

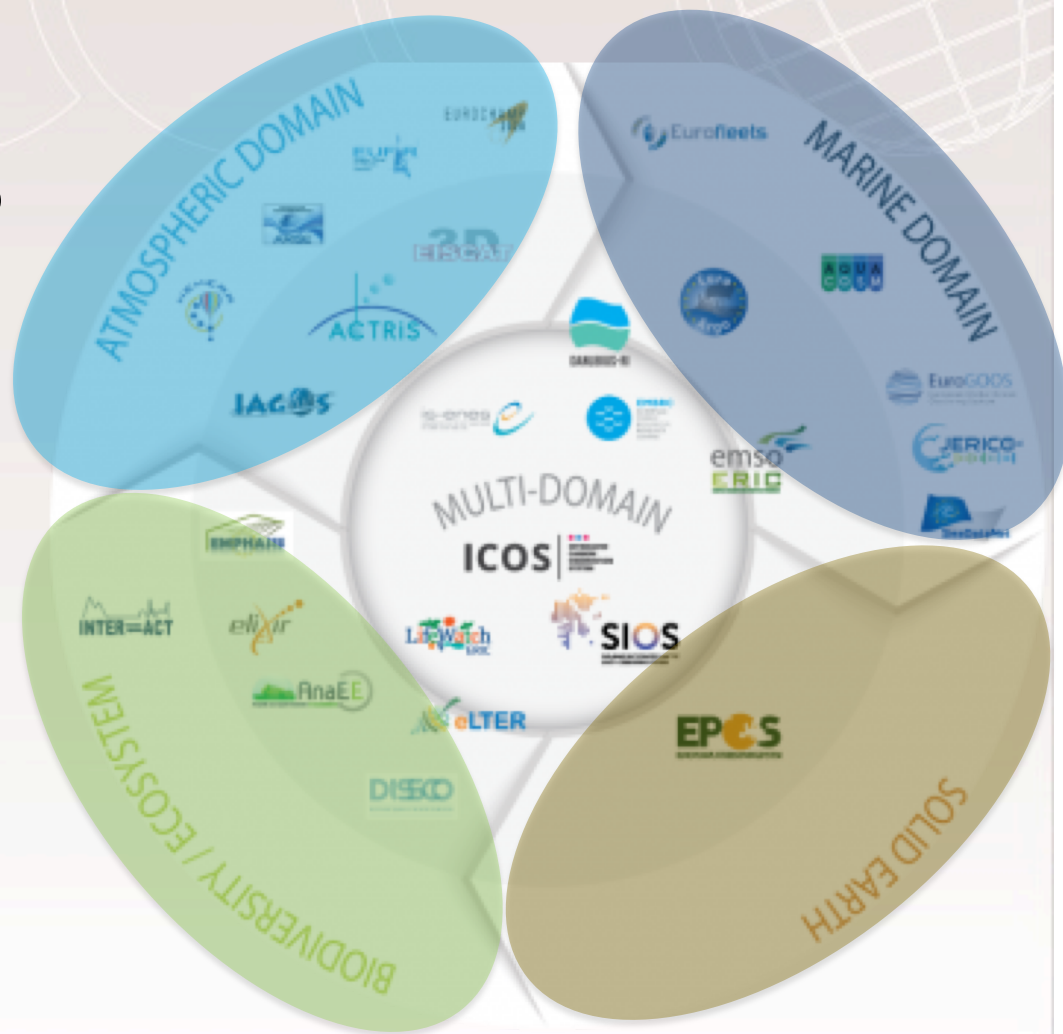
INTEROPERABILITY OF DATA, APPLICATIONS AND SERVICES



Supporting environmental research
with integrated solutions
- **the Earth is our lab**

ENVIRONMENTAL RESEARCH INFRASTRUCTURES

- Established and developed to serve designated community
- Domain specific standards
- Range of maturity levels
- Different degrees of domain level integration





