eosc | Blue-Cloud2026

OpenScience FAIR
27 Sept. 2023 - Madrid

# Virtual Research Environment services for Open Science practices

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Consiglio Nazionale delle Ricerche

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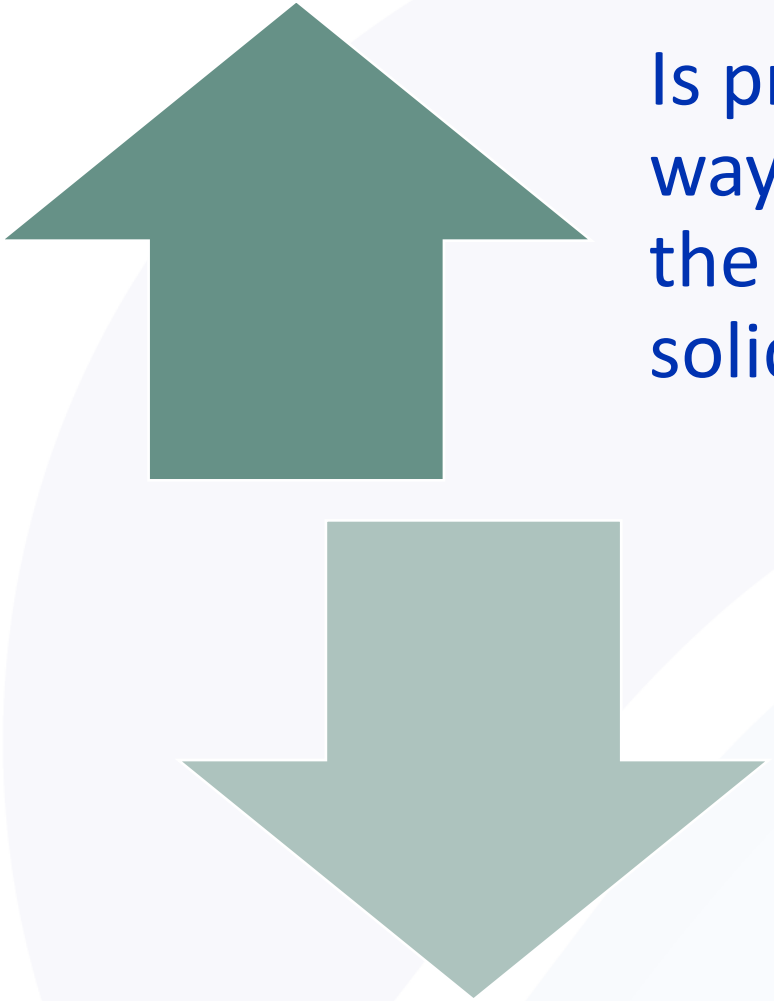
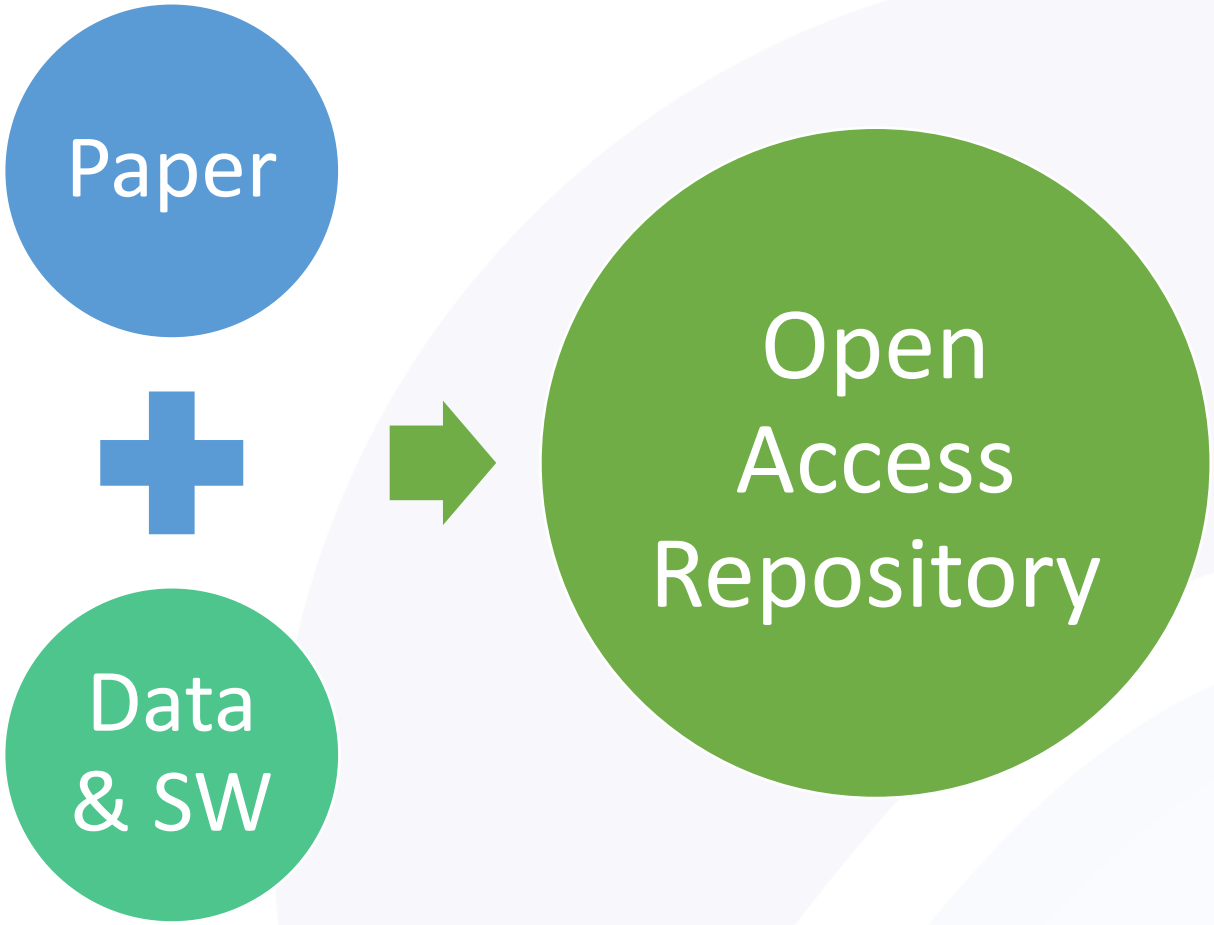
# Open Science movement



