Vocabulary Group Report

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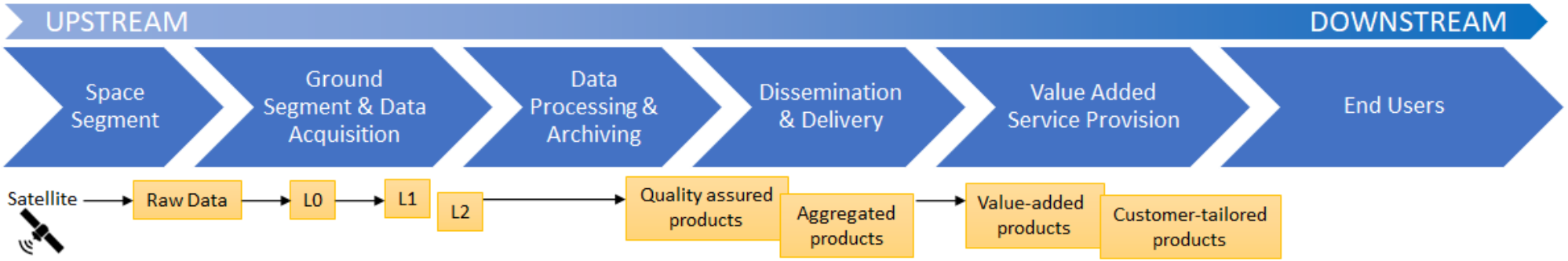
CEOS Task Group on Vocabulary

- **Joint initiative of CEOS WGCV, CEOS WGISS, and CEOS LSI-VC to coordinate set-up and maintenance of glossaries and where possible harmonise internally and with partner organisations (CEOS WGCV Action Item 49-06, June 2021)**
- **So far contacts with ISO-TC211 and OGC Naming Authority**
- **Current composition**

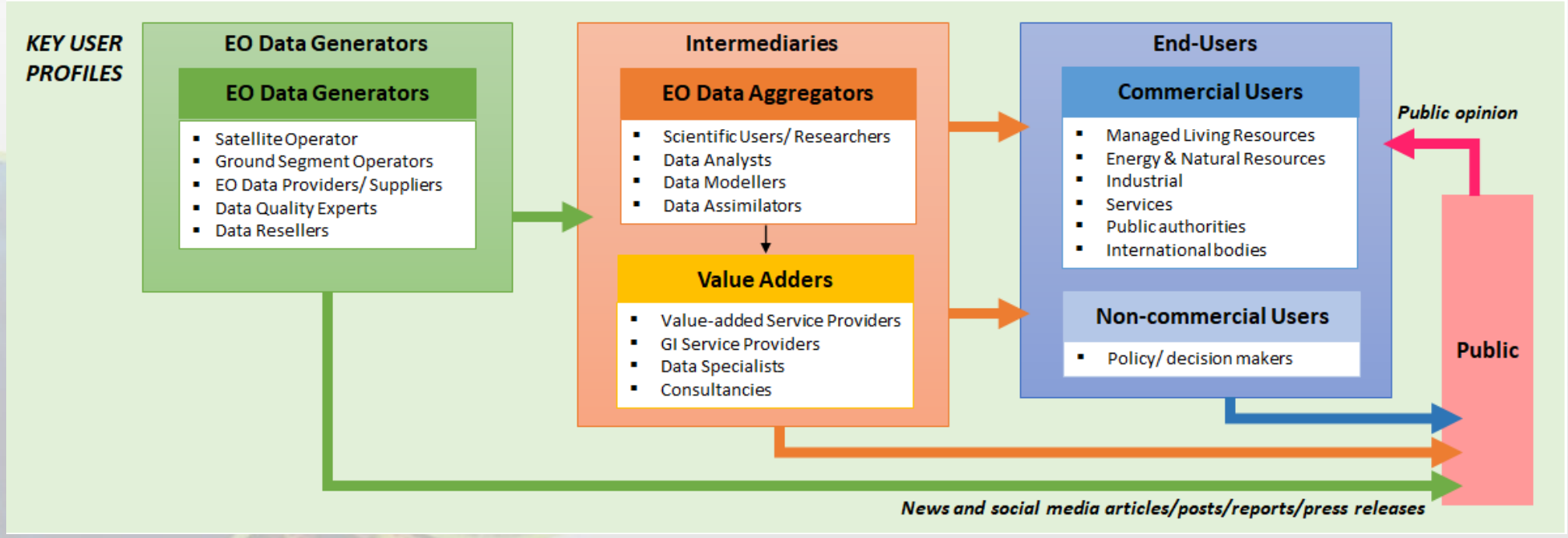
Peter Strobl, EC-JRC
Damiano Guerrucci, ESA
Emma Woolliams, NPL
Nigel Fox, NPL
Steve Labahn, USGS
Matthew Steventon, Symbios
Katrin Molch, DLR

