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Data and services for environmental science and policies – the role of Research Infrastructures

Jouni Heiskanen, PhD

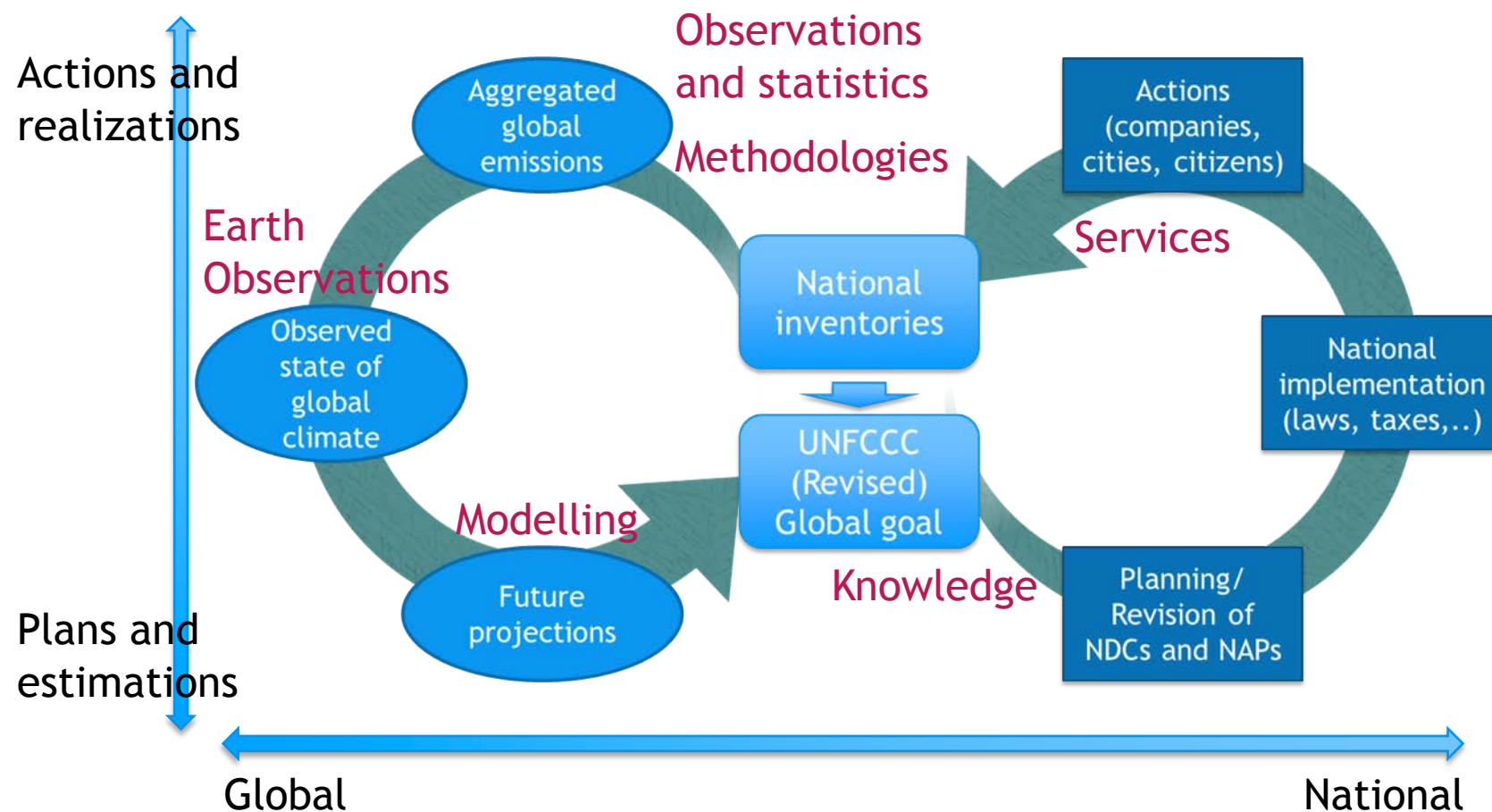
Scientific Integration and Liaison Officer