Is promising to revolutionise the way science is conducted with the goal to make it more fair, solid and democratic

Destined to remain a wish if not supported by changes in culture, practices and enabling technologies

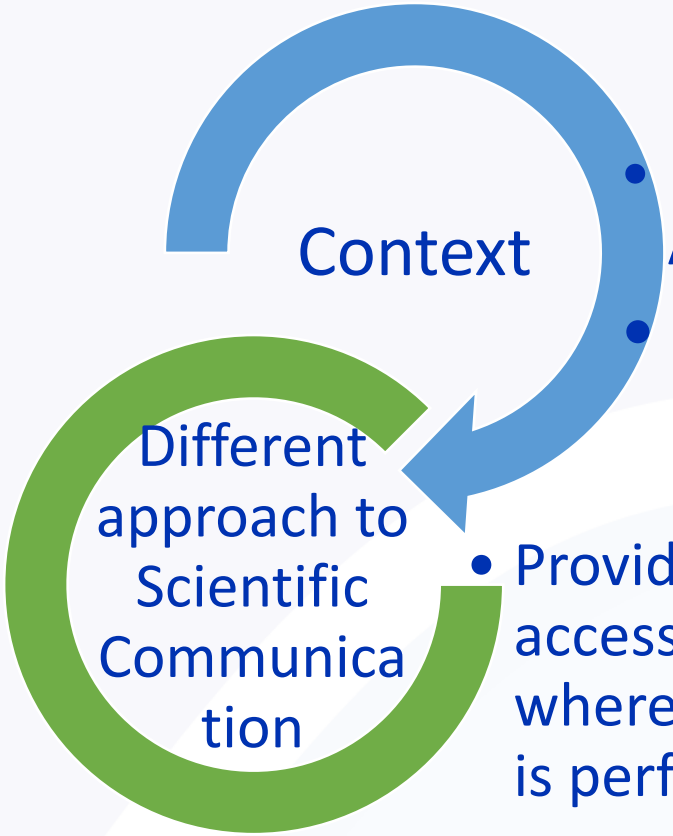
# Open Science practices today: Deposit in OA Repo




external to the “research place”

- Slow and Complex to Collaborate, Reuse and Evaluate Results

# Data Driven and e-infrastructure Research Context

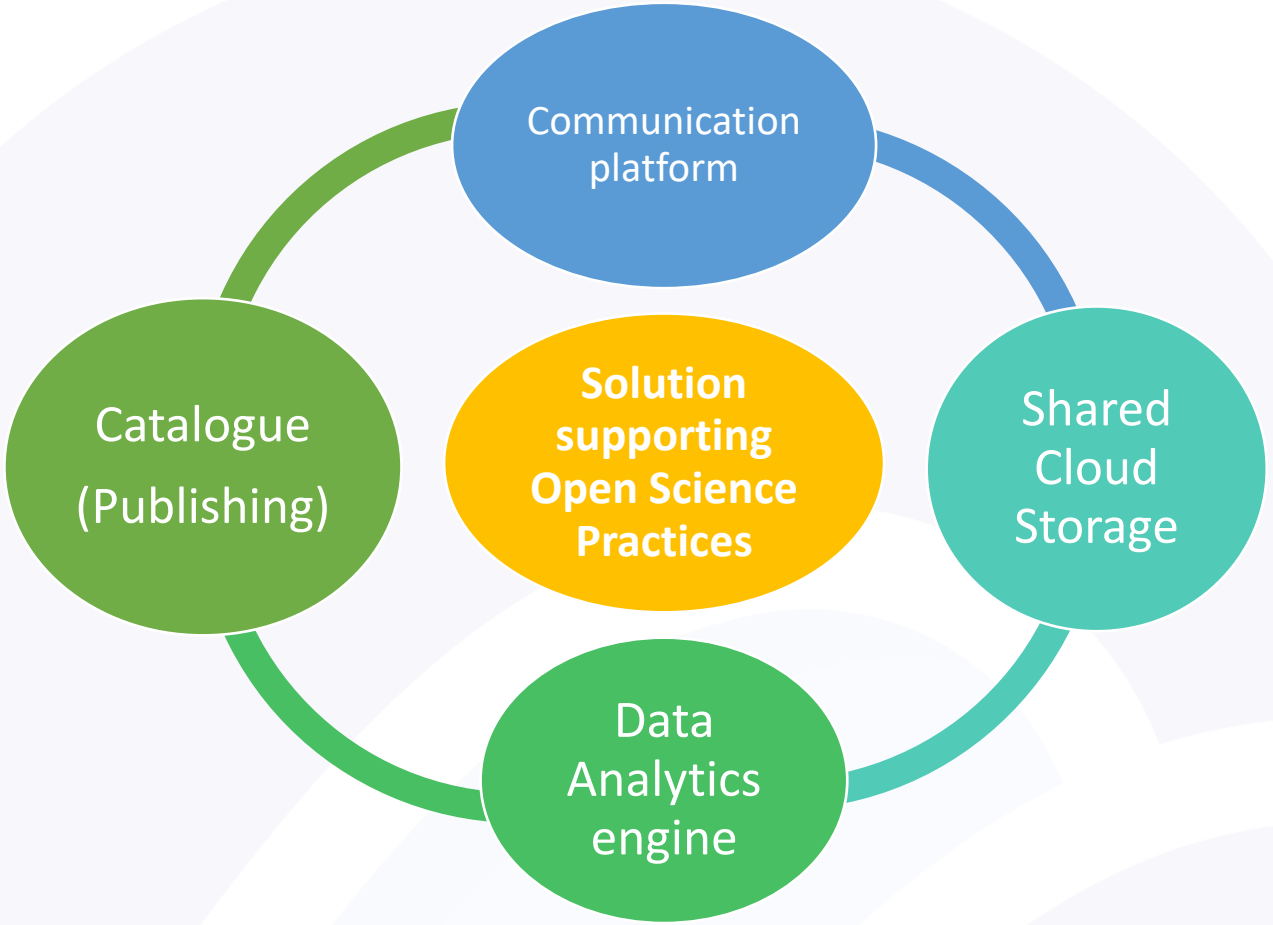



- Data-Driven Scientific Activities
- e-infrastructure

- Providing user with direct access to the “place” where the research activity is performed.

