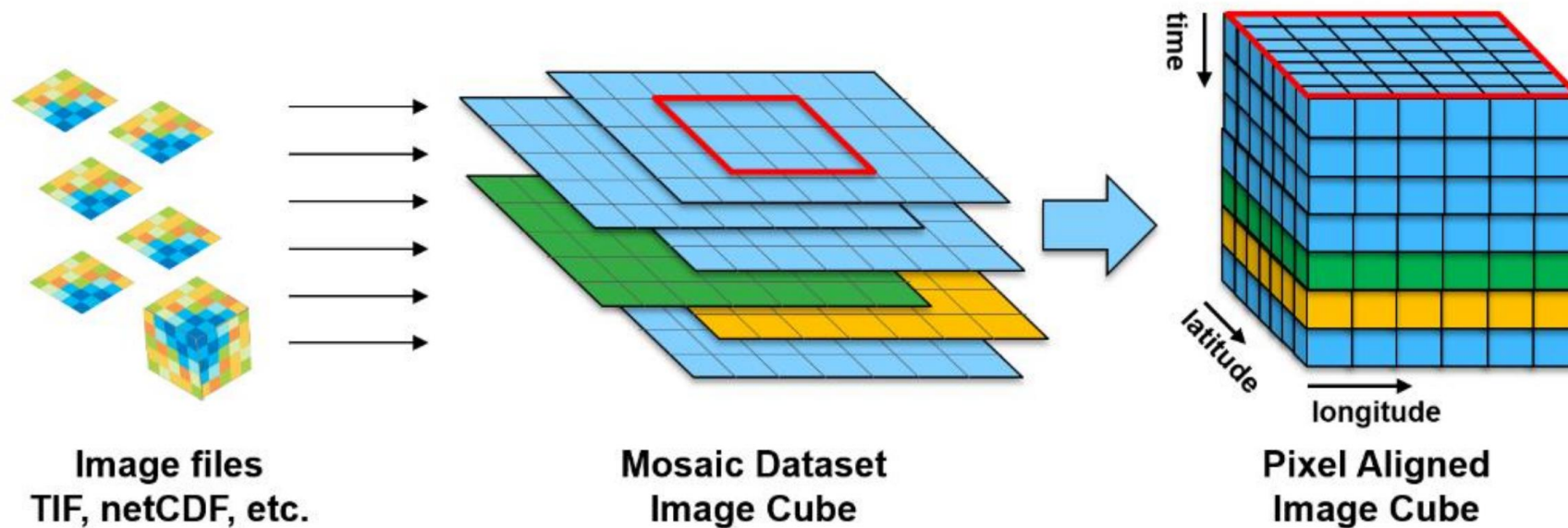
- - ISO 28258 Domain Model on Soil quality - Digital exchange of soil-related data
- - ISRIC implementation - <https://github.com/ISRICWorldSoil/iso-28258>
- - Packed with vocabularies for:
 - - Soil description
 - - Soil properties
 - - Laboratory procedures
- - FAO development - <https://github.com/FAO-SID/glovis-db>
- - Aimed to continue to be a open and colaborative project
- - Store alfanumeric and vector Soil Data
- - PostGIS spatial extension
- - Spatial queries and analisis



SIS components - Database model



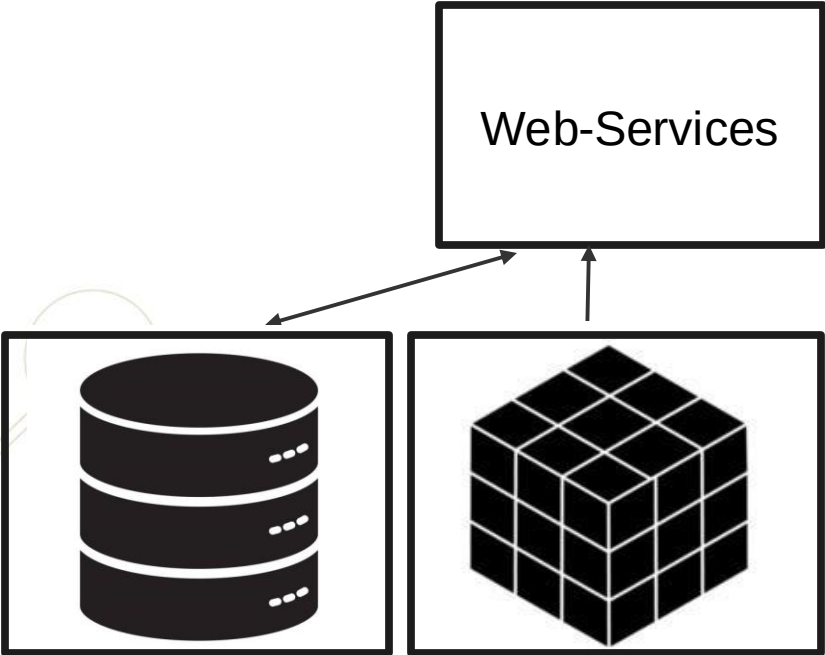
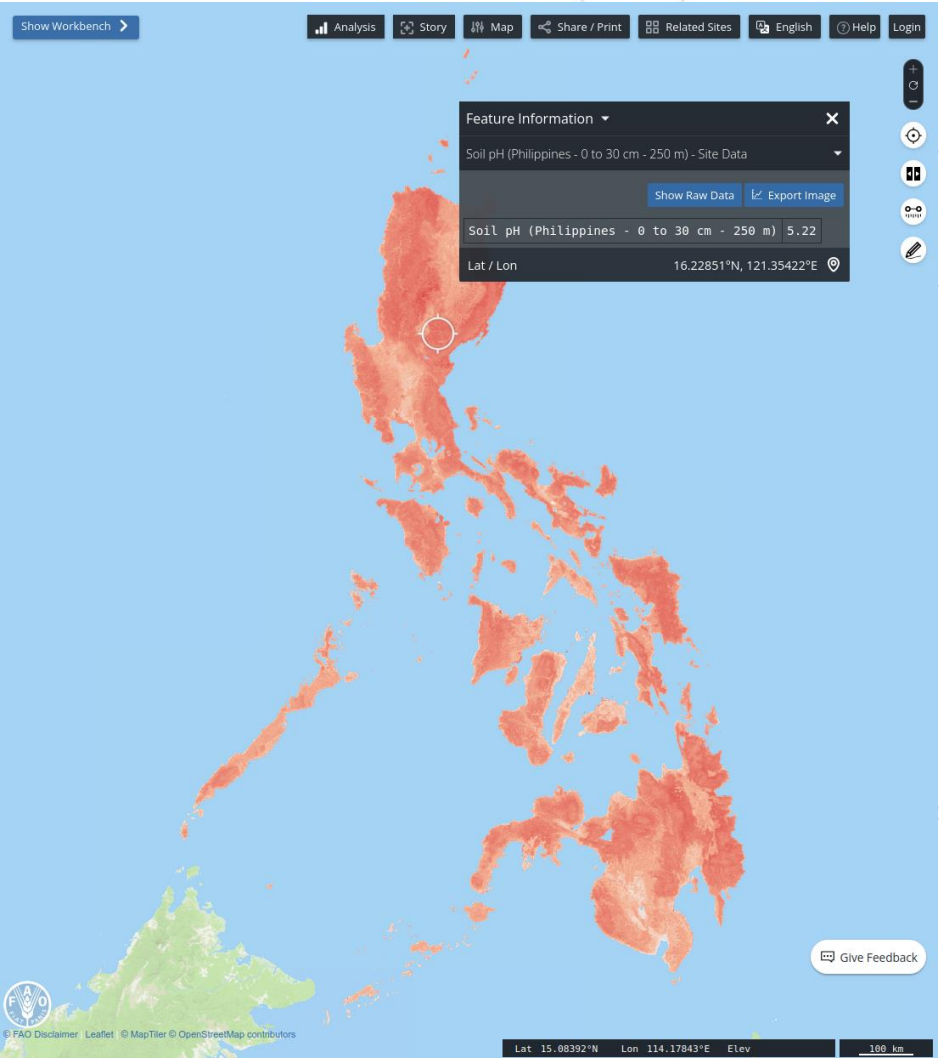
SIS components - Data Cube