H2020 Project

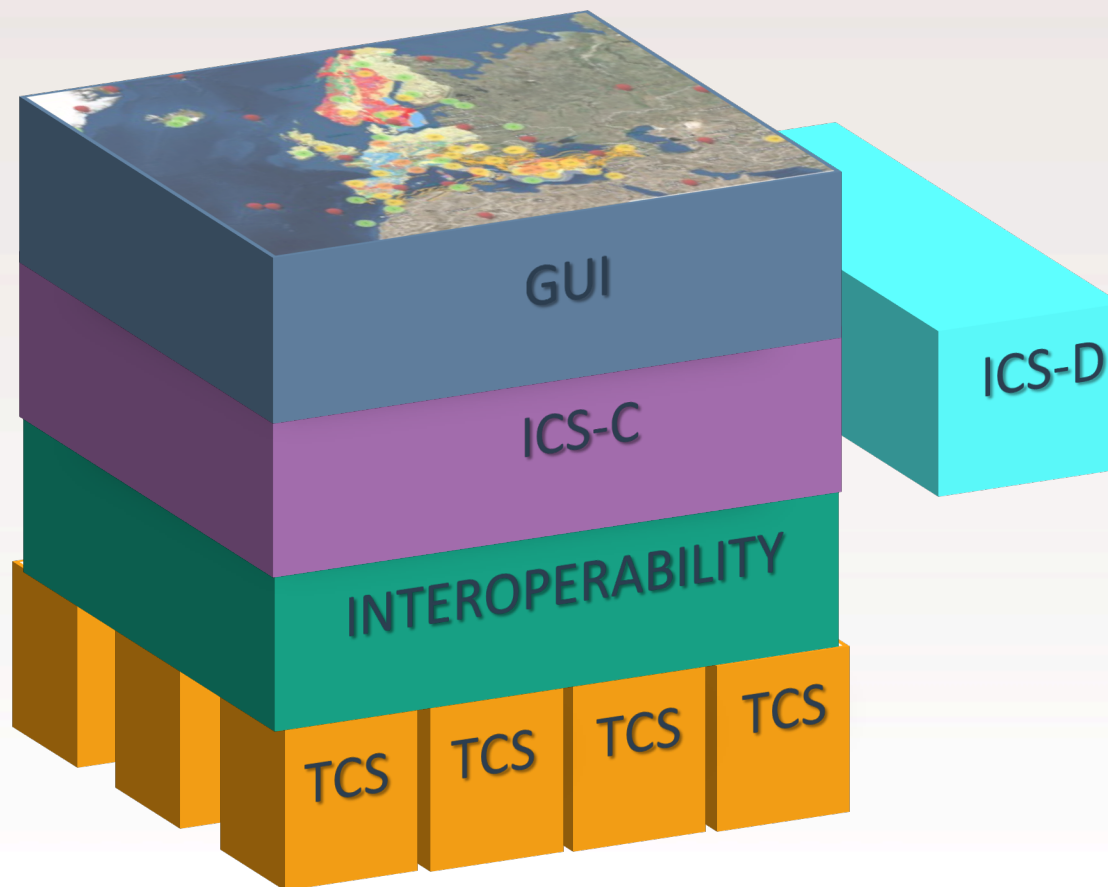
Project Number: 654182

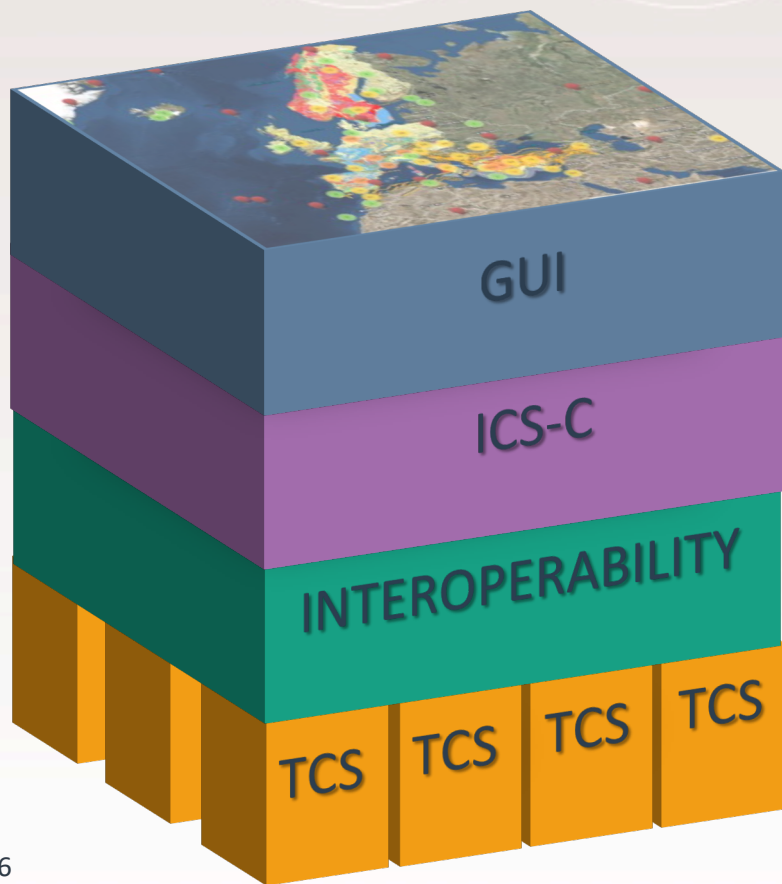
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European Plate Observing System (EPOS)