Satellite Earth Observation is Multidisciplinary



EOSure

https://eu.surveymonkey.com/r/DMRBVQM

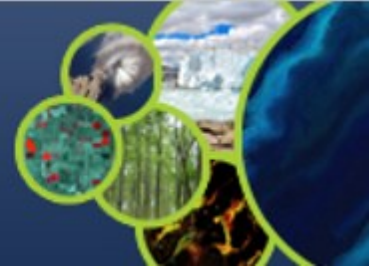


Challenges in communication

- **Different words for the same thing**
- **Same word for different things**
- **Different conceptual frameworks**

Differences can be subtle

The ‘big’ terminologies in EO/Geosciences:



- **ISO/TC 211 terminology management group: https://isotc211.geolexica.org/**
- **OGC: https://www.ogc.org/ogc/glossary/, http://www.opengis.net/def/glossary/**
- **INSPIRE glossary: https://inspire.ec.europa.eu/glossary**
- **CEOS: http://ceos.org/document_management/Working_Groups/WGISS/Interest_Groups/Data_Stewardship/White_Papers/EO-DataStewardshipGlossary_v1.2.pdf**
- **NASA: https://earthobservatory.nasa.gov/glossary**

- **Of these only the ‘Geolexica’ is interlinked and addressable (per term)!**
- **None shows structure or ontology**
- **All have gaps and inconsistencies (see examples)!**

Example: “Observation”

ISO 19156:2022 / OGC OMS:

3.13 observation
act carried out by an observer to determine the value of an observable property of an object (feature-of-interest) by using a procedure, with the value is provided as the result
3.14 observer
identifiable entity that can generate observations pertaining to an observable property by implementing a procedure
Note 1 to entry: An observer is an instance of a sensor, instrument, implementation of an algorithm or a being such as a person.

INSPIRE/CEOS/NASA:

not available

This includes models and essentially qualifies a ‘simulation’ as ‘observation’

- **How to distinguish results of ‘simulation’ from those of ‘observation’?**
- **Are properties which can be simulated also automatically observable (e.g. GMSL)?**
- **Are a model and a sensor both ‘observers’?**

Example: “In-situ”

ISO

- **direct measurement of the measurand in its original place**

CEOS

1) **direct measurement of the measurand in its original place**
2) **any sub-orbital measurement of the measurand**

NASA:

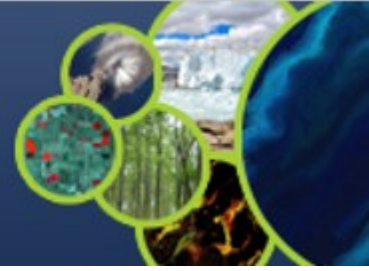
- **Latin for 'in original place.' Refers to measurements made at the actual location of the object or material measured. Compare remote sensing.**

OGC:

- Not available

➢No consistent spelling: in_situ, in-situ, in situ, in-Situ, insitu, …

Step 1 (complete): Reviewing what's out there



- **Done: merged WGCV and WGISS glossaries and NOAA NESDIS Lexicon on a technical level into a temporary Wiki solution (http://calvalportal.ceos.org/ca/t-d_wiki)**

- **Done: Described the problems:**
  - **Inconsistencies between different vocabularies**
  - **Circular definitions within documents**
  - **Missing underpinning definitions**

- **Done: Attempted (unsuccessfully) to influence revision of ISO standard 19156 "Geographic information - Observations, measurements and samples" (definition of "observation" that includes model outputs)**