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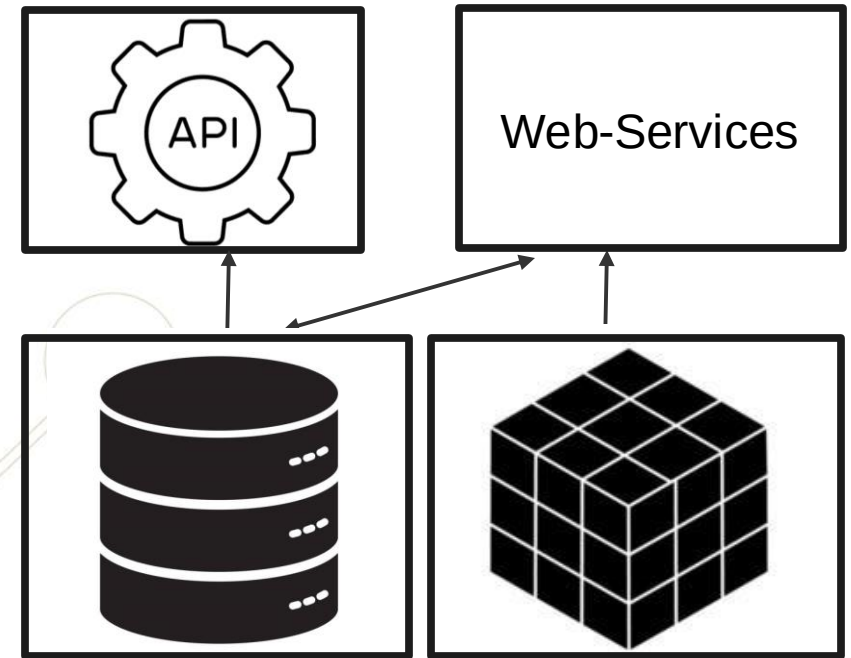
SIS components - Web-Services



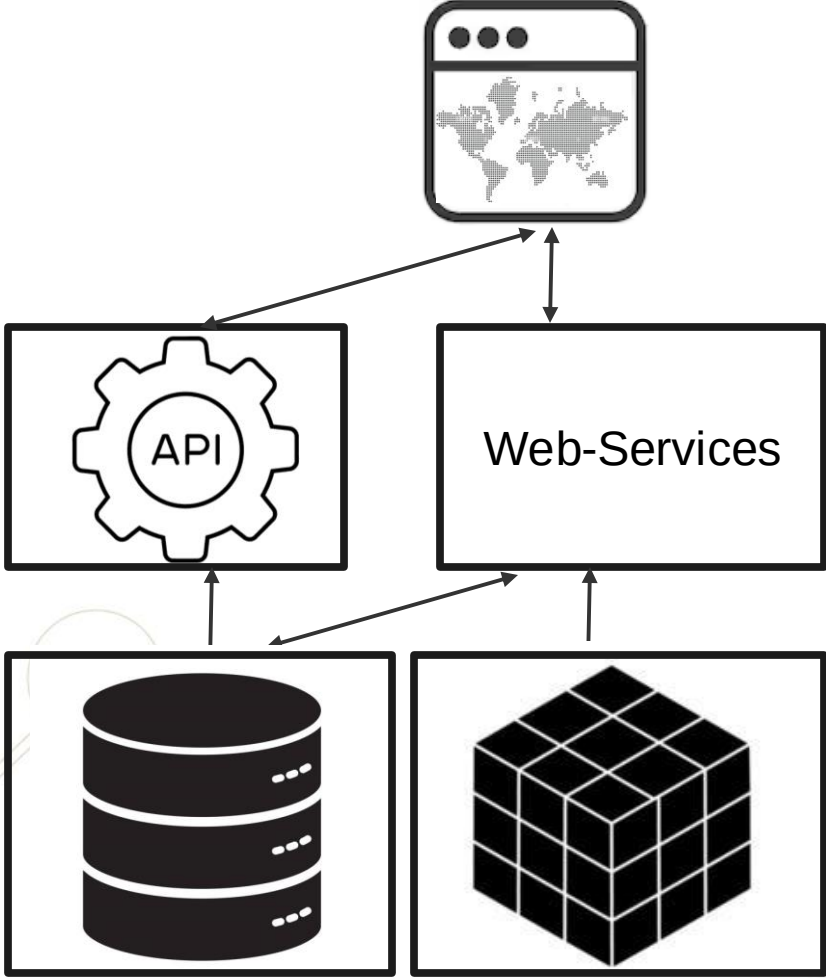
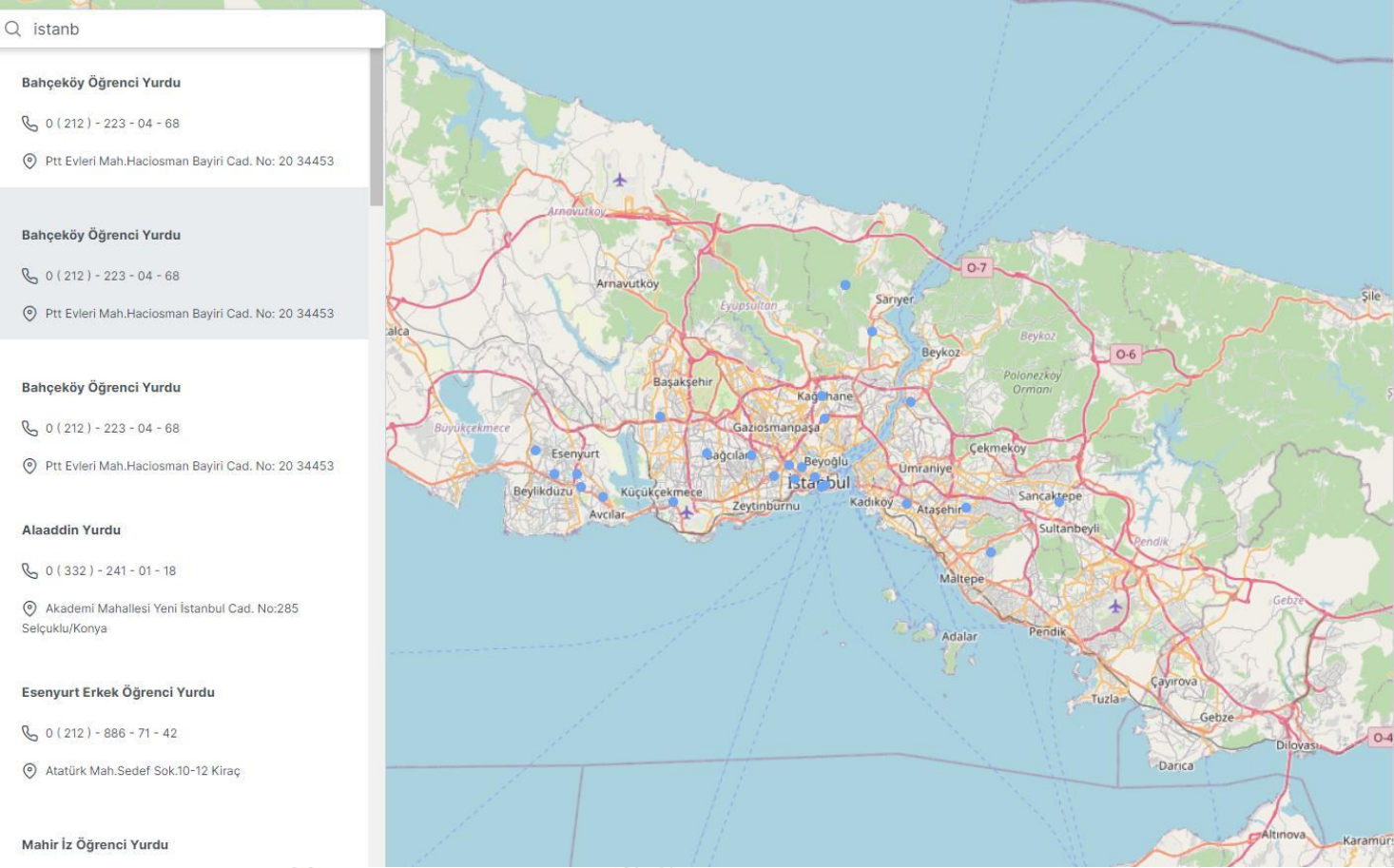
SIS components - REST API