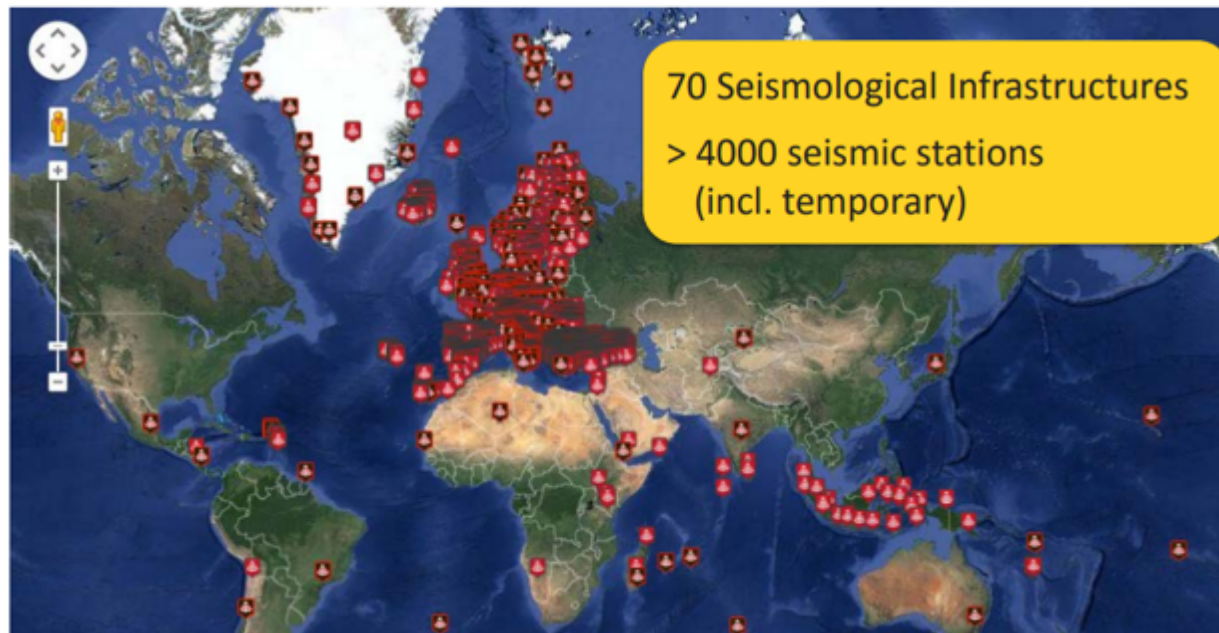




Harmonization



format



Orfeus

**CSEM
EMSC**

E F E H R

- Services
 - Observatories and Research Facilities for European Seismology (Orpheus)
 - European-Mediterranean Seismological Center (EMSC)
 - European Facilities for Earthquake Hazard & Risk (EFEHR)
- Large number of seismological infrastructures and stations