# Paradigm shift: coupling of the "place" where research is performed with the "place" where research is communicated

# The VRE makes it possible to do more, supporting the entire (data-driven) research lifecycle

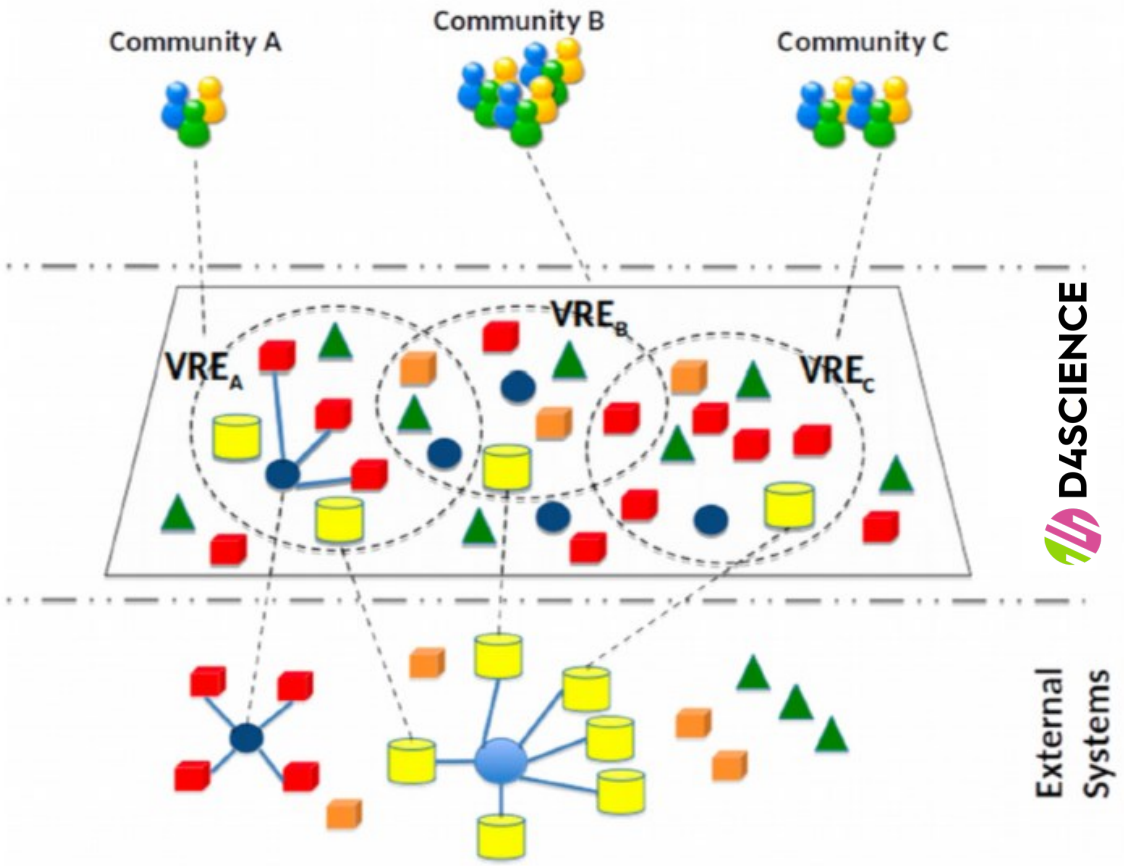



***Enacting open science by D4Science*, M. Assante, … L. Frosini, L. Lelii, *et al.***
**Future Generation Computer Systems**., 101 (2019), pp. 555-563 https://doi.org/10.1016/j.future.2019.05.063

# Blue-Cloud VRE platform based on D4Science Infrastructure

## D4SCIENCE promotes Open Science practices through the operation of a Data Infrastructure service

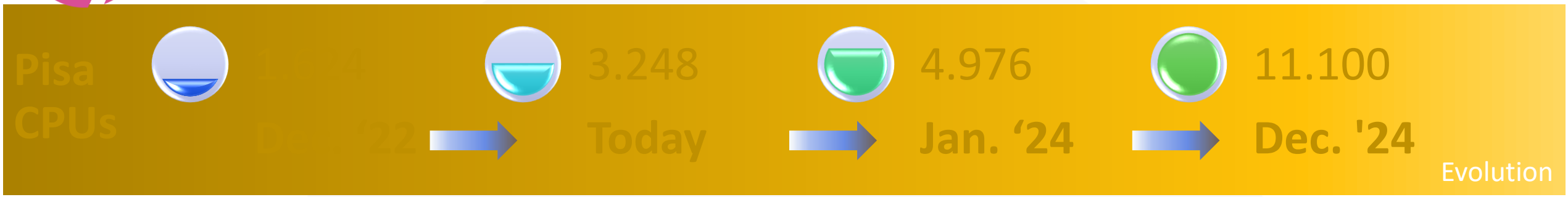
- leverage **external systems** (e.g. data, storage services, computational resources, cloud computing infrastructures)
- by exposing them as a **common unified space of resources**
- to serve **diverse community of researchers**
- via the **provision of tailored services and sharing tools**
- made accessible through a flexible, web-based and on-demand environments called **Virtual Labs**




Assante, M., Candela, L., Castelli, D., Cirillo, R., Coro, G., Frosini, L., Lelii, L., Mangiacrapa,, Pagano, P., Panichi, C., Sinibaldi, F. **Enacting open science by D4Science**. Future Generation Computer Systems (Vol. 101) https://doi.org/10.1016/j.future.2019.05.063