- One endpoint
- With two query parameters:
 - Where? Bounding box
 - What? Soil property
- Returns a JSON document (ISO 28258) as defined in the Data exchange experiment.

Additionally it can be expanded to upload soil Point Data submitted as a template to ingest in the Database



SIS components - Web mapping



SIS components - Metadata

Dataset Groups Activity Stream

Soil pH (Philippines - 0 to 30 cm - 250 m)

This indicates the soil reaction of the topsoil at 0-30 cm depth. pH are classified accordingly:

pH < 4.5 : Extremely acid soils include Acid Sulfate Soils (Mangrove soils, cat clays). Do not drain because by oxidation sulfuric acid will be produced and pH will drop lower still.

pH 4.5 – 5.5 : Very acid soils suffering often from Al toxicity. Some crops are tolerant for these conditions (Tea, Pineapple).

pH 5.5 – 7.2 : Acid to neutral soils: these are the best pH conditions for nutrient availability and suitable for most crops.

pH 7.2 – 8.5 : These pH values are indicative of carbonate rich soils. Depending on the form and concentration of calcium carbonate they may result in well structured soils which may however have depth limitations when the calcium carbonate hardens in an impermeable layer and chemically forms less available carbonates affecting nutrient availability (Phosphorus, Iron).

pH > 8.5 : Indicates alkaline soils often highly sodic (Na reaching toxic levels), badly structured (columnar structure) and easily dispersed surface clays.

Data publication: 2025-01-13

Supplemental Information:

No data value: -1

Unit :

Scale Factor : 1.0

Map code : PH-SOIL-PH-030

Contact points:

Resource Contact: [Andrew B. Flores](#)

Resource constraints:

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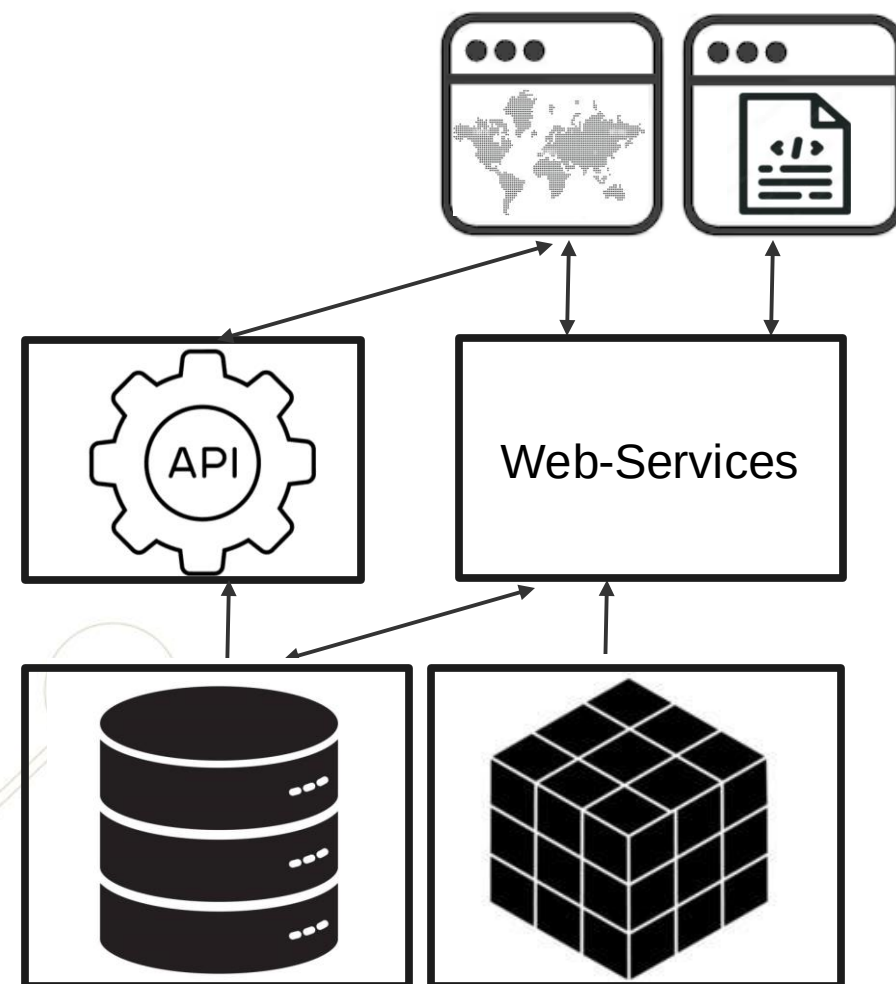
Online resources:

[Download the data from Google Cloud Storage](#)

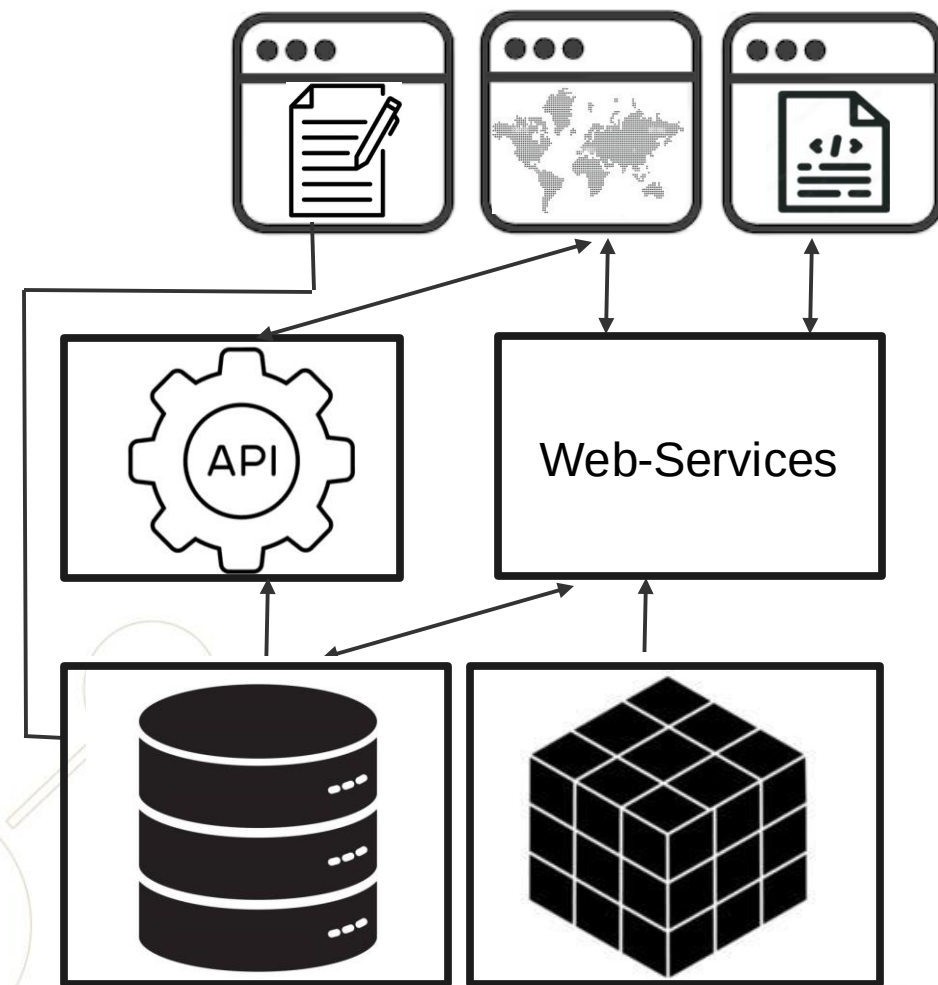
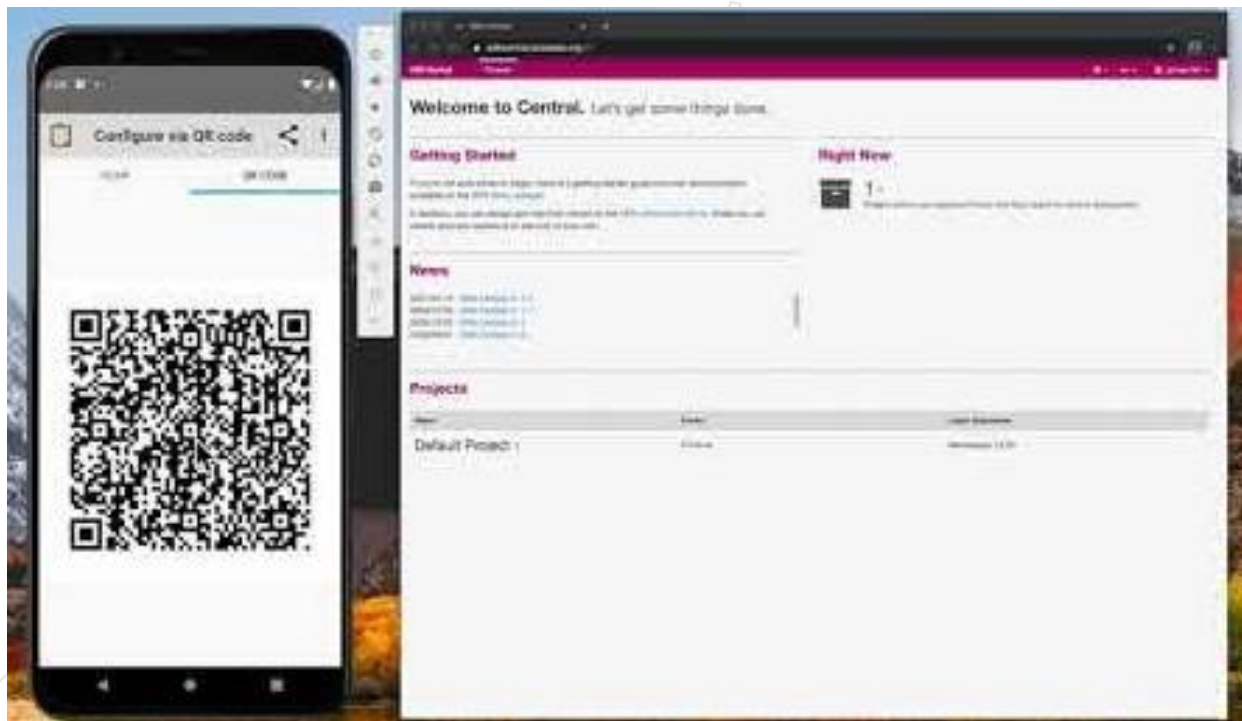
Data and Resources