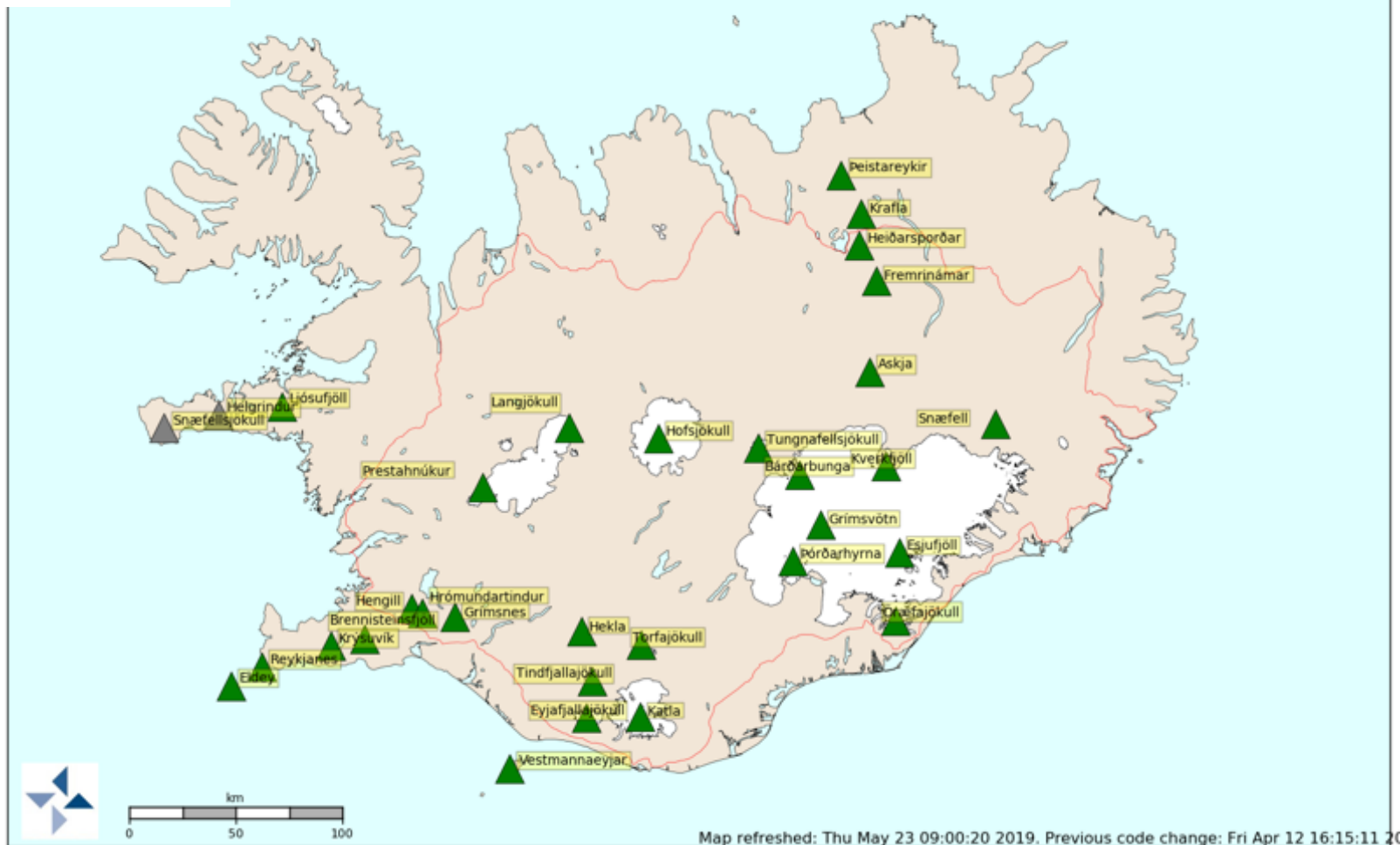
Iceland, 2010 Photo:???



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<https://en.vedur.is/earthquakes-and-volcanism/volcanic-eruptions/>