# The Blue-Cloud VRE exploits the D4Science infrastructure

D4SCIENCE



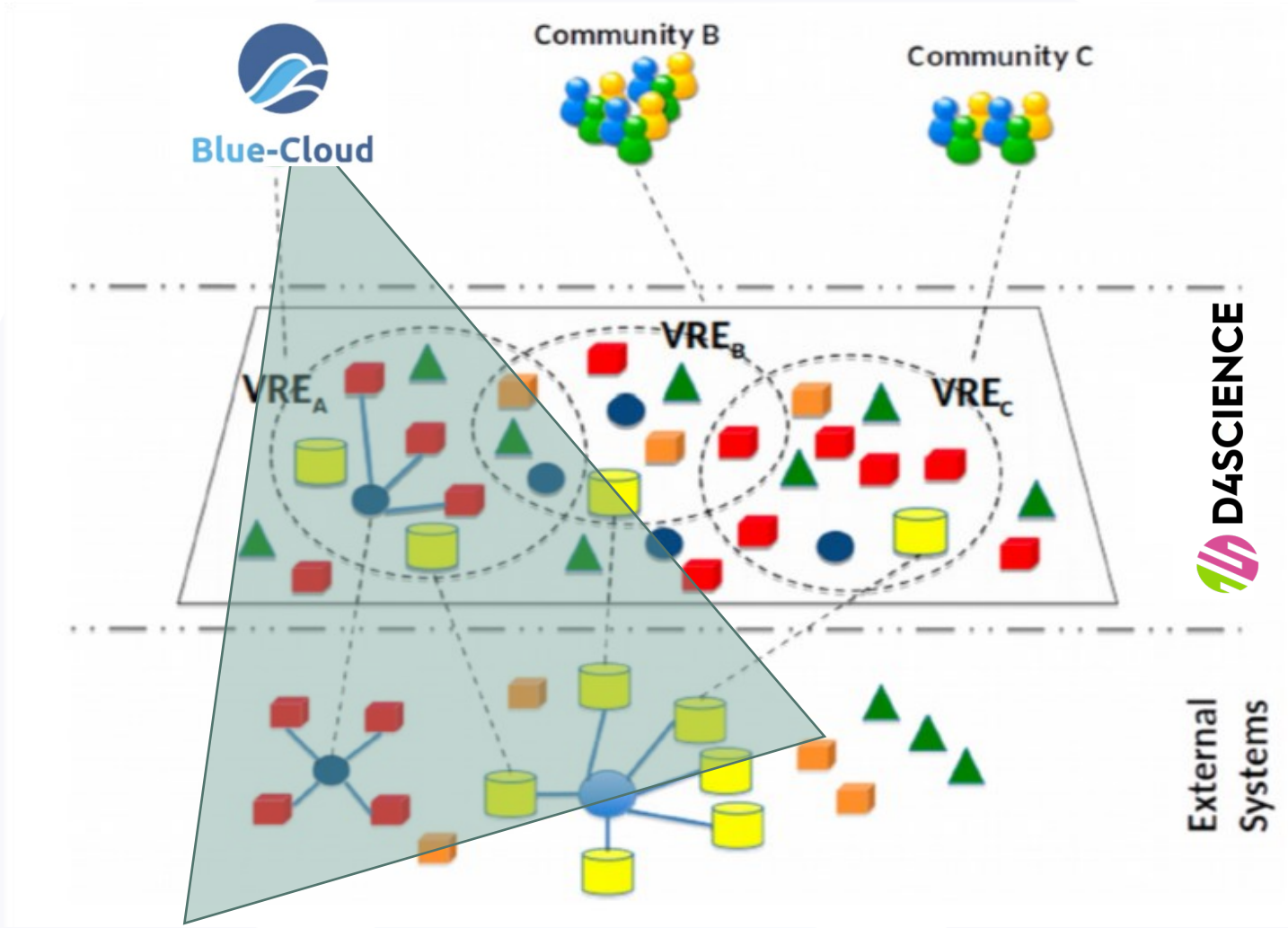

D4Science is a federated digital infrastructure promoting Open Science

- 4 sites (1 Pisa, 3 @ GARR)
- 3590 CPUs core
- 13 TB RAM
- 600 TB Storage

**D4Science is owned and managed by CNR**

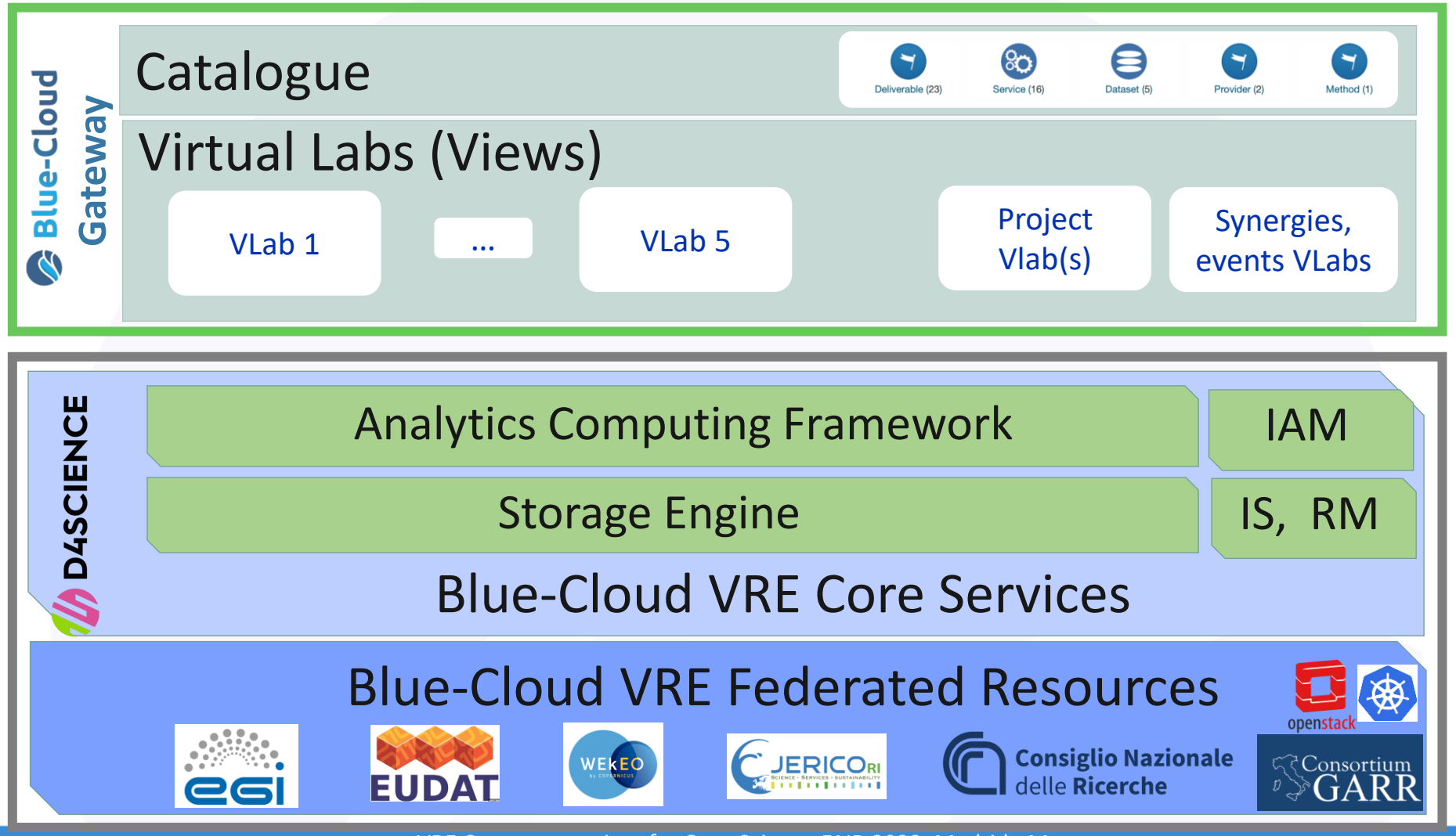
It supports **ESFRI** RIs, national and **European projects**, national and **international initiatives**

