

THE PATH OF EARTH OBSERVATION TO OFFICIAL STATISTICS

Institutional setting

In the project Earth Observation for Statistics (EO4S) the National Statistical Offices and Eurostat have taken the challenge to push for the uptake of Earth Observation data and services for within the European Statistical System (ESS). The project is coordinated with the Unit E4 of Eurostat in the Regional Statistics and Geographical Information Team with support from Unit A5 – Methodology and Innovation, other statistical domains in Eurostat and the ESS in general. Further support is provided by other EU institutions like DG DEFIS, the Joint Research Center, or the European Environmental Agency.

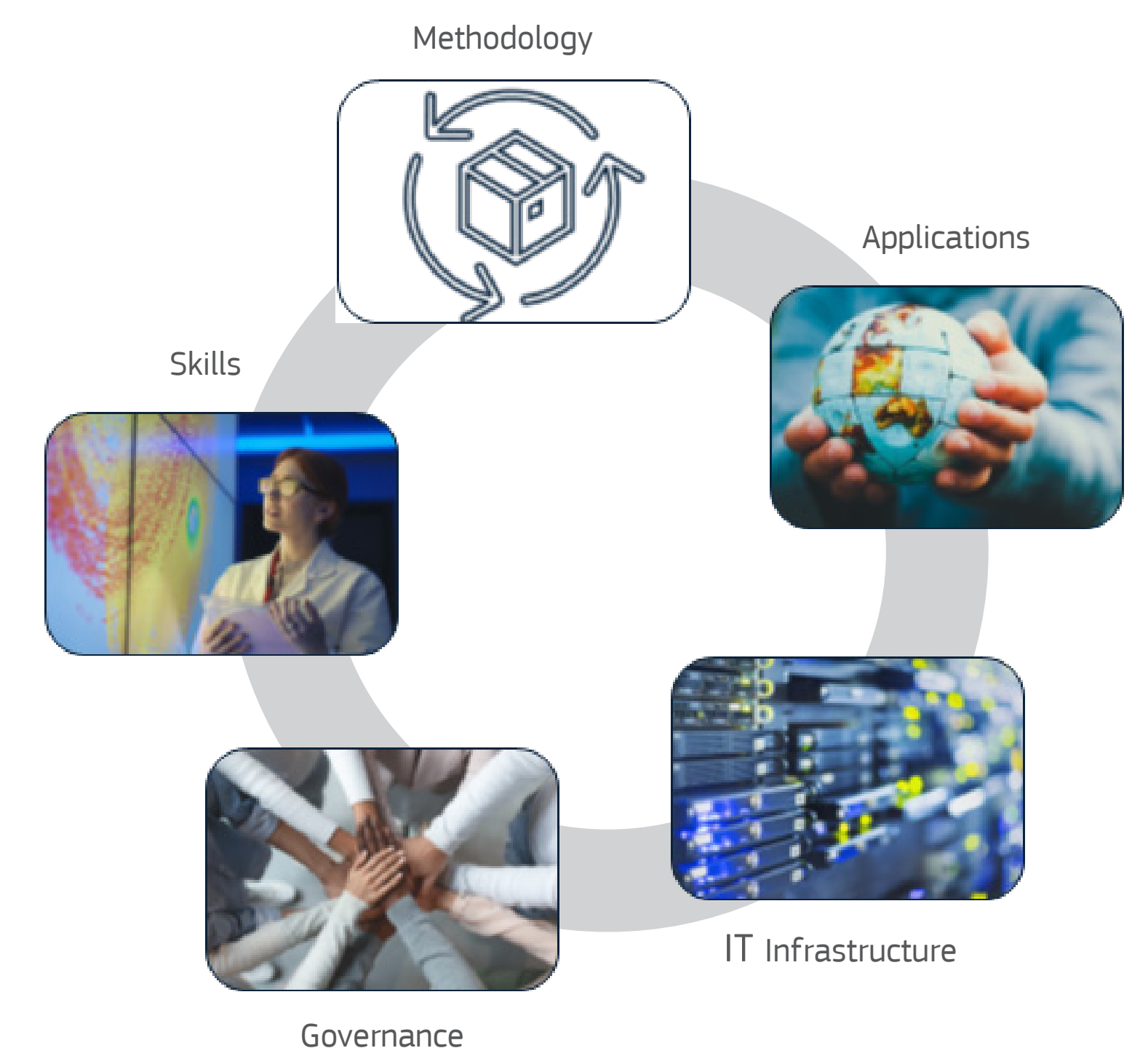
Mandate



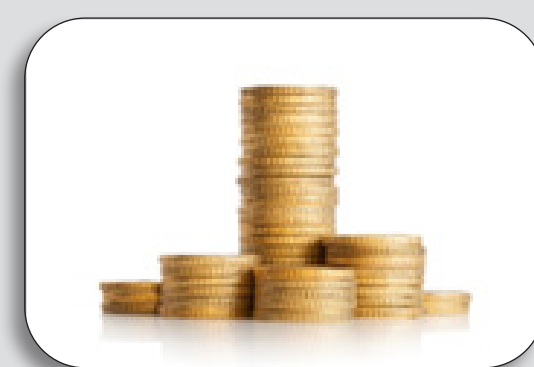
Directors General of the National Statistical Institutes - October 2021 - Warsaw Memorandum



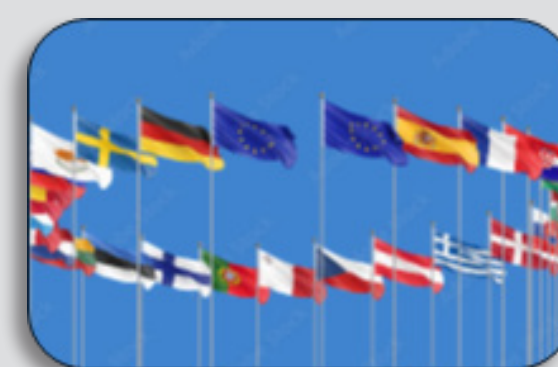
European Statistical System Committee - February 2022 - Governance Framework



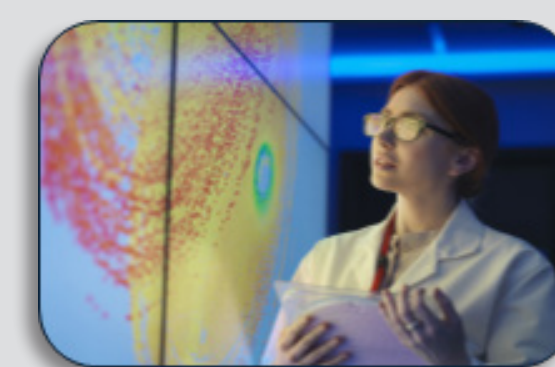
Capacity Building



A: Geospatial Statistics Grants within the ESS (GEOS)



B: Task Force on Earth Observation



C: Skills Training program (NTS Courses) Learning Network Cros network



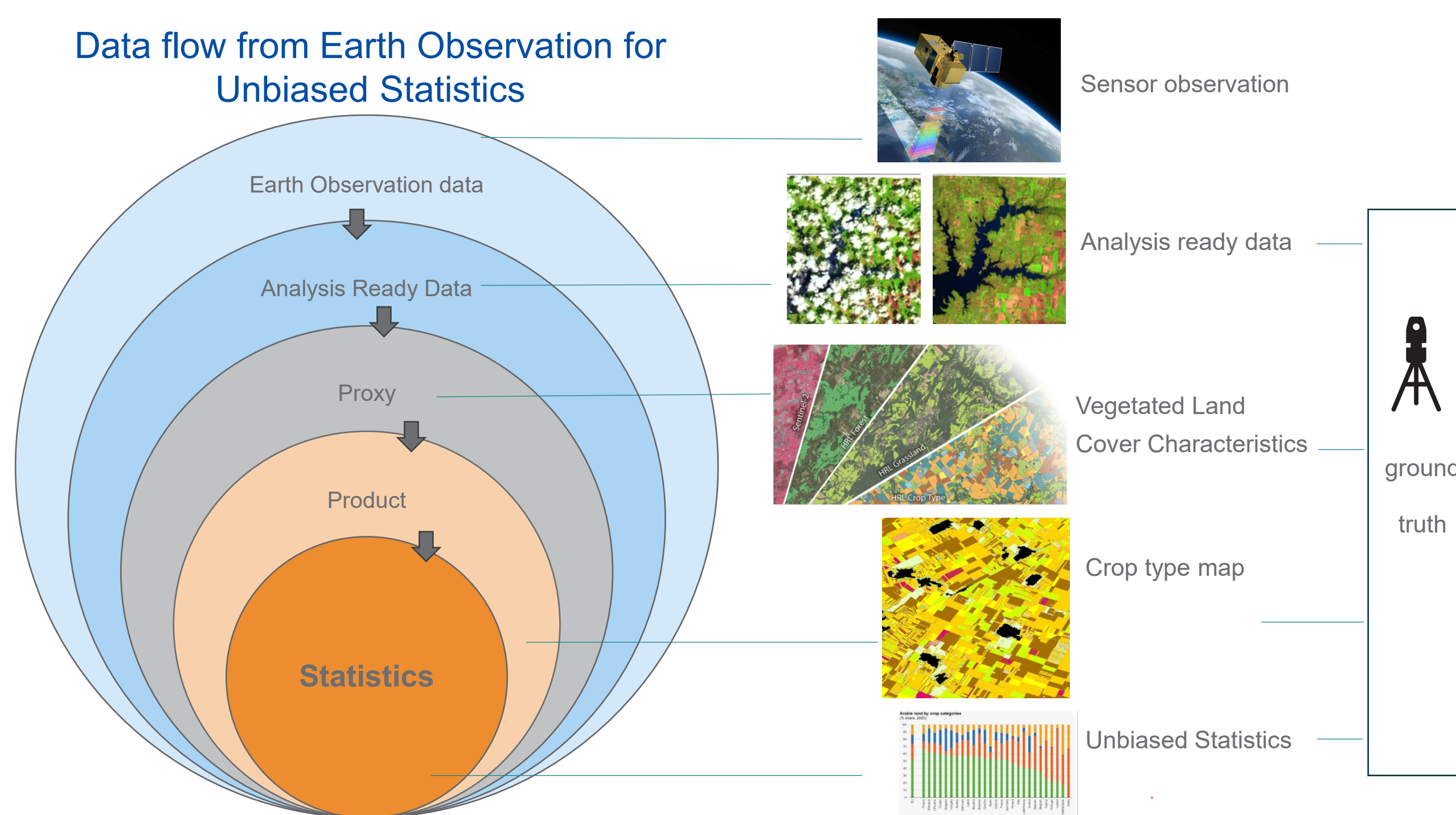
D: ESSnet project One Stop Shop for Artificial Intelligence/ Machine Learning for Official Statistics (AIML4OS)