THE CHALLENGES TO BE ADDRESSED



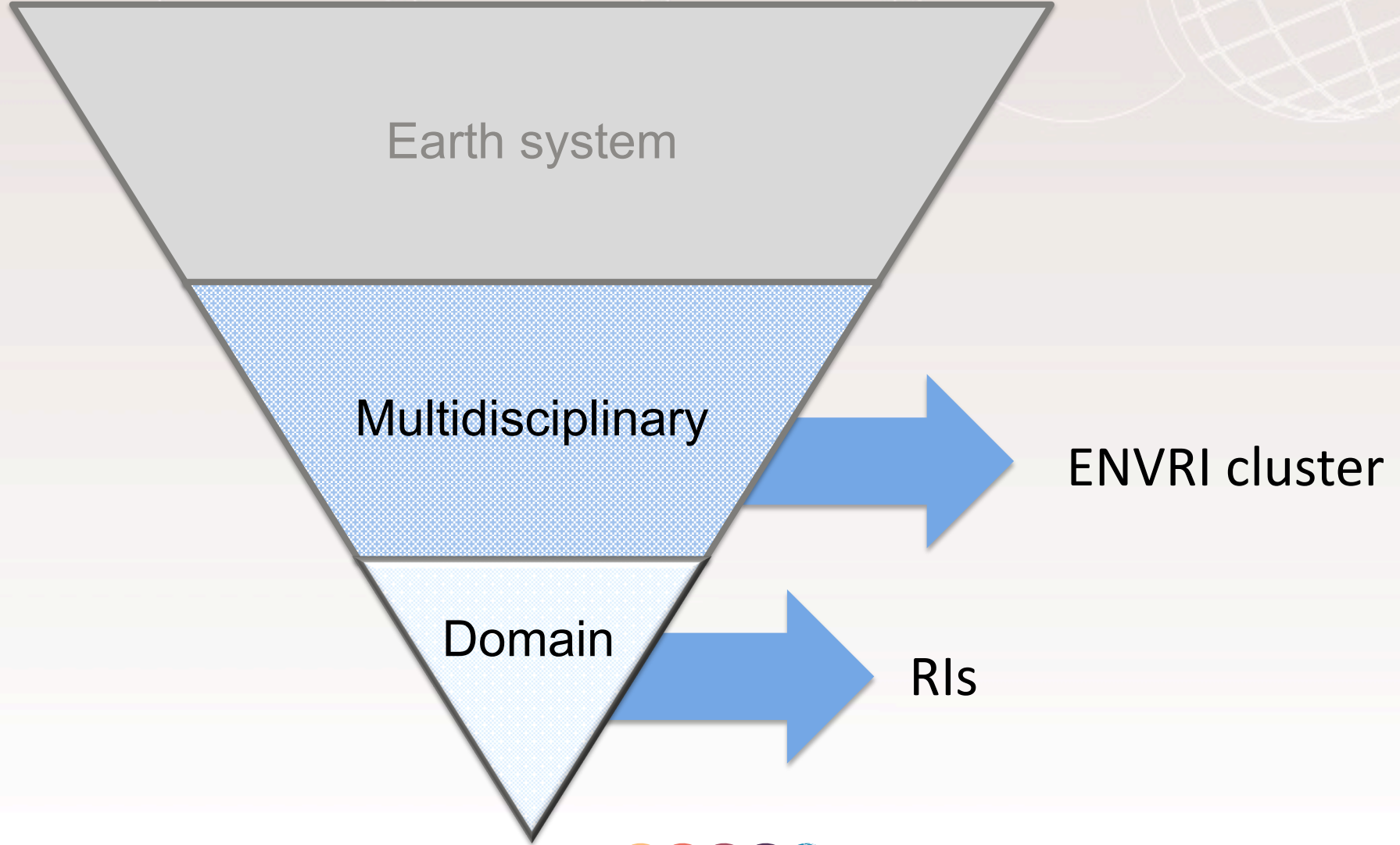
Sustainable Development Goals



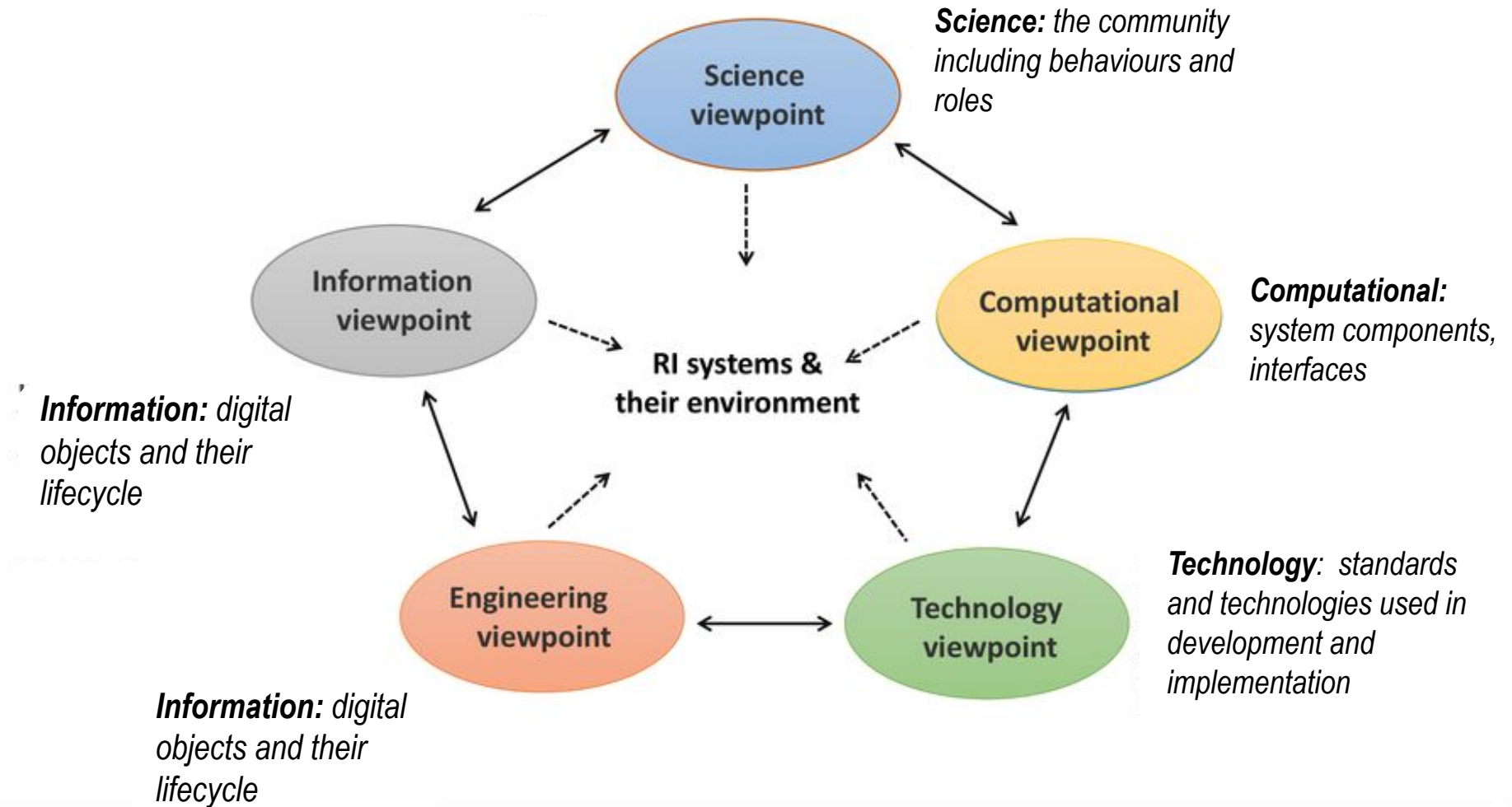
- Require multidisciplinary approach
- Teams of researchers cooperating using collaborative tools
- Utilising data for knowledge creation