 [fao-gismgr/GLOSIS/maps/PH-SOIL-PH-030](#)
WMTS for Soil pH (Philippines - 0 to 30 cm - 250 m)

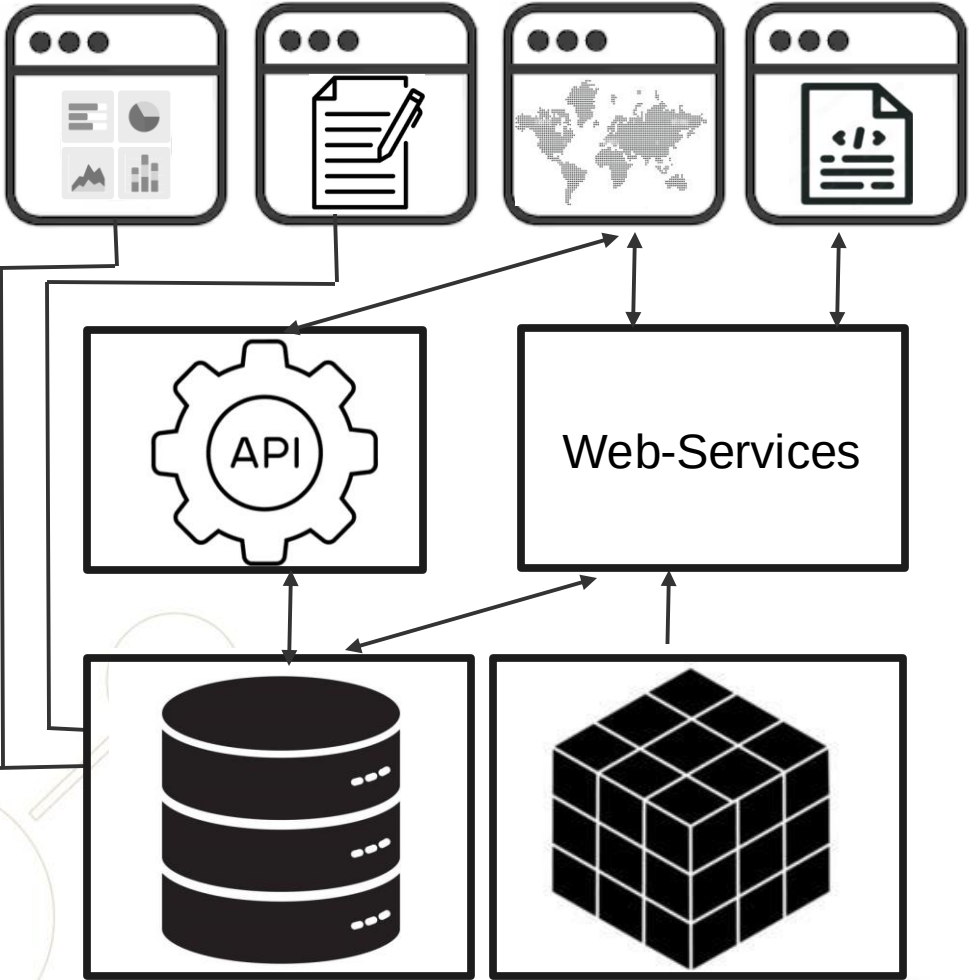
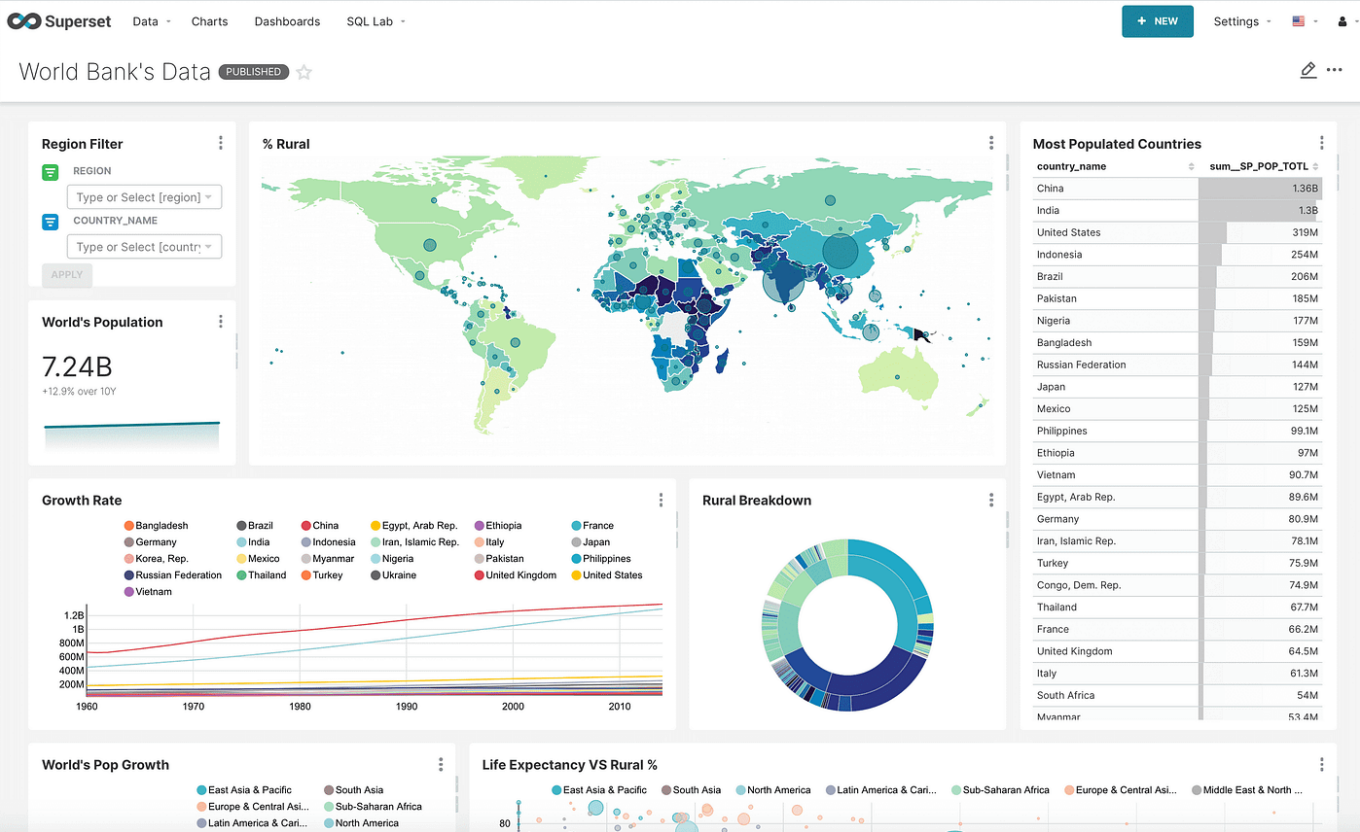
[Preview](#) [Download](#)