E: Copernicus Data Space Ecosystem (CDE) Privileged Access to National Statistical Institutes and other national authorities (ONAs) dataspace.copernicus.eu

Methodology

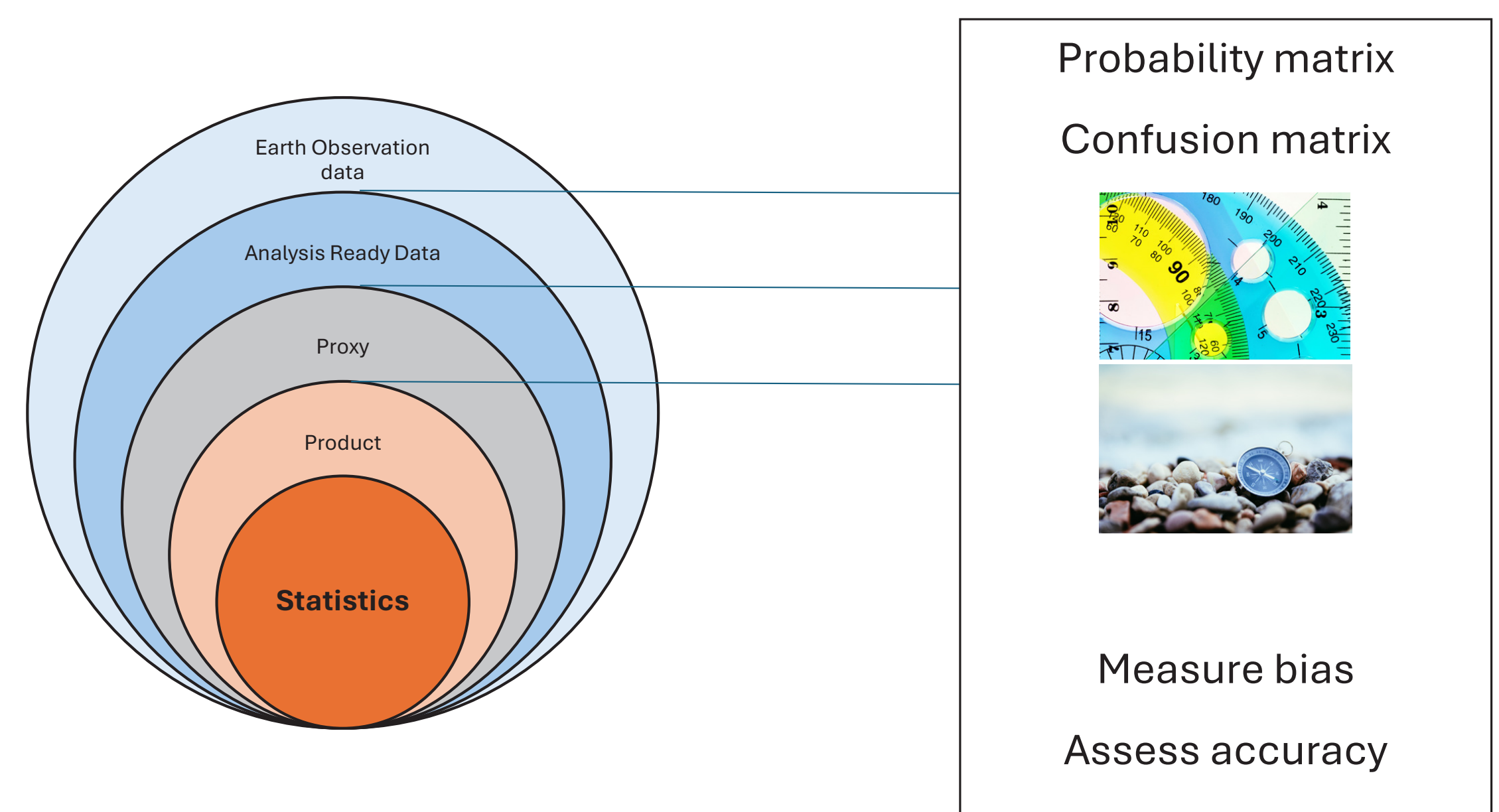
Data flow from Earth Observation for Unbiased Statistics