- Forms basis for policy, decision-making and action



SYSTEM LEVEL SCIENCE



ENVRI REFERENCE MODEL



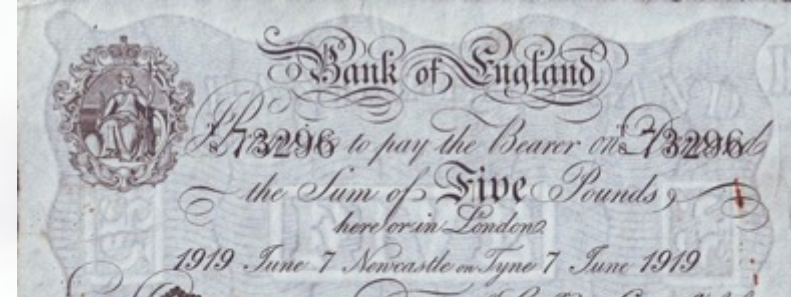
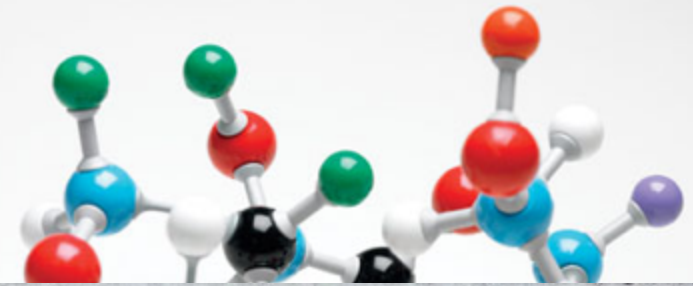
RICH METADATA

Formal syntax

- The structure of the information is defined
- Allows interoperation through formal, logical, autonomic processes