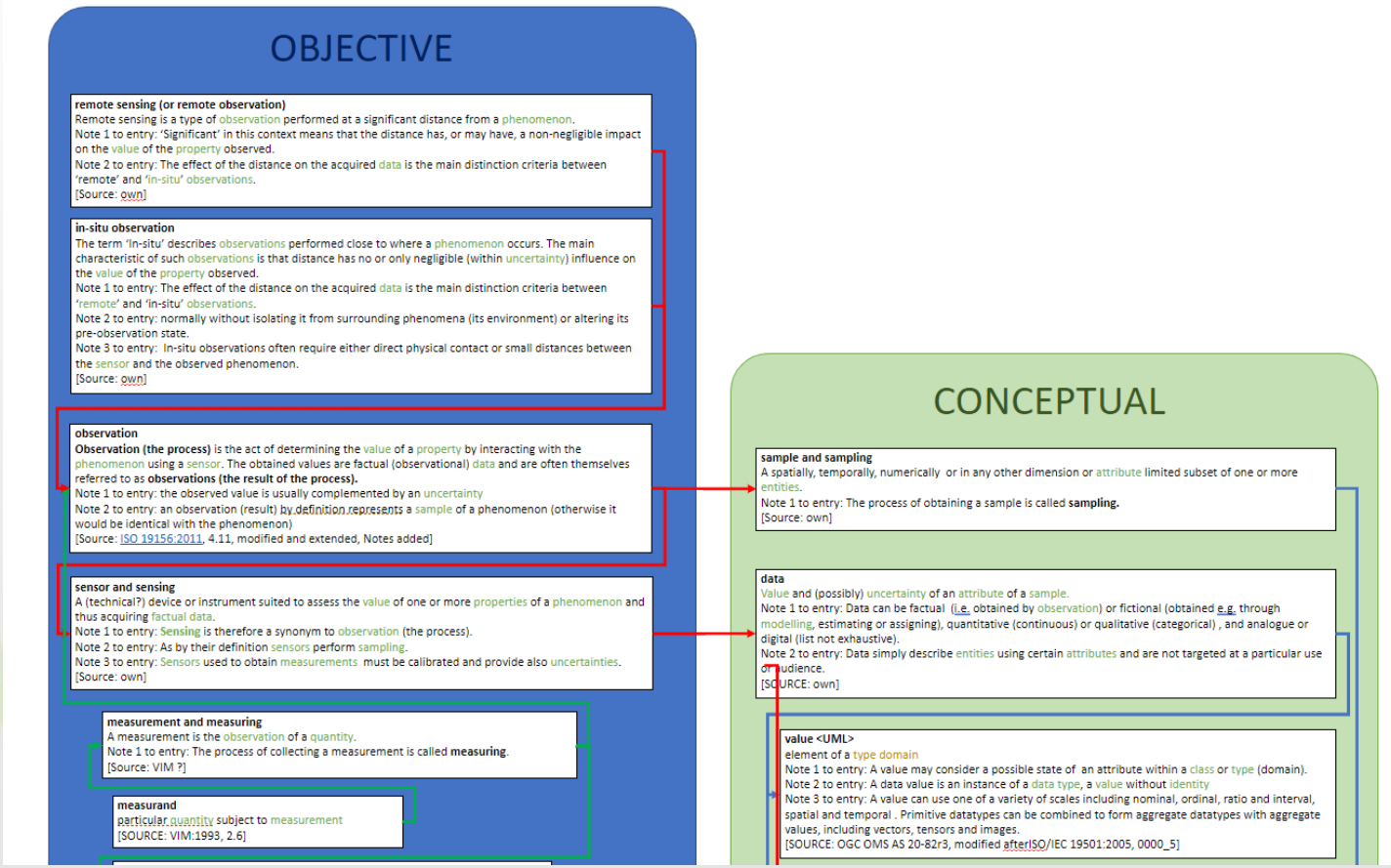
Step 2: Defining our purpose and approach

- **Vision: Develop an online, interactive vocabulary with clear structure and hierarchy (modularity) that has internal consistency**
  - **based on "base terms" (that everyone can agree on)**
  - **And with "high impact terms" (where we highlight differences between communities to aid mutual understanding)**

We are not intending to force communities to use their specialist terms in a new way, but to highlight where differences in interpretation exist between communities so that those working across disciplines can be warned of possibilities for misinterpretation

Initial plan

- **Define a small number of “base terms”**
  - **Linked hierarchically (online/visual), consistent, unambiguous, agreed**
- **Show how these can be used to define some high impact terms**
- **Combine expertise from different fields**