# Blue-Cloud VRE on D4Science

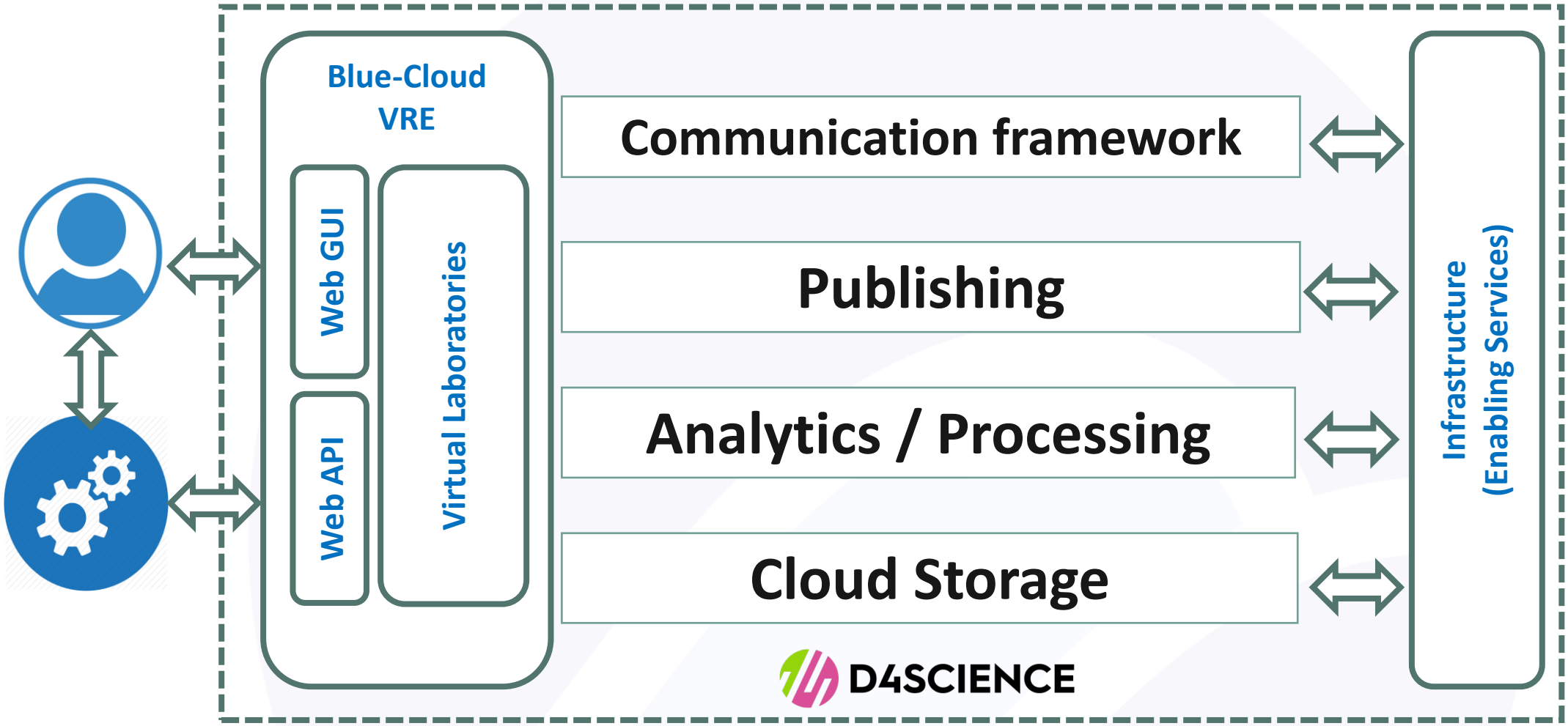


# Blue-Cloud VRE – Logical View Today

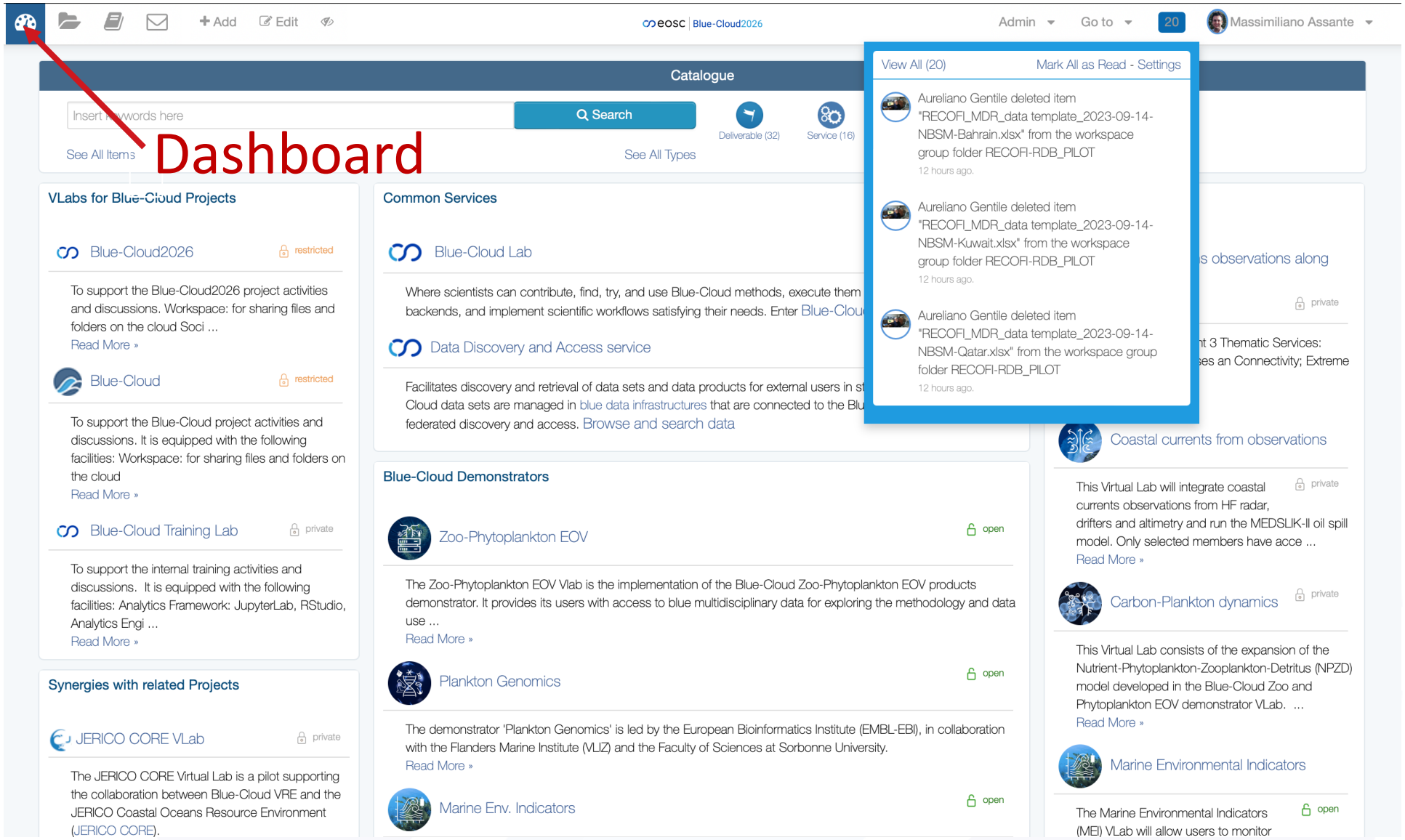
https://blue-cloud.d4science.org

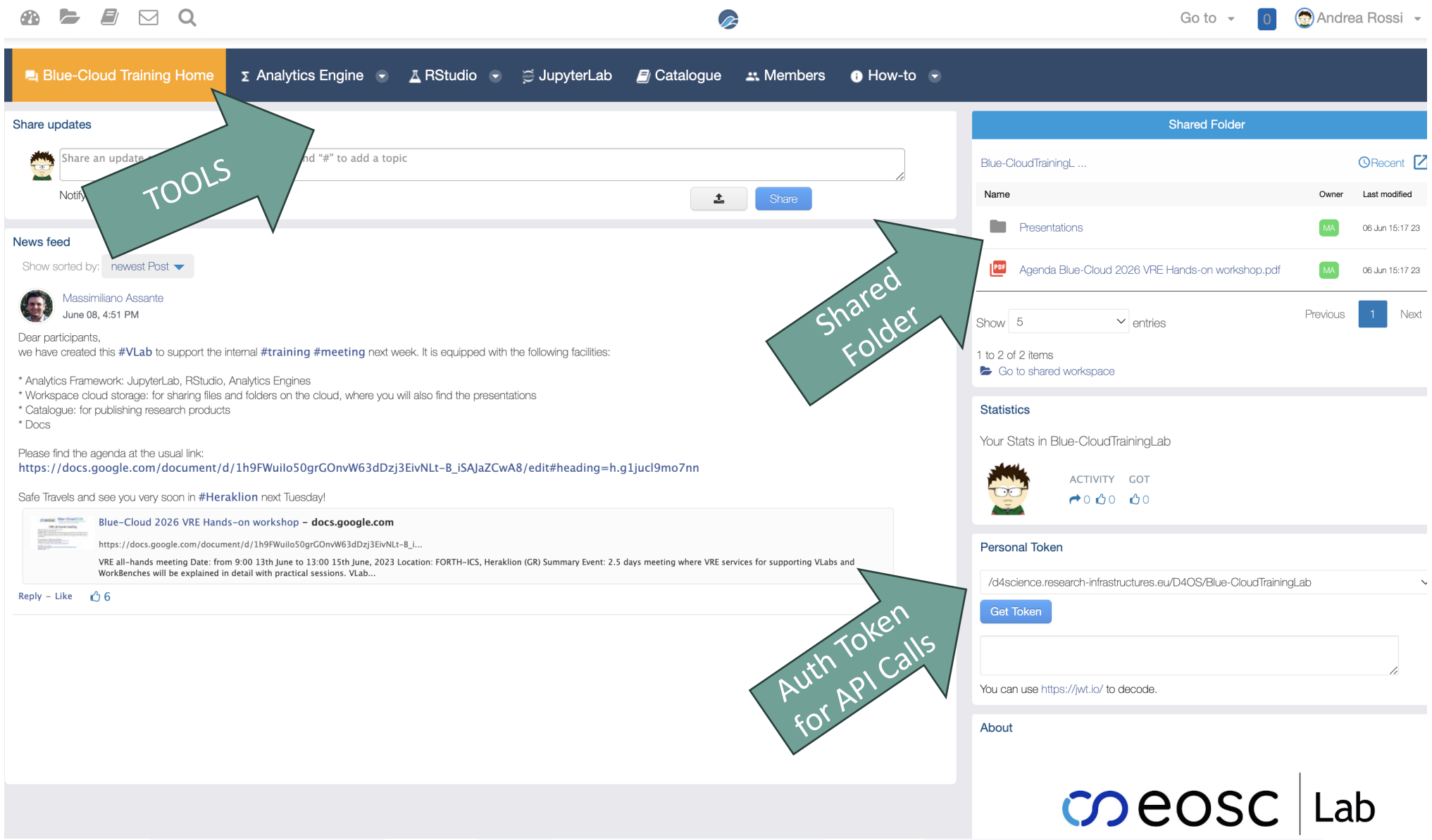


# Blue-Cloud VRE Open Science Services for VLab tools



# Dockbar (always on top) and provide access to a number of Apps

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Andrea Rossi
Blue-Cloud Training Home
Analytics Engine
RStudio
JupyterLab
Catalogue
Members
How-to
Share updates
Share an update
Share
TOOLS
News feed
Show sorted by: newest Post
Massimiliano Assante
June 08, 4:51 PM
Dear participants,