ICOS ERIC Head Office / GEO-C Secretariat

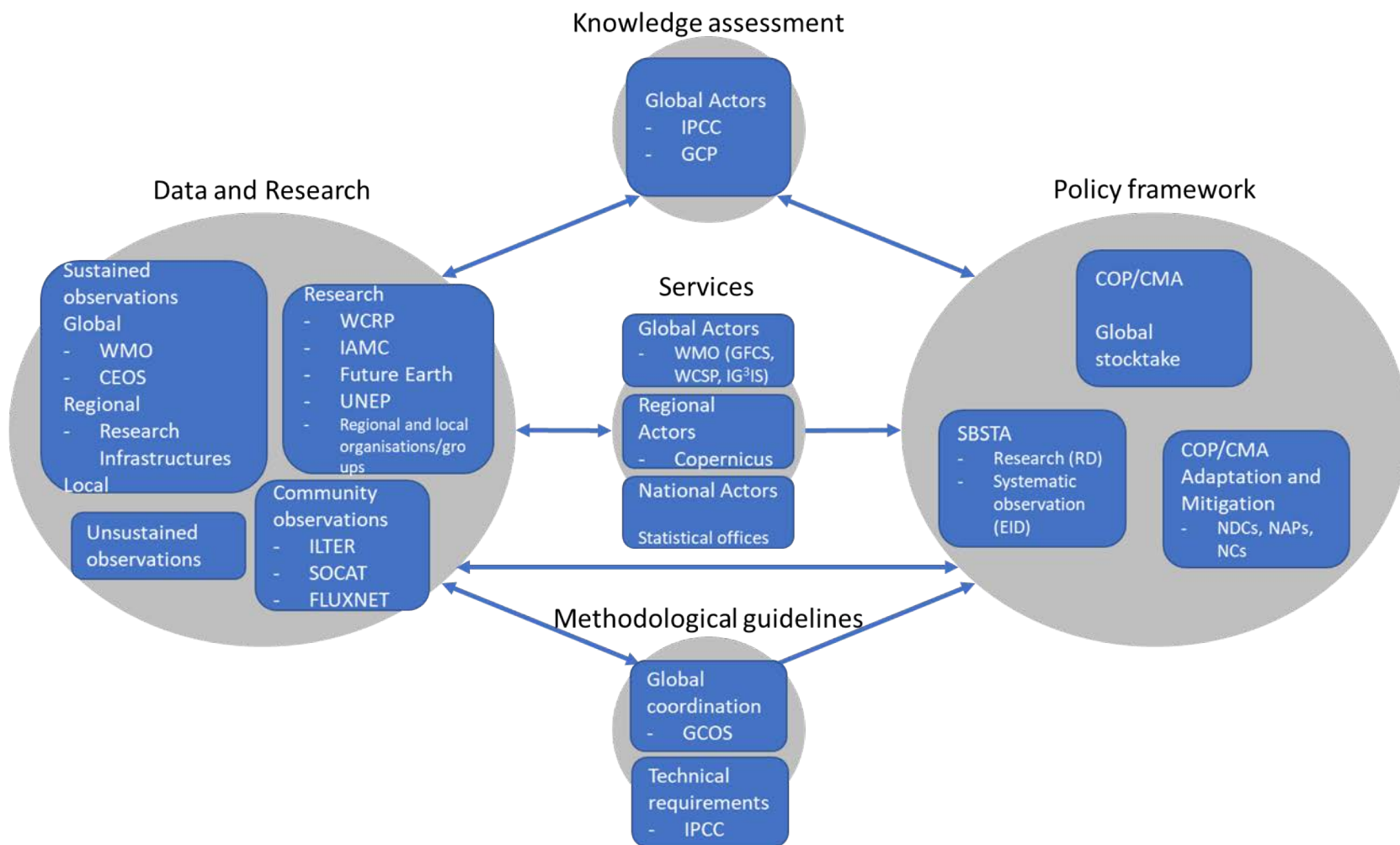
Outline

- Background
 - Science is related to many processes in the Paris Agreement
 - Science and Paris Agreement relies on observations and data
- Key messages
 - Data sources are varied, framework needed to join sources
 - Framework builds on collaboration
 - Research Infrastructures are good operators for supporting this framework