Declared semantics

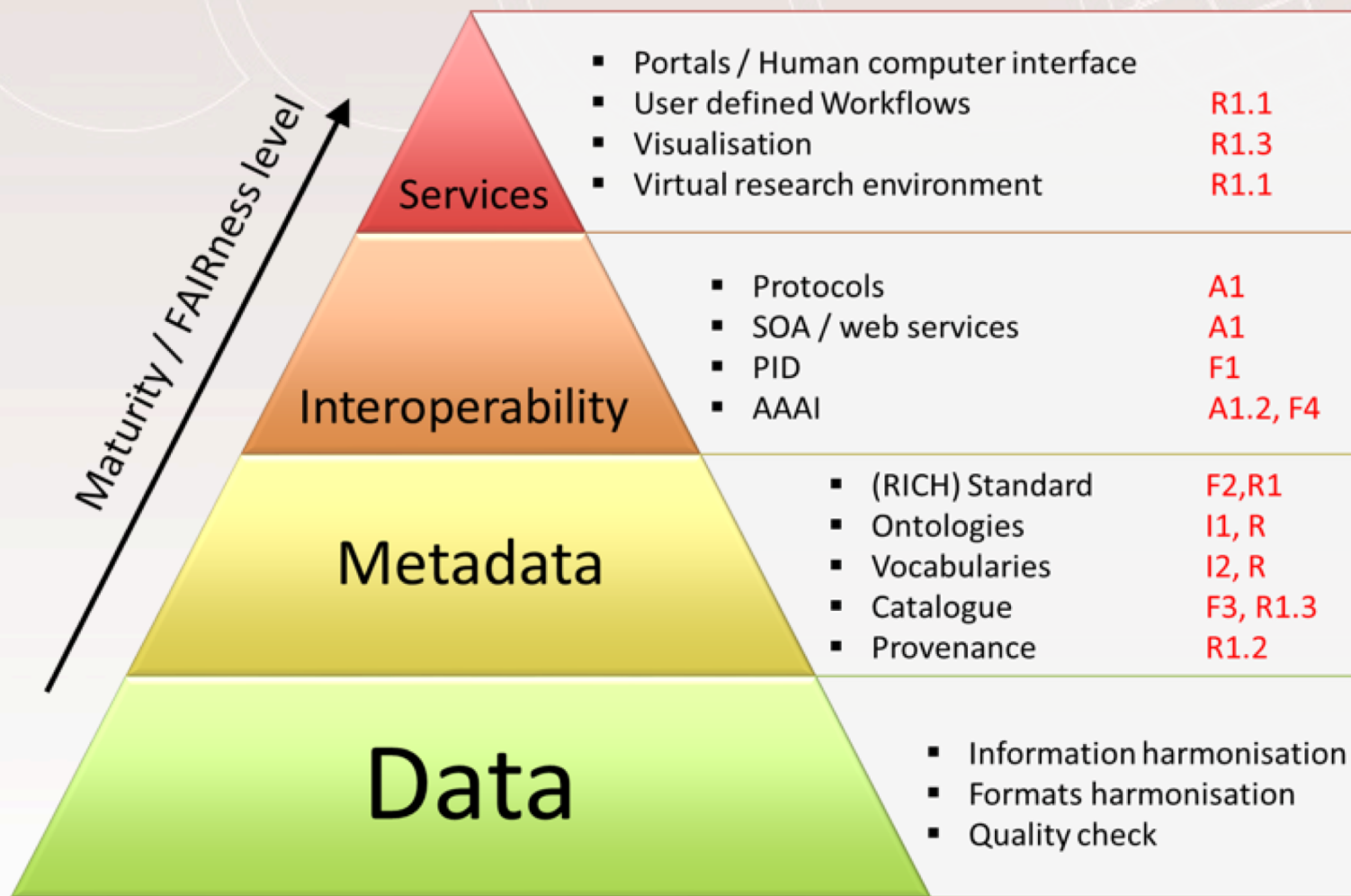
- Content of the information – its meaning – is defined by an ontology that provides
 - term definition
 - relationship of a term to other terms
- Disambiguation of a term e.g. bond
- Relating terms in different languages (multilingual)



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plus
ENVRI

COMMON PRINCIPLES: FAIR



Credit: Daniele Bailo



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SYSTEM LEVEL SCIENCE