we have created this #VLab to support the internal #training #meeting next week. It is equipped with the following facilities:
* Analytics Framework: JupyterLab, RStudio, Analytics Engines
* Workspace cloud storage: for sharing files and folders on the cloud, where you will also find the presentations
* Catalogue: for publishing research products
* Docs
Please find the agenda at the usual link:
https://docs.google.com/document/d/1h9FWuiIo50grGOnvW63dDzj3EivNLt-B_iSAJaZCwA8/edit#heading=h.g1jucl9mo7nn
Safe Travels and see you very soon in #Heraklion next Tuesday!
Blue-Cloud 2026 VRE Hands-on workshop - docs.google.com
https://docs.google.com/document/d/1h9FWuiIo50grGOnvW63dDzj3EivNLt-B_i...
VRE all-hands meeting Date: from 9:00 13th June to 13:00 15th June, 2023 Location: FORTH-ICS, Heraklion (GR) Summary Event: 2.5 days meeting where VRE services for supporting VLabs and WorkBenches will be explained in detail with practical sessions. VLab...
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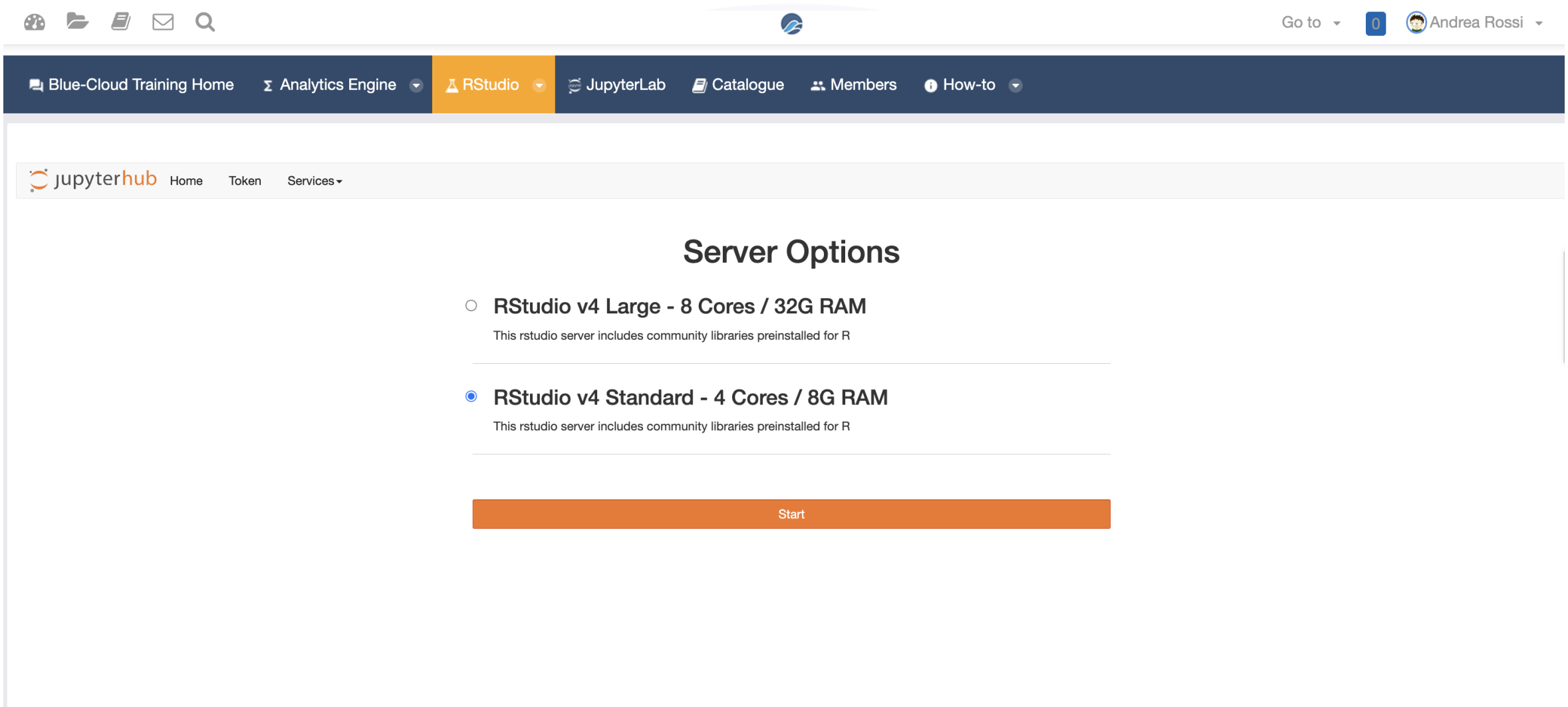
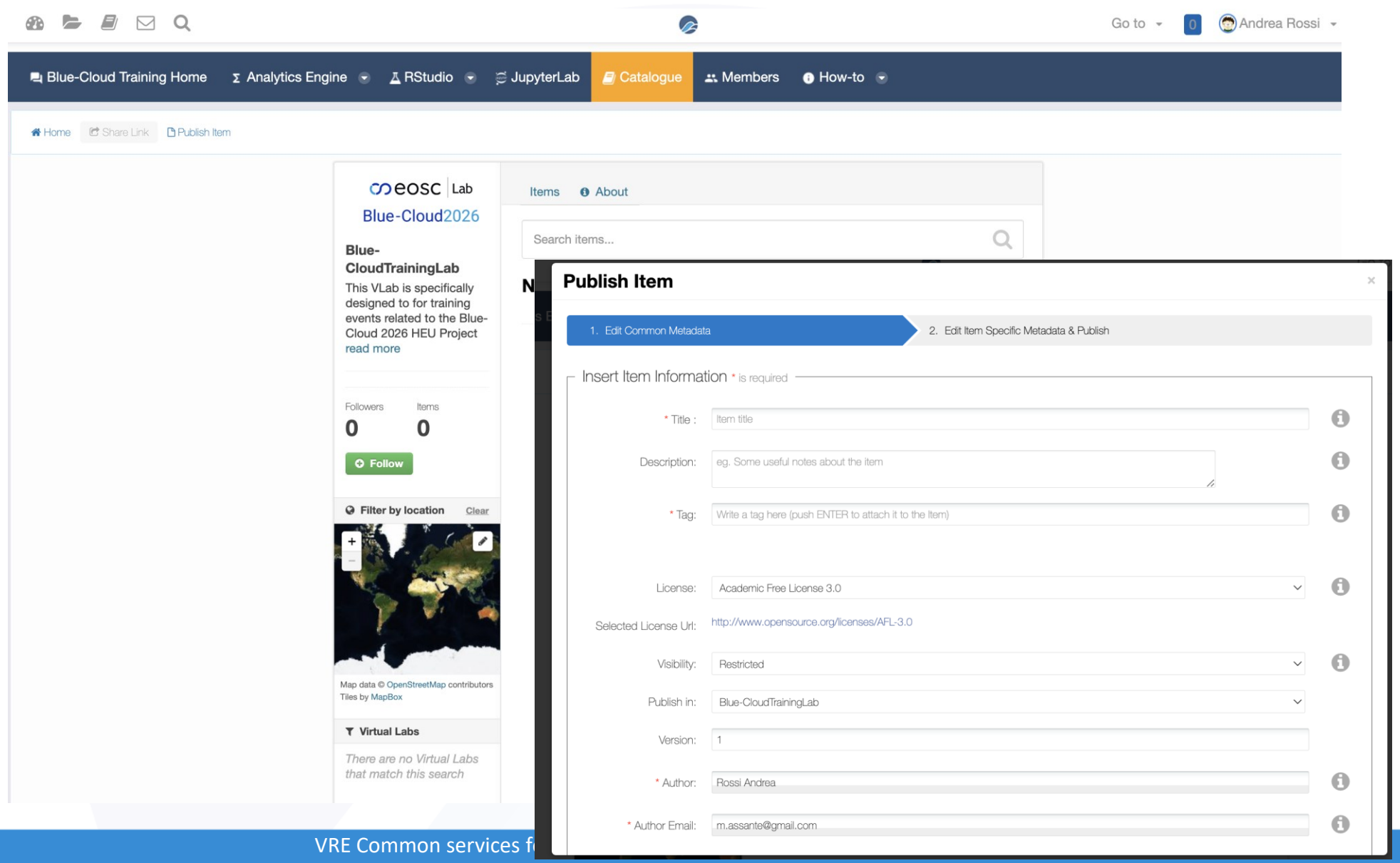
ACTIVITY GOT
0 0 0
Personal Token
/d4science.research-infrastructures.eu/D4OS/Blue-CloudTrainingLab
Get Token
You can use https://jwt.io/ to decode.
Auth Token for API Calls
About