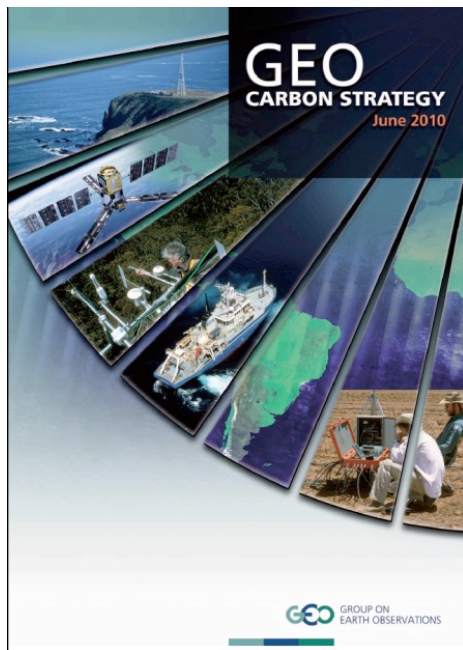
Science for the Paris Agreement



Science-policy framework



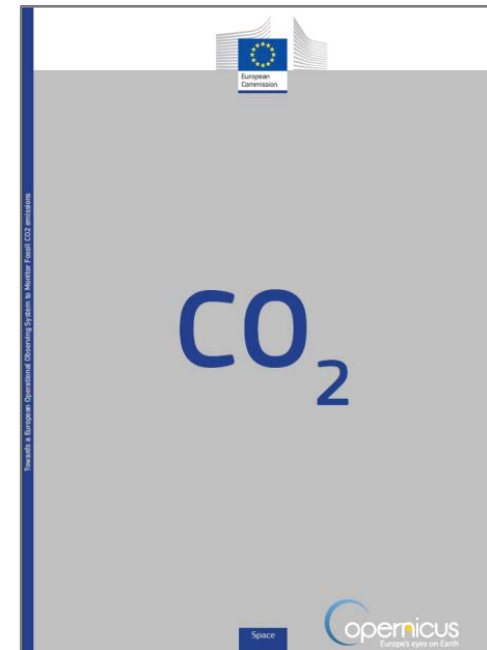
Some essential documents behind the GEO Carbon and GHG Initiative



“GEO through its Members and Participating Organizations, has begun work to implement a global carbon observation and analysis system... to provide high quality information on carbon dioxide (CO₂) and methane (CH₄)...”



“...a response to the *GEO Carbon Strategy*. It details the adequacy of past, present, and planned satellite measurements of carbon in the land, oceans and inland waters, and atmosphere domains to support GEO...”