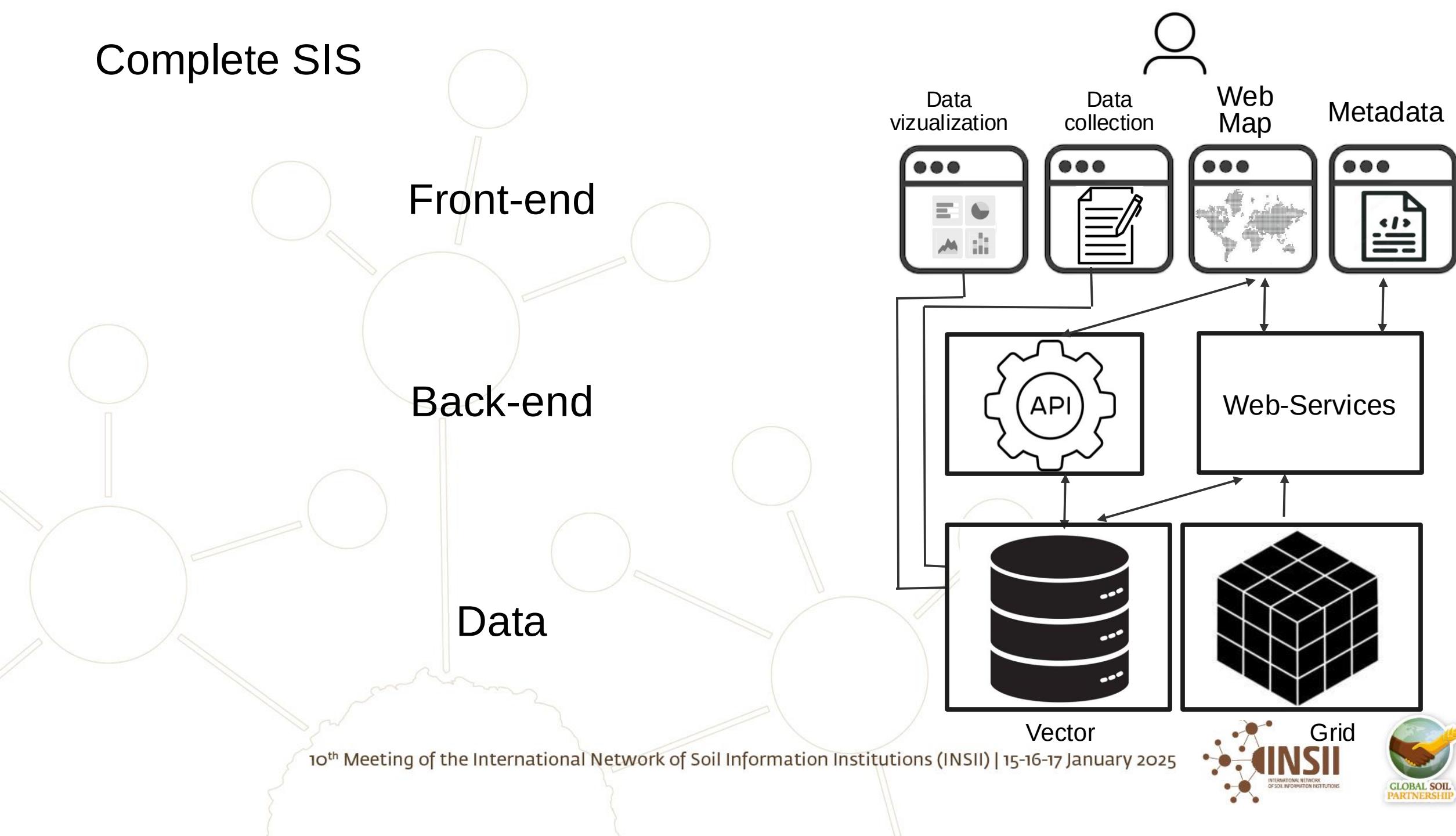
SIS components - Data collection

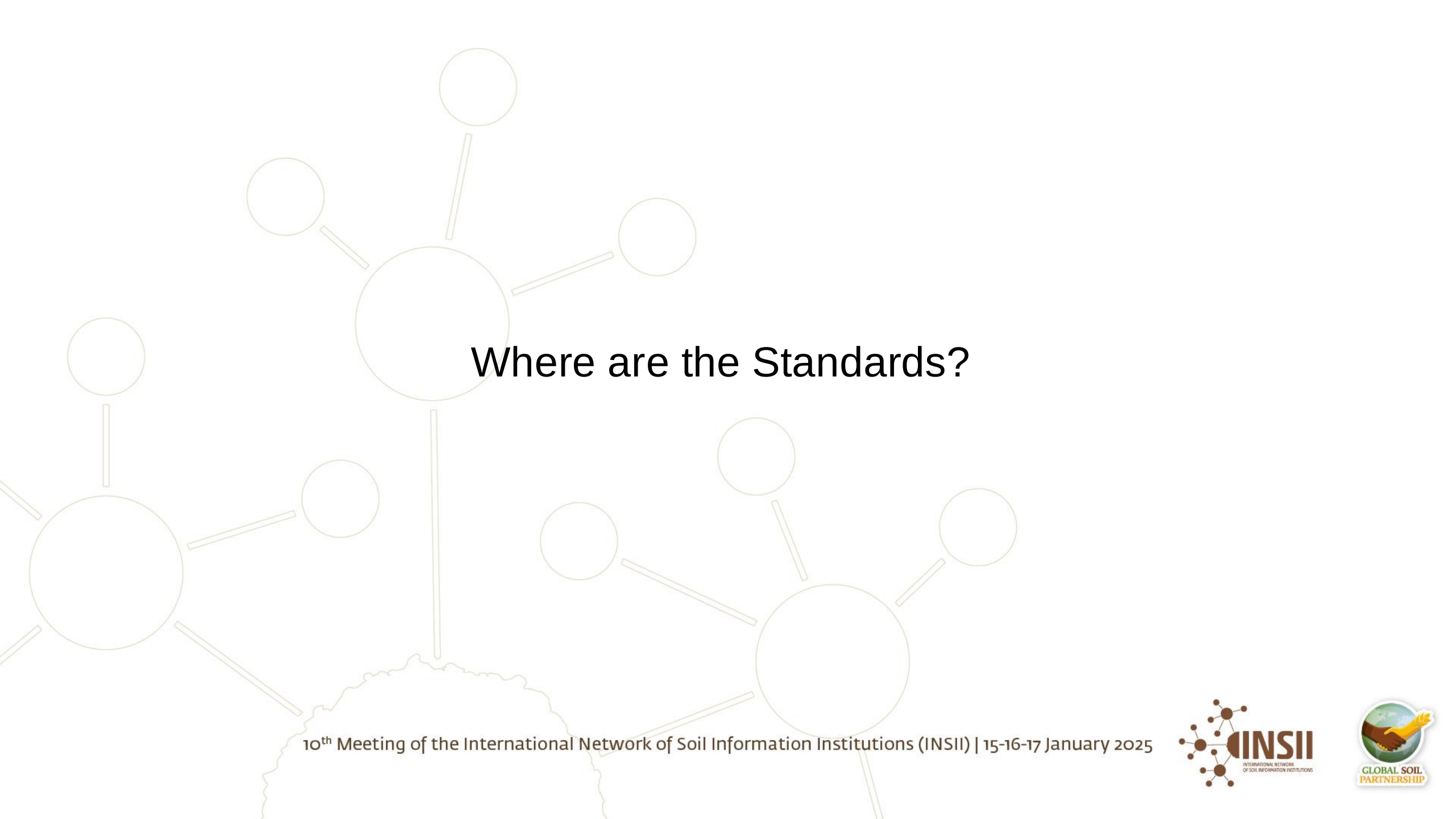


