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# DGINS 2021

*Chances and challenges with Earth observation (EO)  
data for land cover statistics in Austria*

Chances

Challenges

Project  
„STATeo“



# (some) Benefits of using EO data

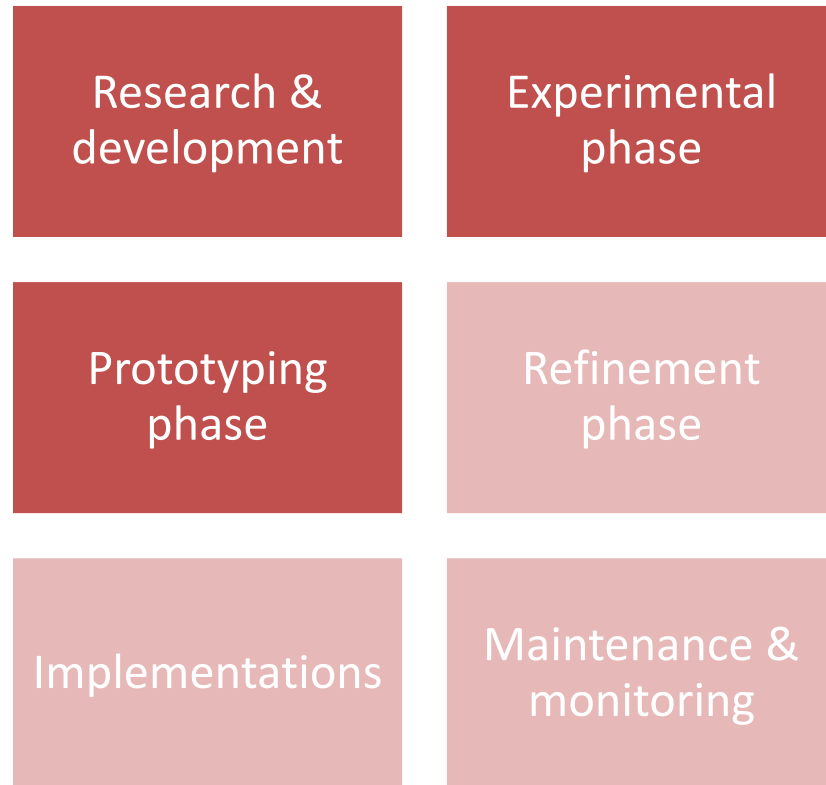


Freely-available data  
Data timeliness  
New data sources → new products  
Data objectivity  
Data consistency  
Spatial explicitness  
Quantifiable data  
Transparent analysis





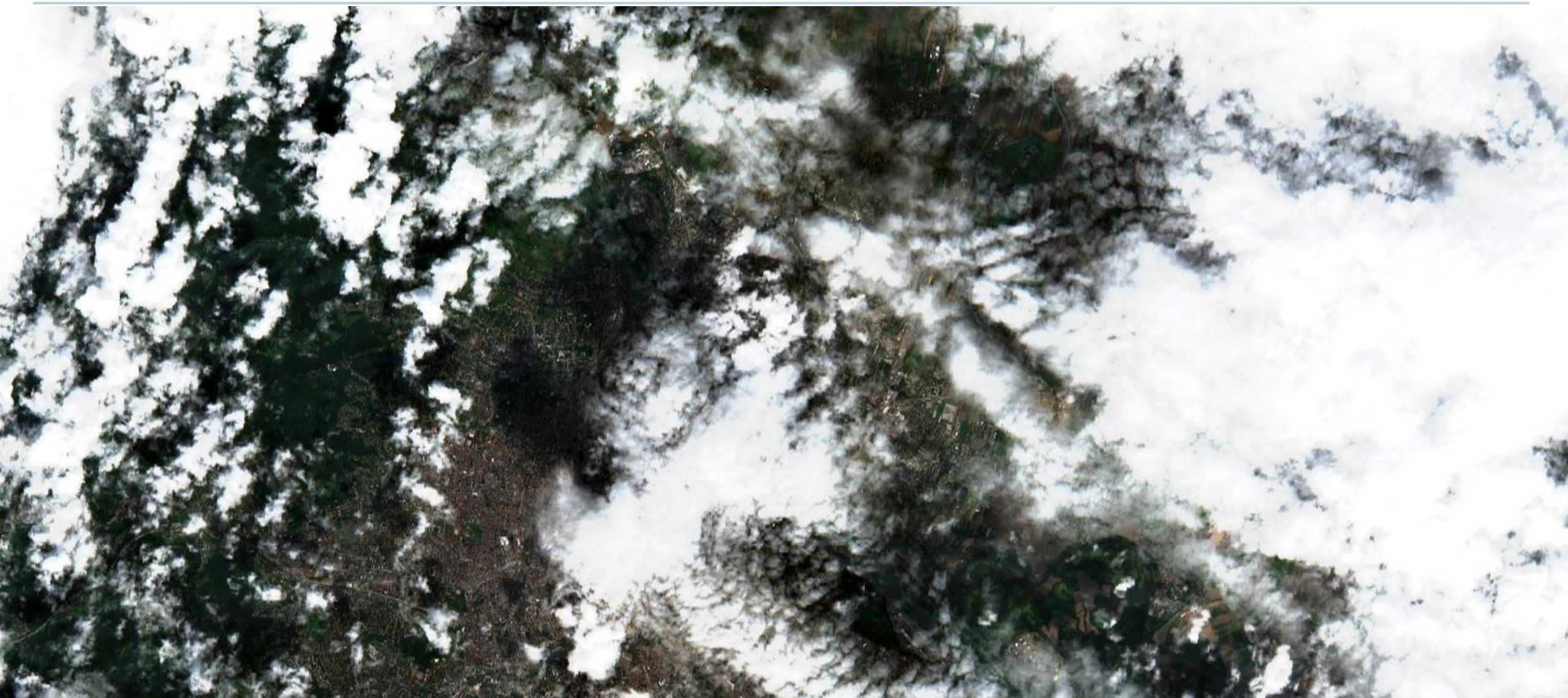
## We are at:



## We aim to:

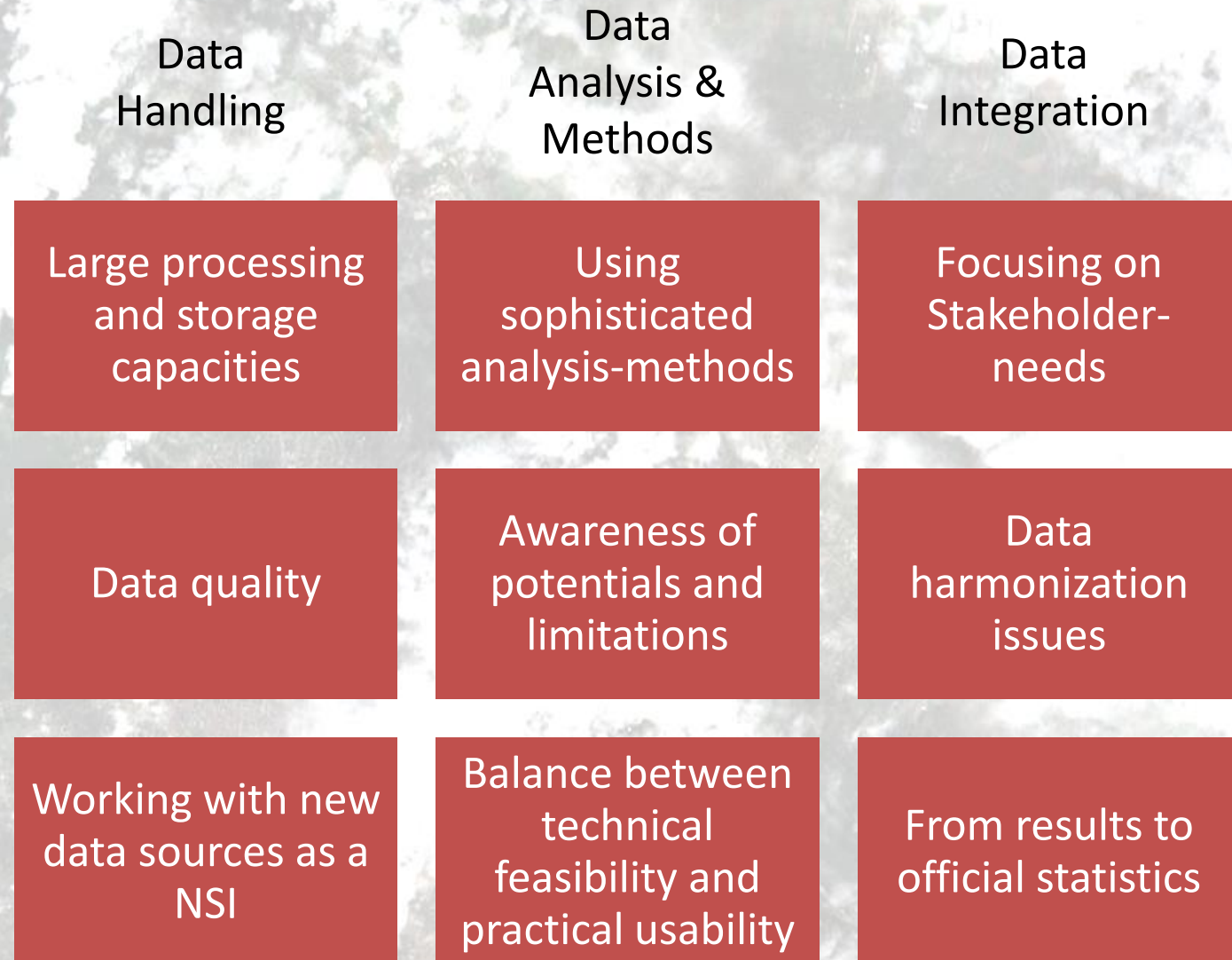
- Support **primary statistics** (e.g. land cover, crops) and SDGs
- Enable sophisticated **phenological research** (e.g. vegetation indices)
- Provide **applications, reports and visualizations**