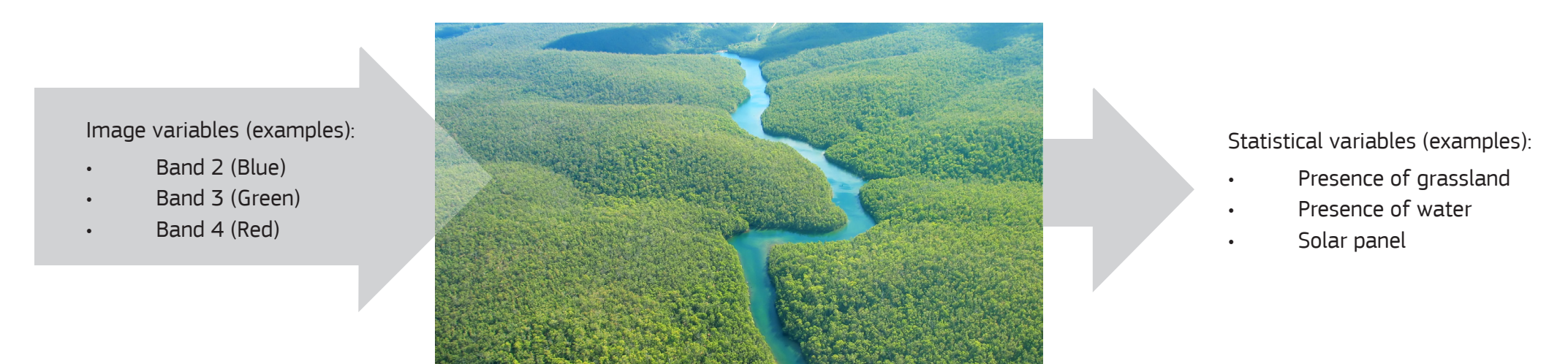
STEP	1	2	3	4
INPUT	Raw data (Satellite image)	Analysis Ready Data	Proxy	Derived product
OUTPUT	Analysis Ready Data	Proxy	Derived product	Statistics
What happens?	Clouds removed Orthorectification	Interprets Analysis Ready Data into a proxy	Conversion between a proxy and a product	Calculation of statistics
Who does it?	EO expert	EO expert Geospatial expert	EO expert Geospatial expert	Geospatial expert Statistician
Examples	Sentinel-2 Mosaic (Apr - Jun 2024) ¹	Phenology stage – End of Season date ²	Crop type classification ¹	Statistics ¹
Visualization				
Colour of the image represents	Red, green and blue (RGB) ratio of satellite image	Calendar dates when leaf discoloration occurs	Different types of crops	% of different types of crops

Lessons learned

A Statistical requirements need to be built in the EO data processing



B Different stakeholders in the processing pipeline use various terminologies and have different understandings. These definitions, concepts and categories, their properties and the relations between them need to be aligned between the remote sensing and statistical communities.



C One size does not fit all – regional adaptation needed



Factsheet:

<https://cros.ec.europa.eu/book-page/earth-observation-statistics-eo4s>



CROS Portal

<https://cros.ec.europa.eu/group/earth-observation-statistics-eo4s/about>



Contact:

ESTAT-GISCO-E0@ec.europa.eu