SIS components - Data visualization



Complete SIS





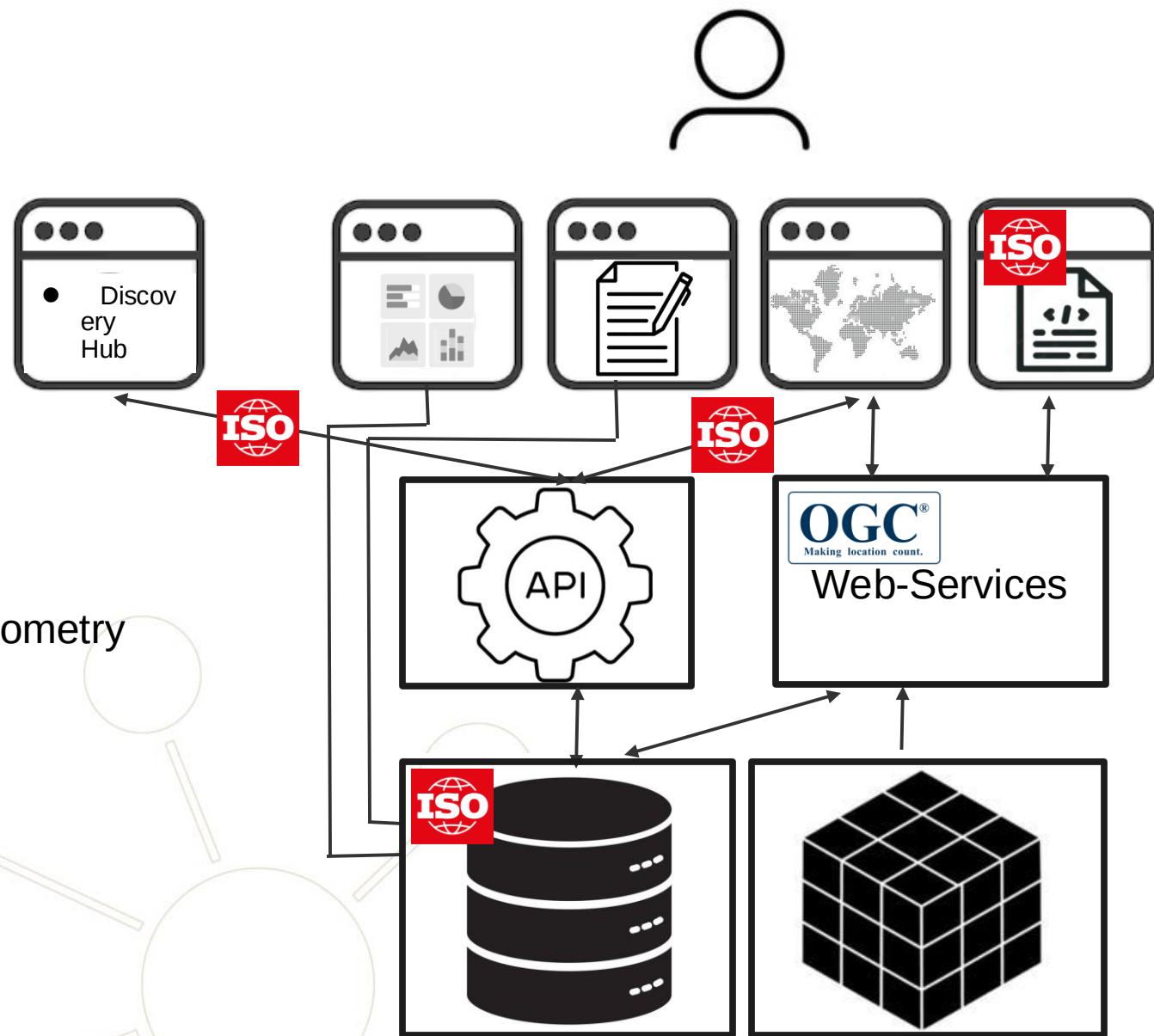
Where are the Standards?