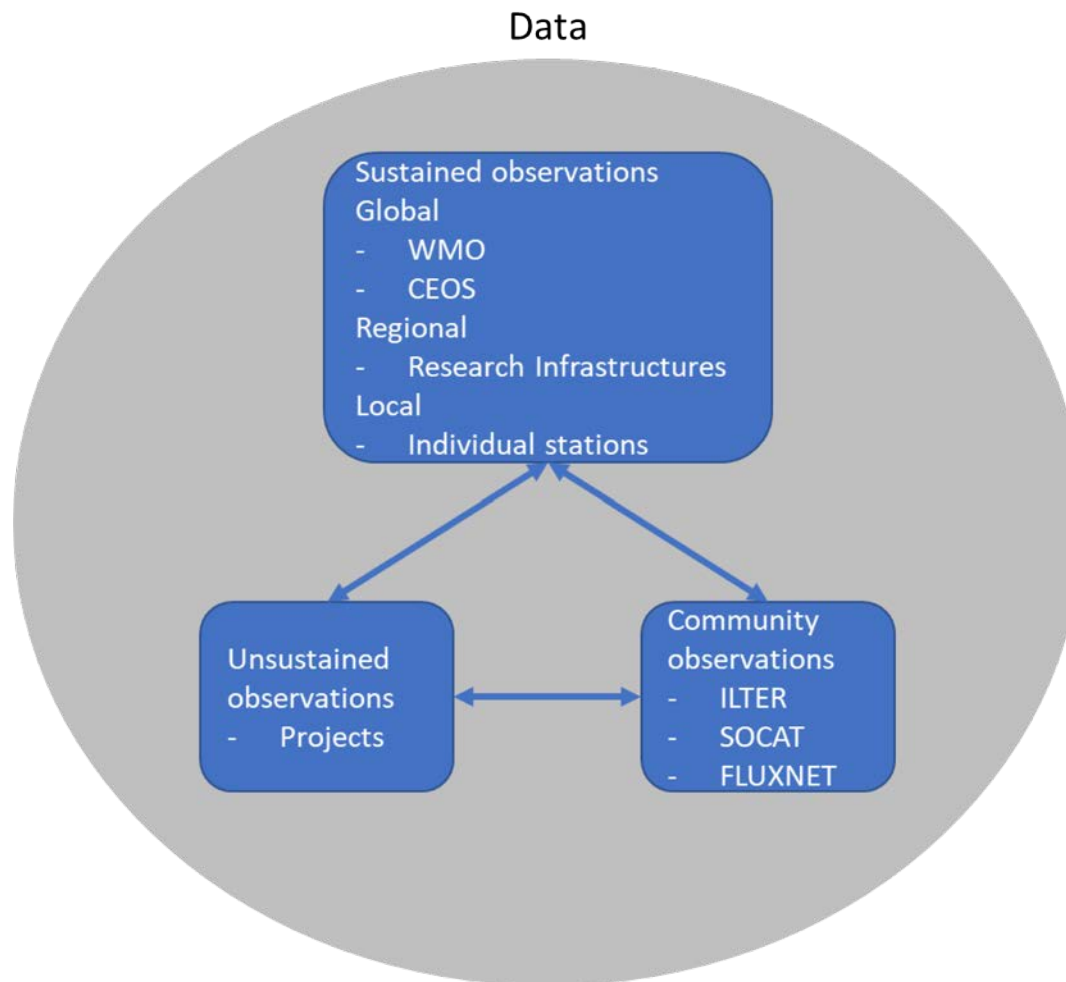


“Improve the inter-operability with other carbon observation systems, contributing to the new GEO Strategy and the new GEO 10 years Implementation Plan (IP) for 2016-2025.”