# (some) Challenges of using EO data





# (some) Challenges of using EO data



# Project goals

→ “Earth Observation for Land Cover Statistics”



- Provide **analysis-ready Sentinel data**
  - cloud free Sentinel-2 time series
  - Sentinel-1 time series
- Produce spatially explicit **land cover maps**
  - Woodland
  - Grassland
  - Cropland
- Aiming for a **higher granularity** within the land cover classes for further use cases
  - crop-type mapping, forest types

- **Using free and timely data** of the earth's surface within the statistical production process
- ESA's Sentinel-1 and Sentinel-2 suitable for **agricultural and forestry** applications as well as **land cover classification**
- Generation of **spatially explicit** land cover statistics
- Capturing **land cover statistics in more detail** (e.g. different forest types, field-level crop statistics, usage of grassland areas)
- Enable **faster data dissemination** in the future
- Reduce **respondents burden**
- Avoid depending exclusively on the **quality of external data sources** (lack of geospatial properties, data gaps,...)



- National **SDG Monitoring**

e.g. Mountain Green Cover Index

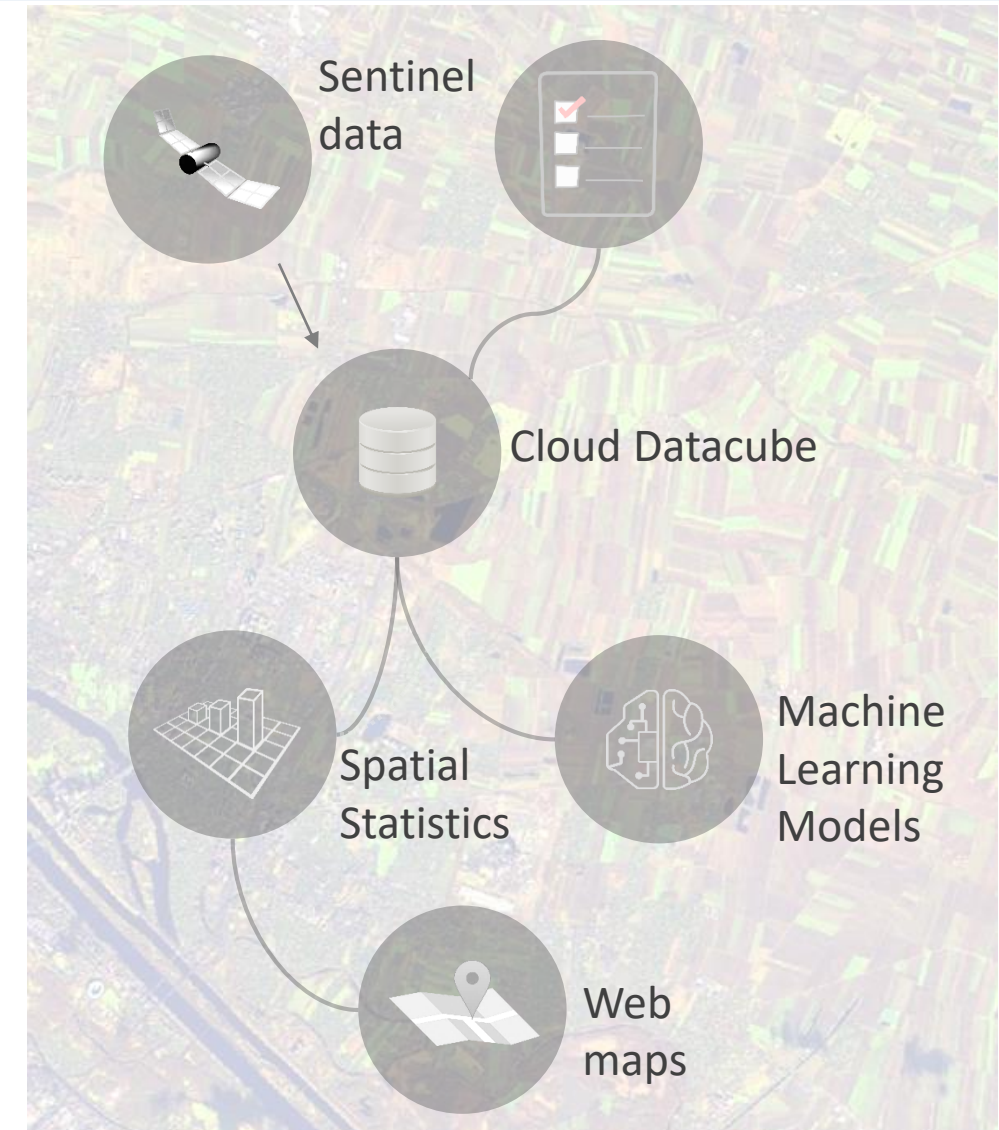
- **Agricultural statistics**

e.g. comparative analysis with other adm. data sources and data from surveys like the Farm Structure Survey & with the Agricultural and Forestry Register

- **Support national data generation** for policy needs

e.g. evaluation of land cover statistics as possible data source for Agricultural Land Prices

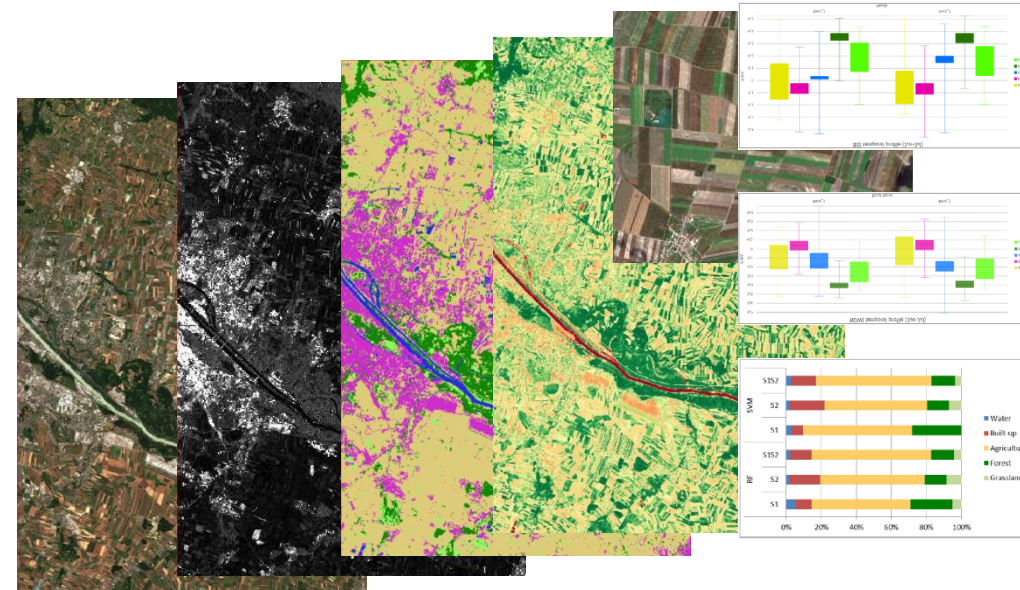
- Requirement assessments
- Data preparation & Infrastructure
- Analytical process
  - Sampling & generation of test data
  - Machine learning
- Integration to statistical products and applications
- Dissemination and visualization