eosc | Lab

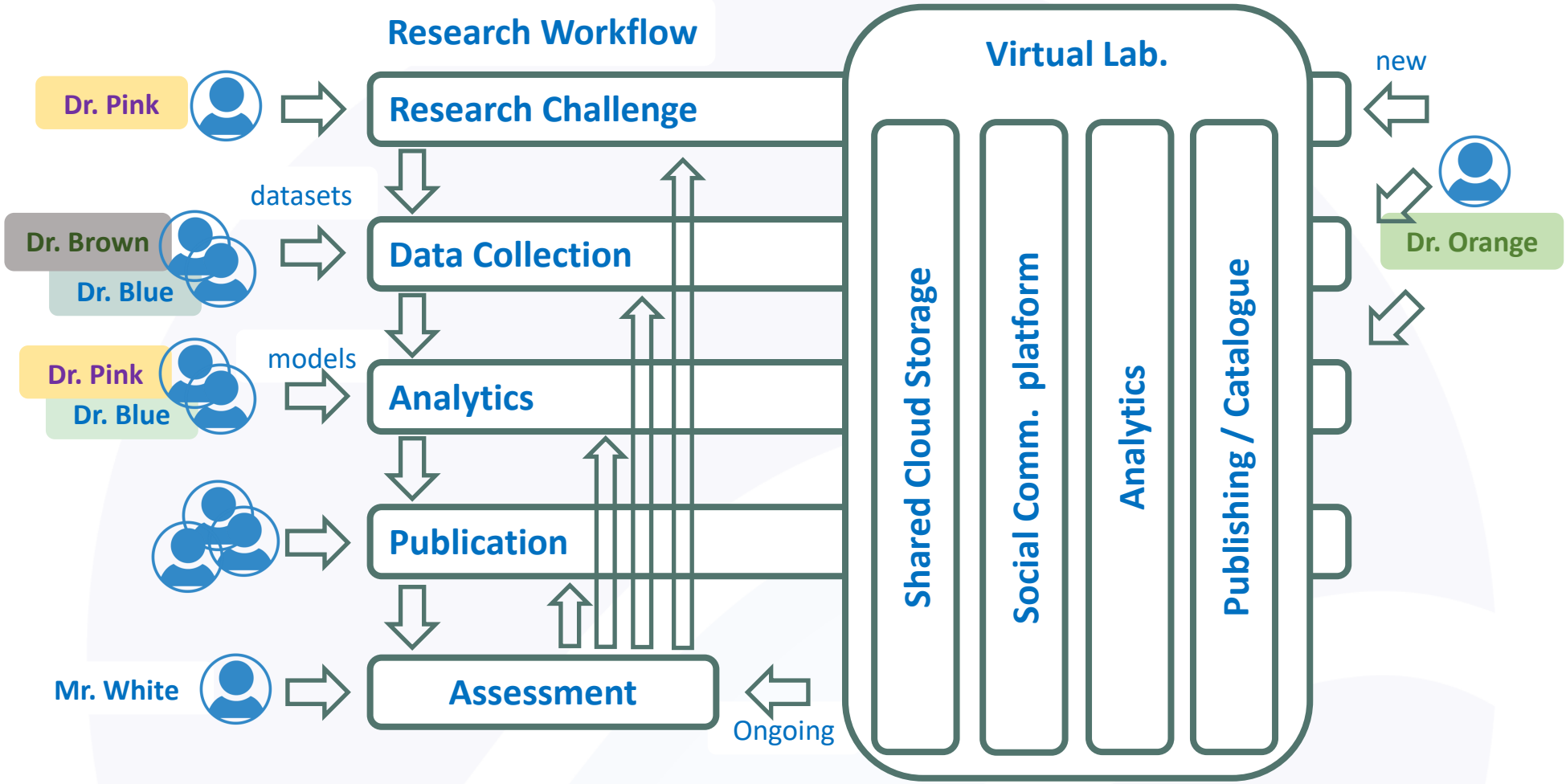
# Blue-Cloud Training Lab – RStudio V. 4.2.3



# Blue-Cloud Training Lab – Catalogue



# A prototypical and simplified scientific workflow enacte




All of this happens well before their paper is published!

# How does the proposed solution supports Open Science?

Improves transparency and ways of disseminating knowledge;

makes the “publishing” act an easy, comprehensive, lossless and holistic task where owners retain the control of and credit;

Uses digital technologies and collaborative tools;

Enables *re-usability of research outputs*
(we are “publishing” the Virtual Lab used in the scientific process.)

# THANK YOU

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