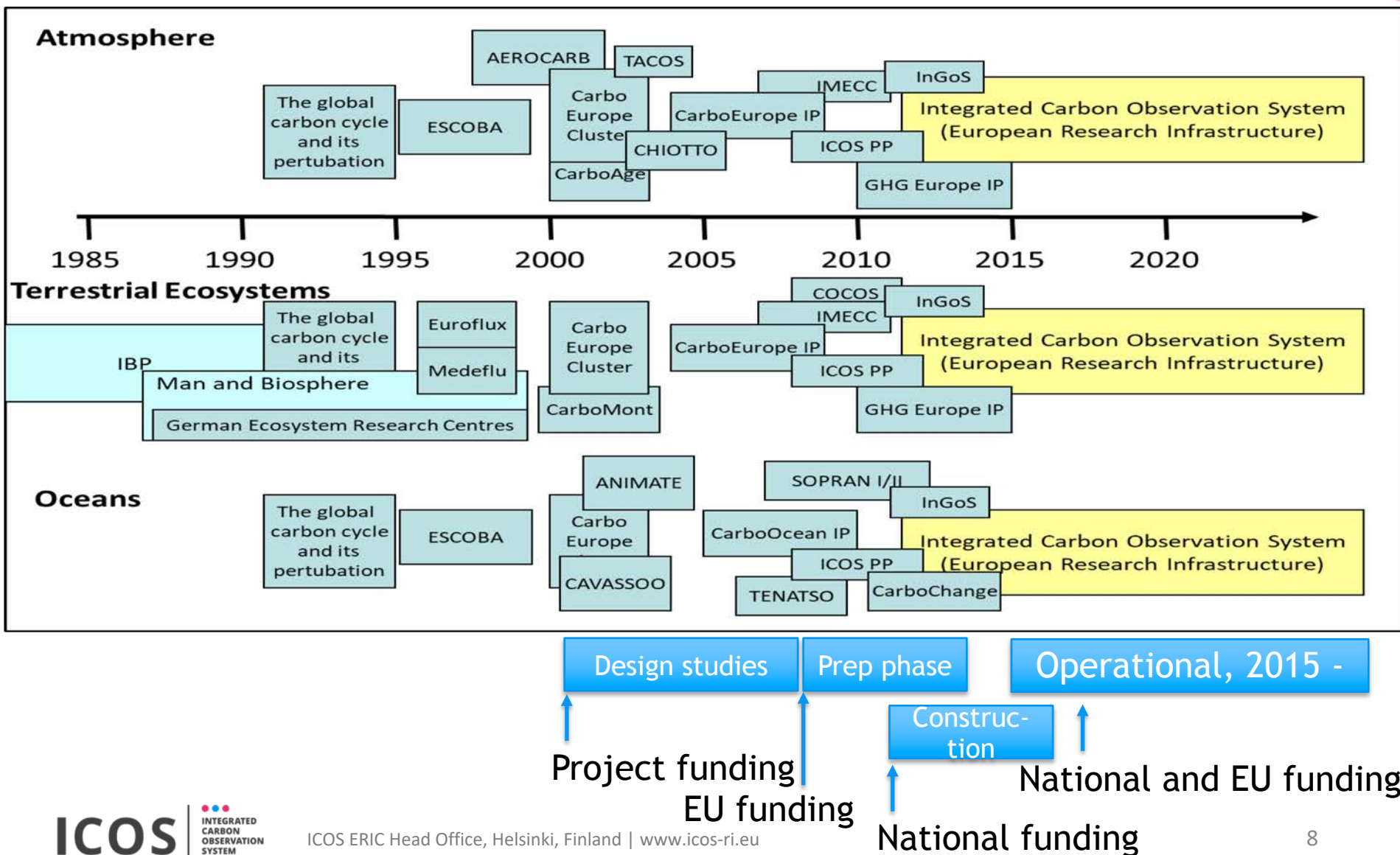
Identified data-related gaps

1. Access to existing data, acquiring new data
 - Improve satellite and in situ data accessibility
 - Parameter coverage / multisite concept
 - Increase the density and geographical coverage of in situ networks
 - Improve fossil fuel GHG emission estimates
2. Developing technical and scientific methodology
 - Develop spatial scaling techniques for pCO₂ and land flux observations
 - Develop space measurements of global GHG distributions
3. Sustained observations and products
4. Data architecture to bind these all together
5. Where systematic observations could do more with the Paris Agreement
 - Reduce uncertainties and improve consistency of national inventories of GHGs
 - Improve the transparency framework and support the global stocktake
 - Contribute to integrated approach with SDGs and Sendai Framework and Rio Conventions