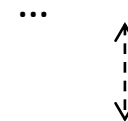
# Data production workflow



EO data sources



Processing  
Analysis  
Machine Learning

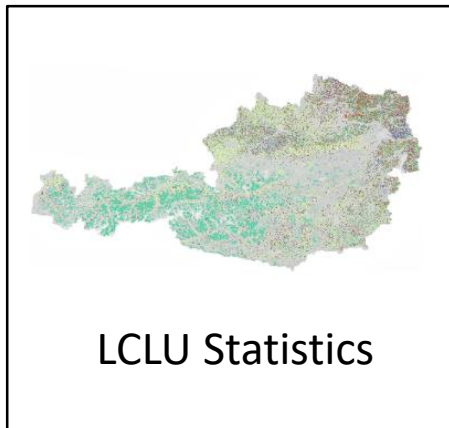
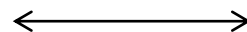
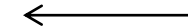


Link with administrative  
data

Land Cover Data



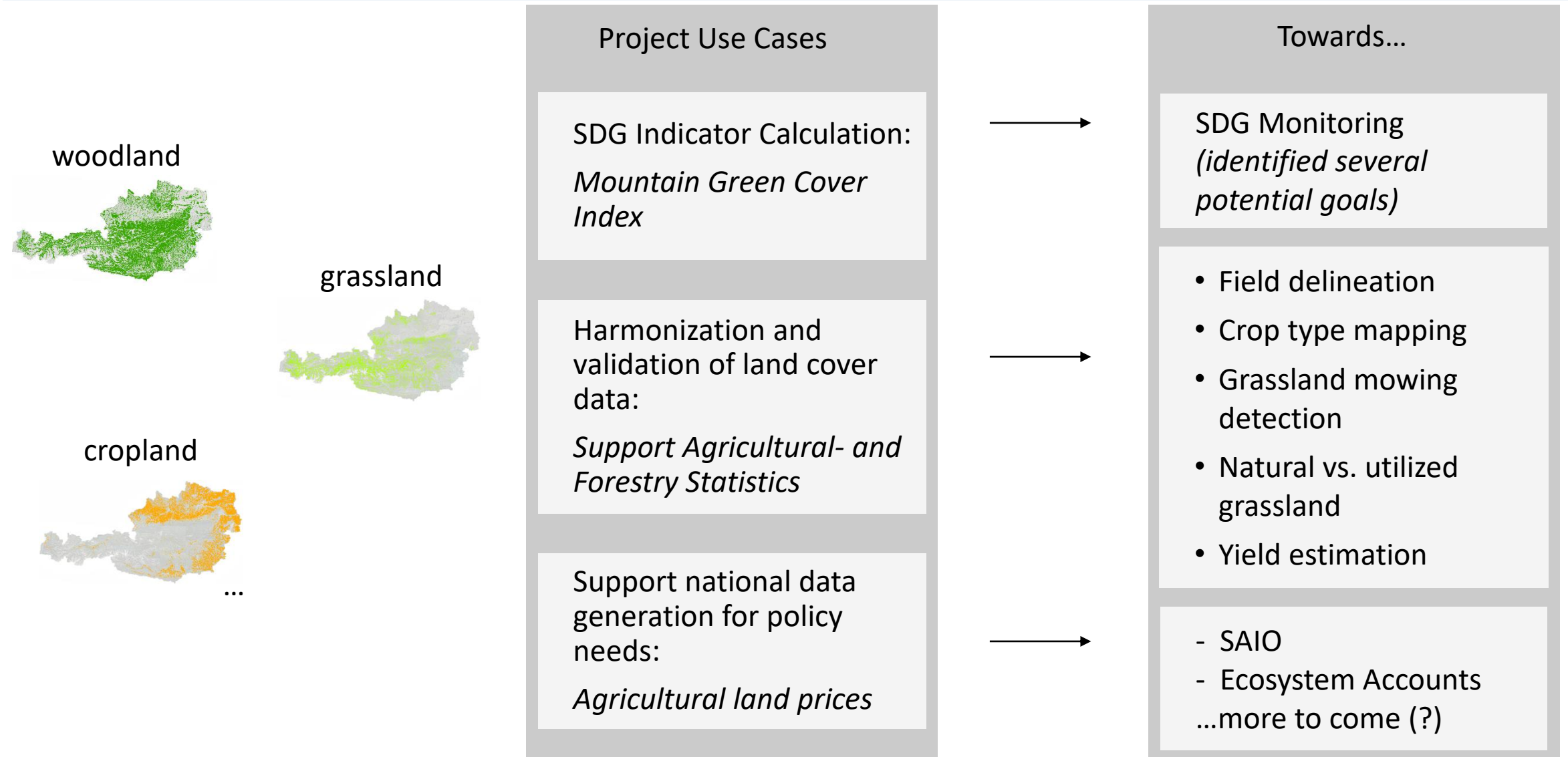
Validation



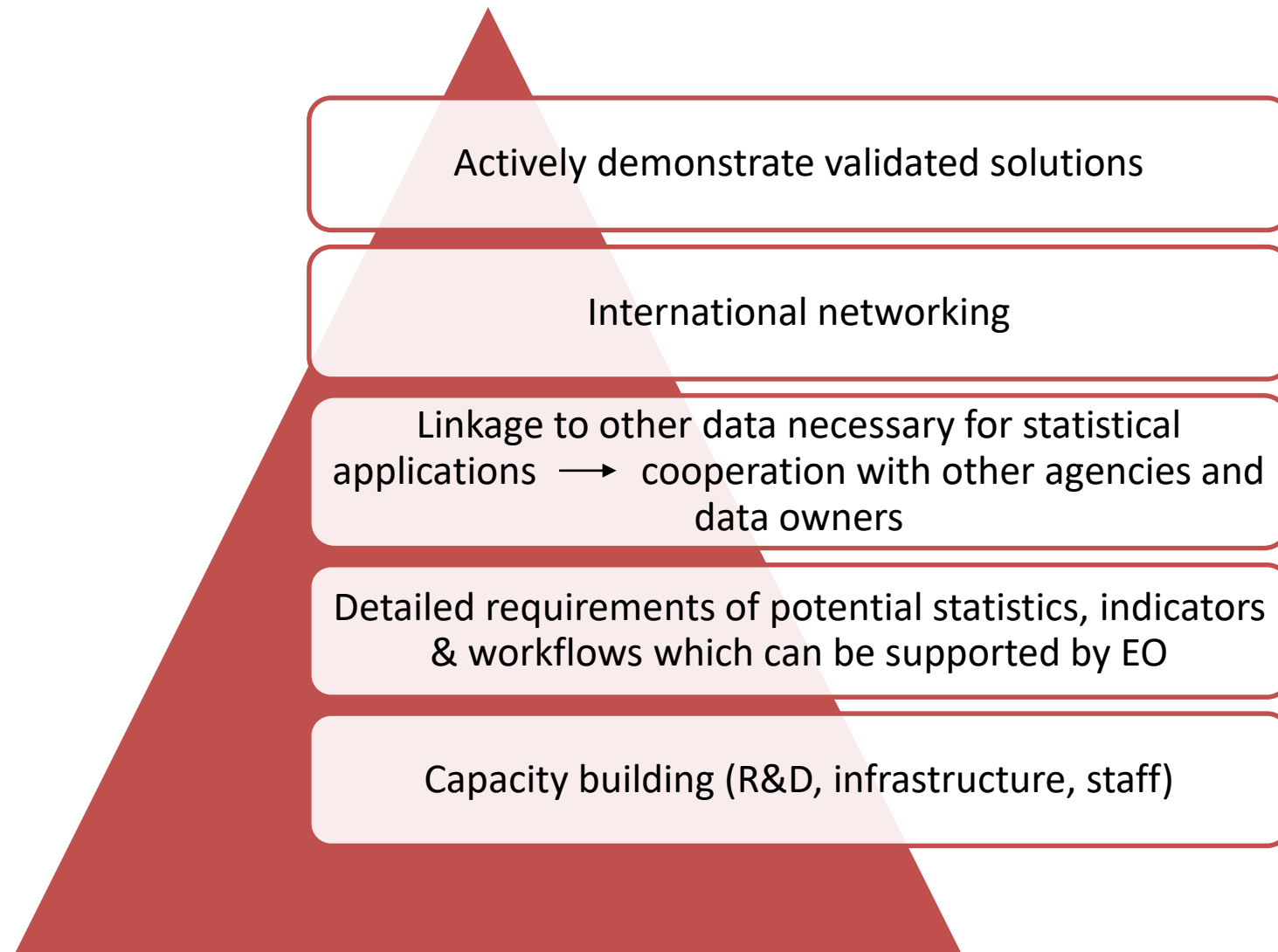
LCLU Statistics



# From results to use cases & beyond



# Needs for working towards those goals:



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