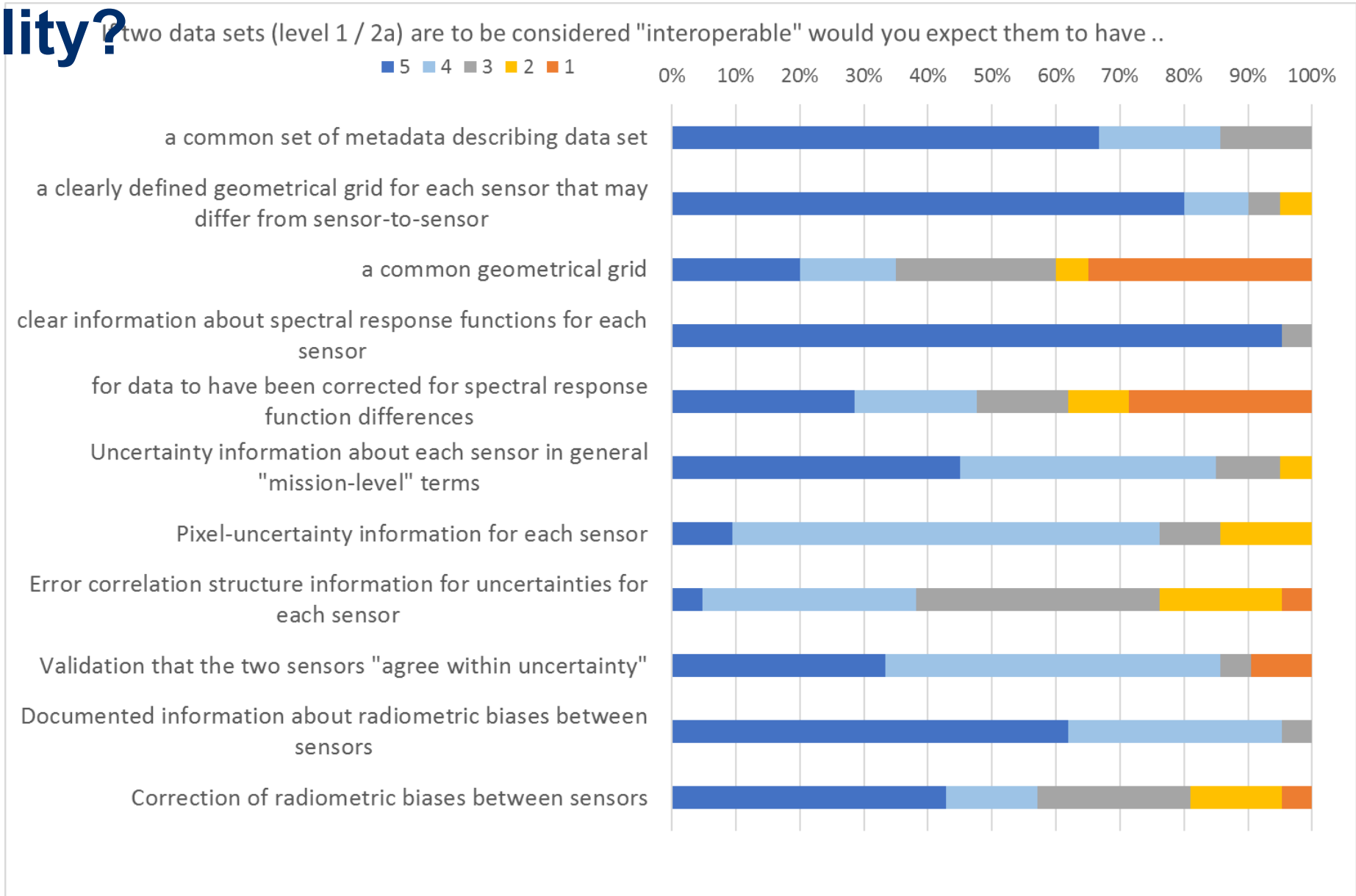


What we'd like

- **More people engaged with this process to create material**
  - **Engaged in process of defining terms / resolving or able to highlight unresolvable differences**
  - **Particularly from different technical disciplines / with other viewpoints**
  - **And experts in vocabulary / ontology / tools to collate vocabularies**

- **A set of reviewers (lower engagement)**
  - **To review work we are doing occasionally and give feedback**

What do we mean by interoperability? (broader discussion on Wednesday afternoon)



Interoperability and continuity

- We want interoperability between Landsat and Sentinel
- We want continuity between Landsat and Landsat Next and between Sentinel 2 and Sentinel 2 Next Generation

We don't mean:
- They're identical

We don't just mean:
- We've done a comparison between them

We don't necessarily mean:
- We've made one look like the other

We have the information needed to account for differences between the sensors when generating products of interest within an appropriate uncertainty.

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