Data for science, policy and all in between



Development of ICOS RI

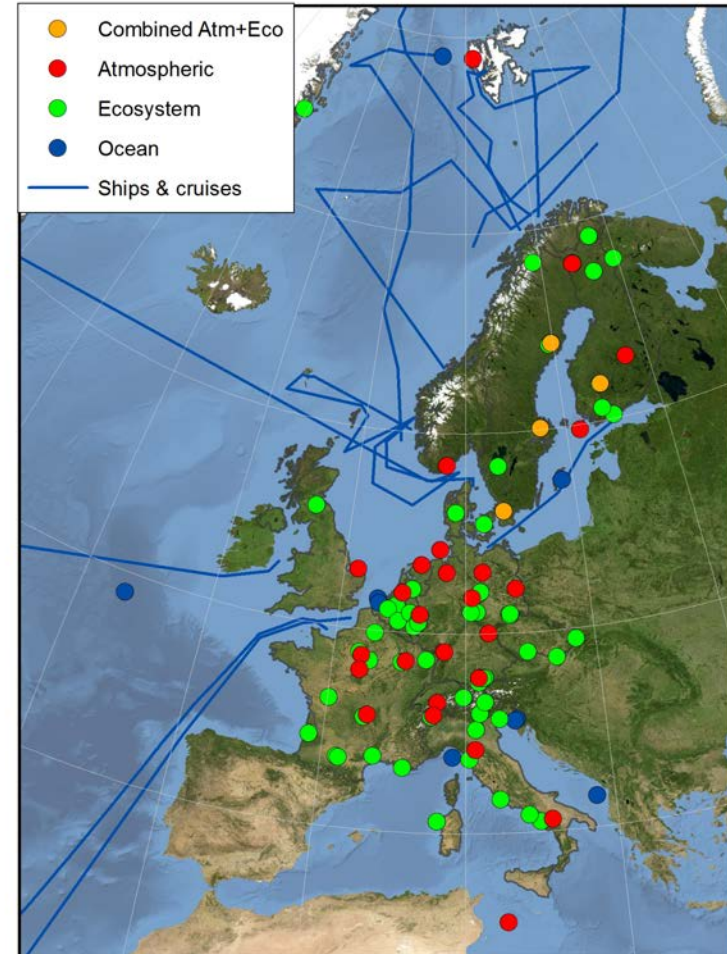


Some keys to success

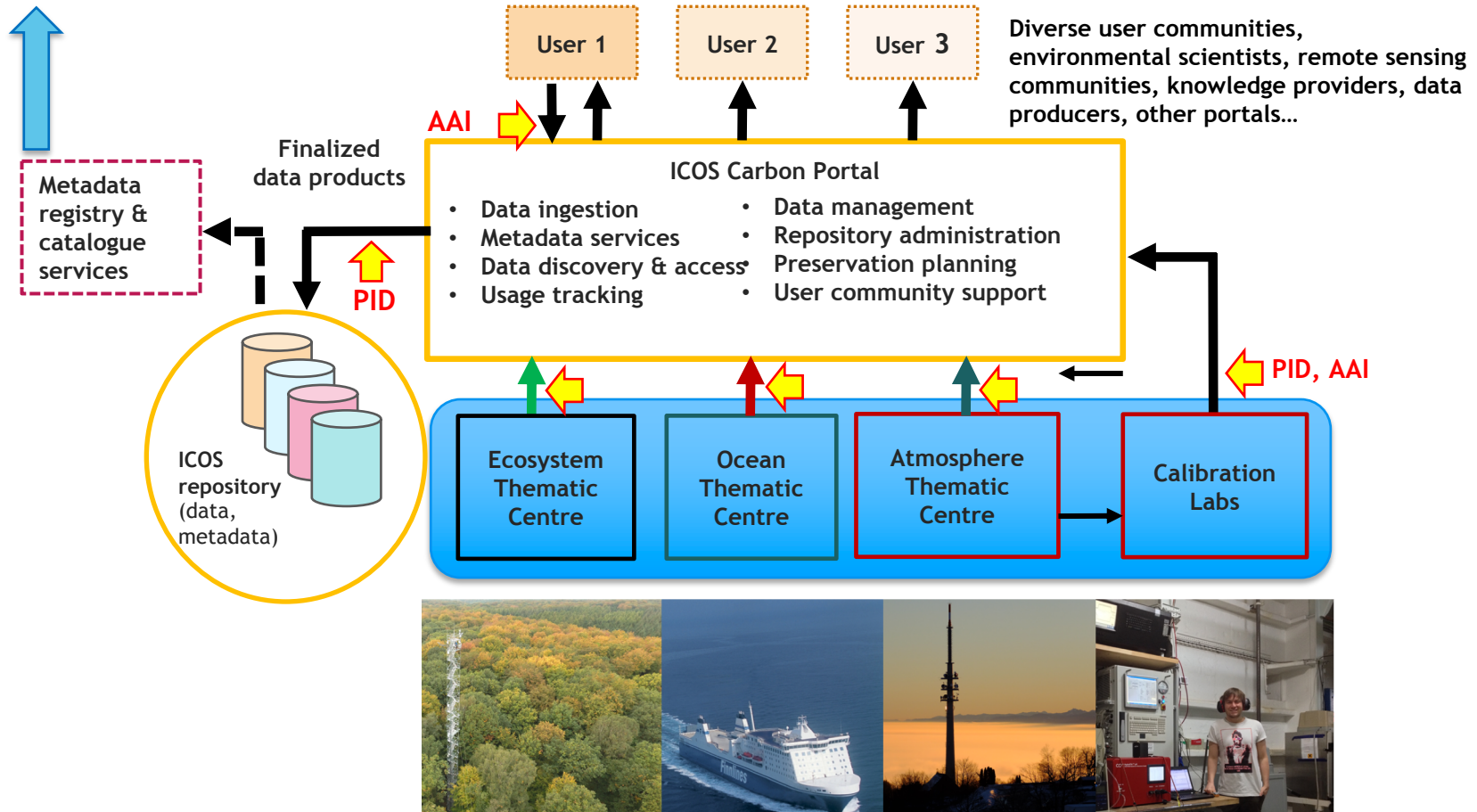
- Build strong **national consortia** and collaboration – efficiency in **internal communication**
- Develop the **structure and operations** of the RI to get early **commitment from the stakeholders**
- Prepare for the **negotiation process** (resources, time, organisation) and ample **legal consultation**
- Understand the difference between the *project management culture* and *management of an operative, permanent organization*.