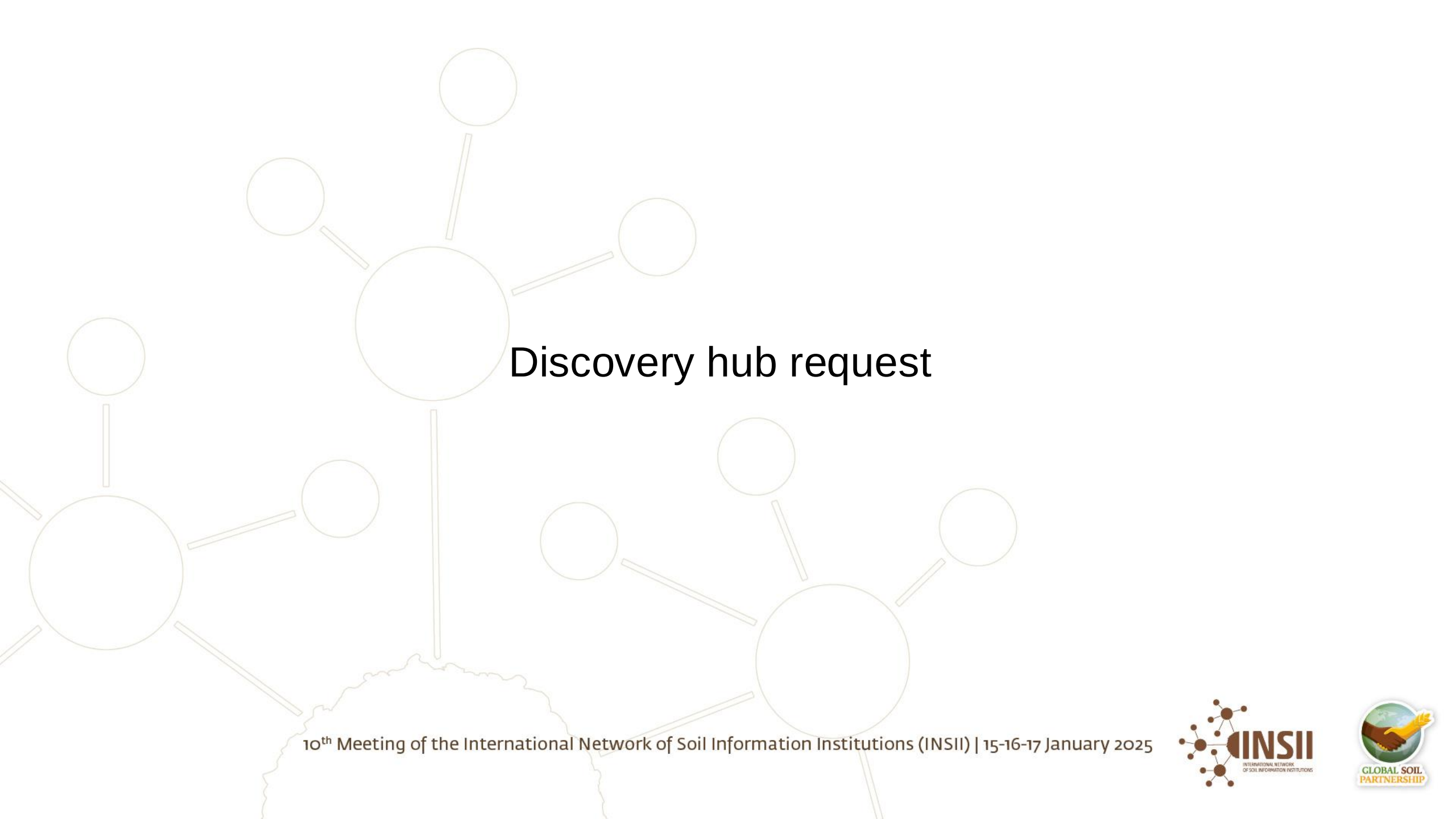
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Where are the Standards?

- - ISO 28258 database model
- - ISO 28258 exchange model
- - ISO 19139 metadata
- - ISO 19125 / OGC Simple Features geometry
- - OGC Web-Services
- - Open formats GeoTIFF



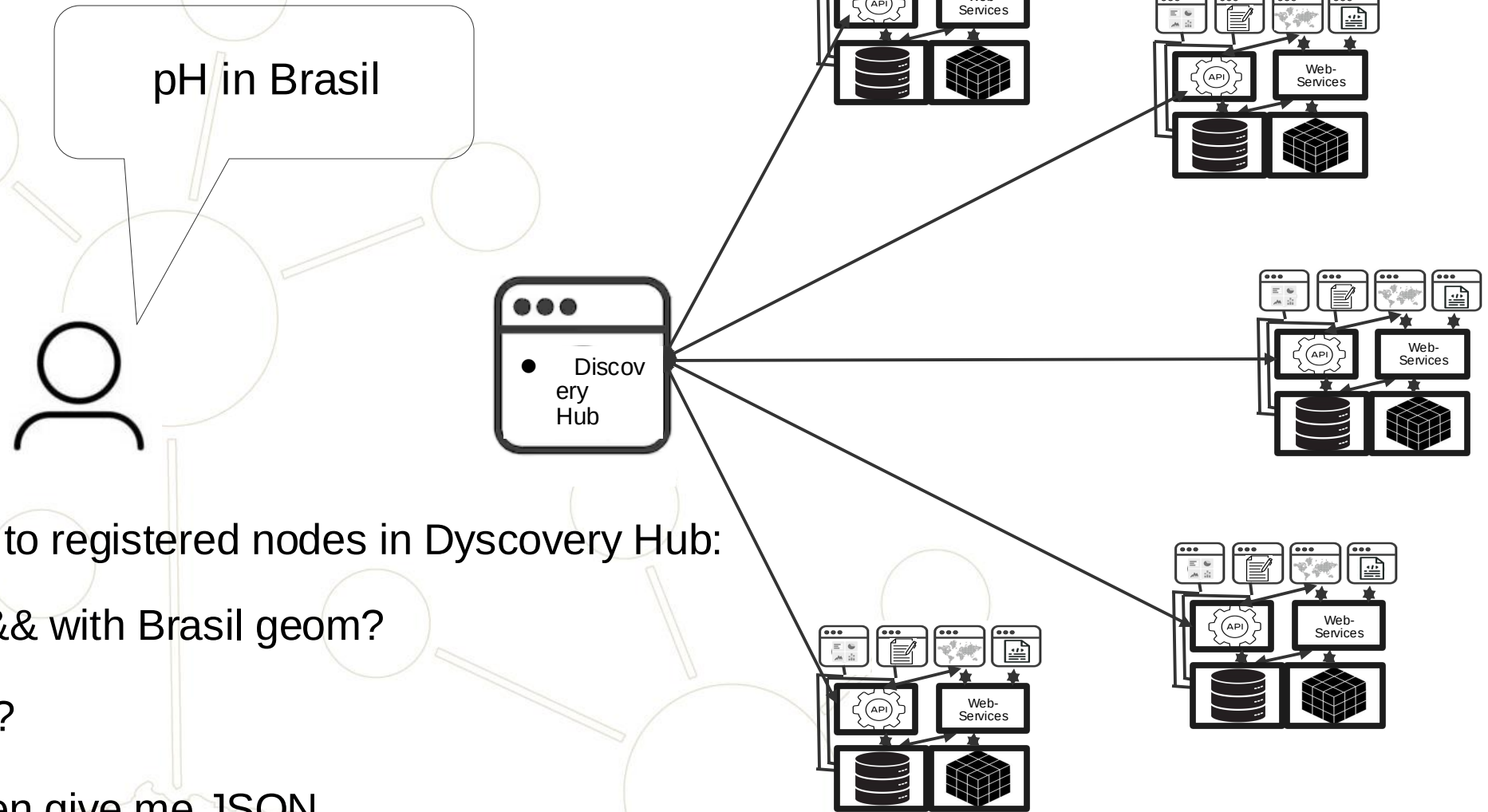


Discovery hub request

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Discovery hub request



API request is sent to registered nodes in Dyscovery Hub:

- Node geom && with Brasil geom?
- Yes
- pH data?
- Yes
- Then give me JSON



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