ICOS was based on the need of scientists; the need to do global coordination comes now from the policy
→ What differences, who's responsible?

ICOS member countries and measurement stations 2017



ICOS Data structure



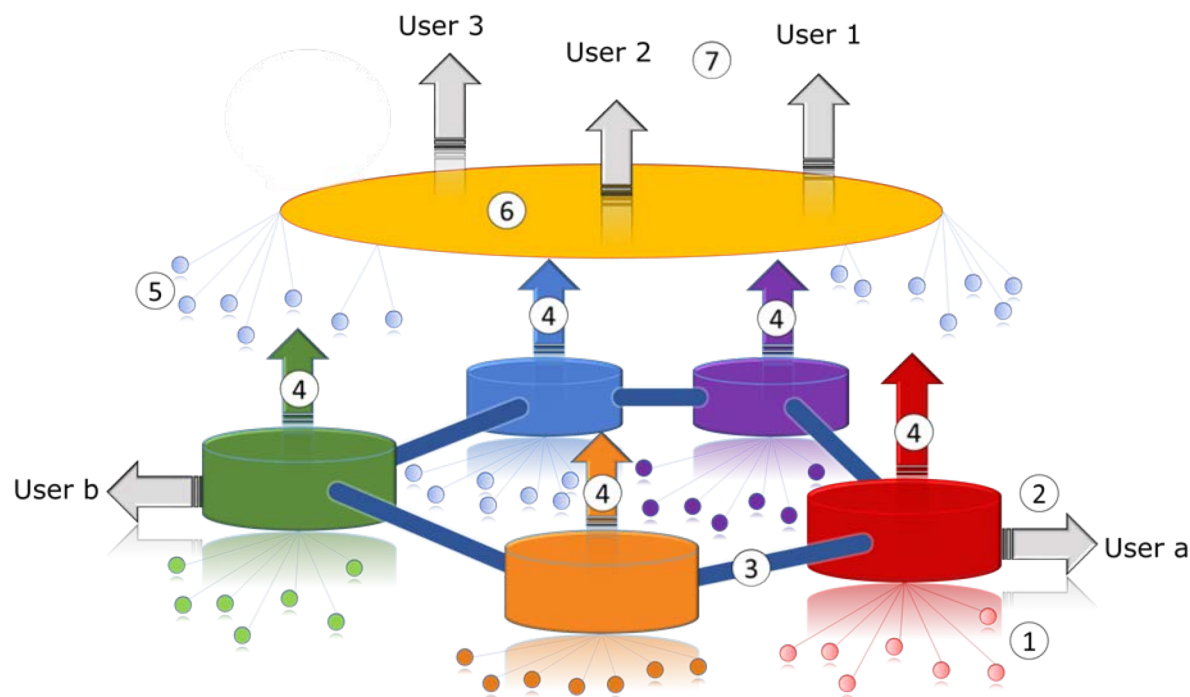
Environmental Research Infrastructures (ENVRI) in Europe



Each focusing
on specific
questions
→ Highly
skilled, and
complementary

Cooperation to
answer range of
challenges
(Paris Agreement,
SDGs, Sendai
Framework,
Biodiversity)

System for RI-RI integration is needed



Optimally, all related data sets would find a place from this framework

Framework offers purpose - end users, continuity/sustainability of data

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GEO Week side events

Translating the Paris Agreement into observational needs

Tuesday 30 October 2018, 08:30-12:30, room C1

In Situ observations by European Research Infrastructures for Sustainable Development: The ENVRI approach

Tuesday 30 October 2018, 13:30-15:30, room C2

Towards integrated *in-situ* ecosystem observations

Monday 29 October 2018, 13:30-17:30, Room C2

Thank you!

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