ESCAPE - Connecting ESFRI to EOSC

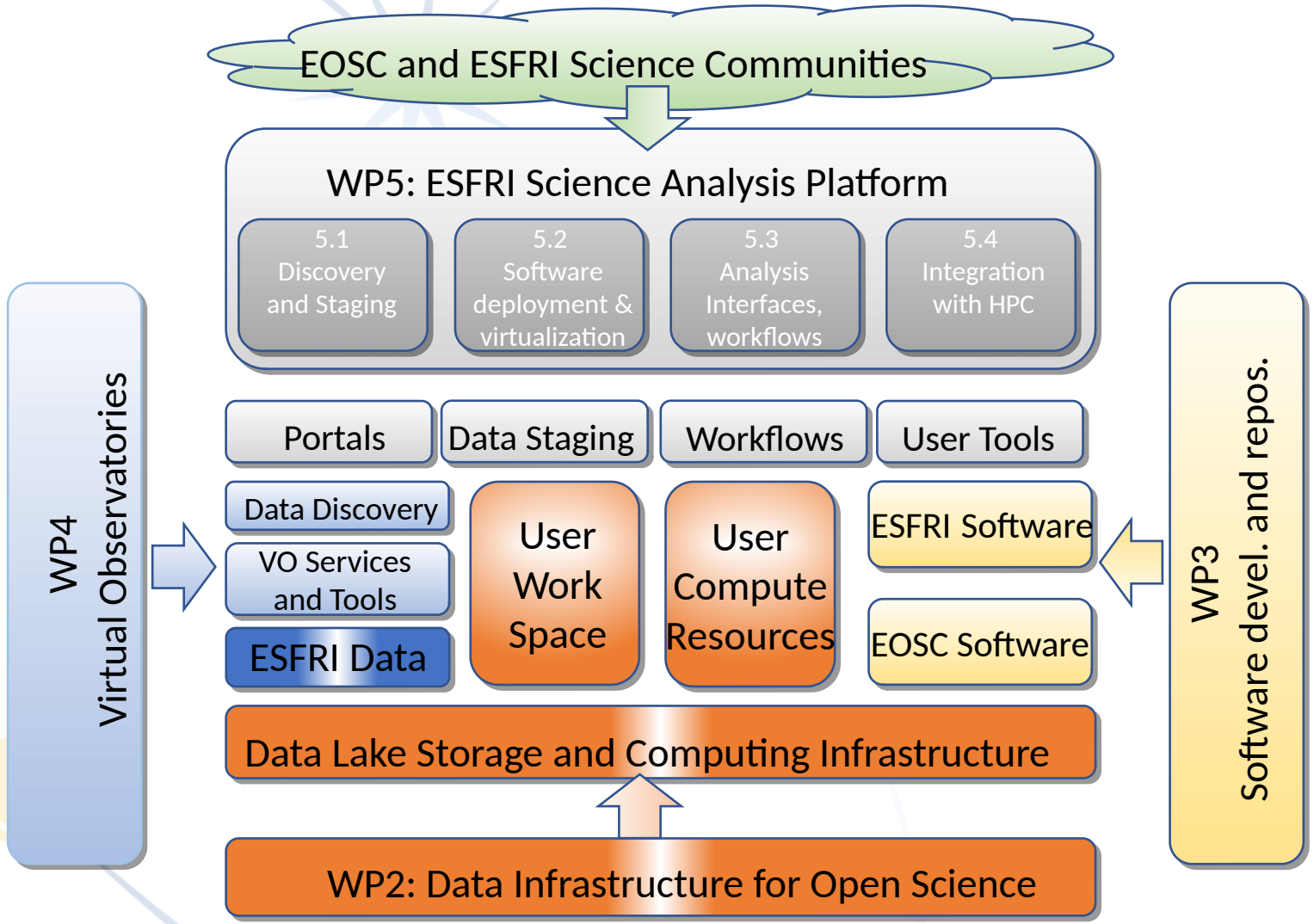
Marco Molinaro – INAF

EOSC Services, Collaborations and RDA

RDA Plenary 14 co-located event, 21 October – Helsinki

ESCAPE - The European Science Cluster of Astronomy & Particle Physics ESFRI Research Infrastructures has received funding from the European Union's Horizon 2020 research and innovation programme under the Grant Agreement n° 824064.

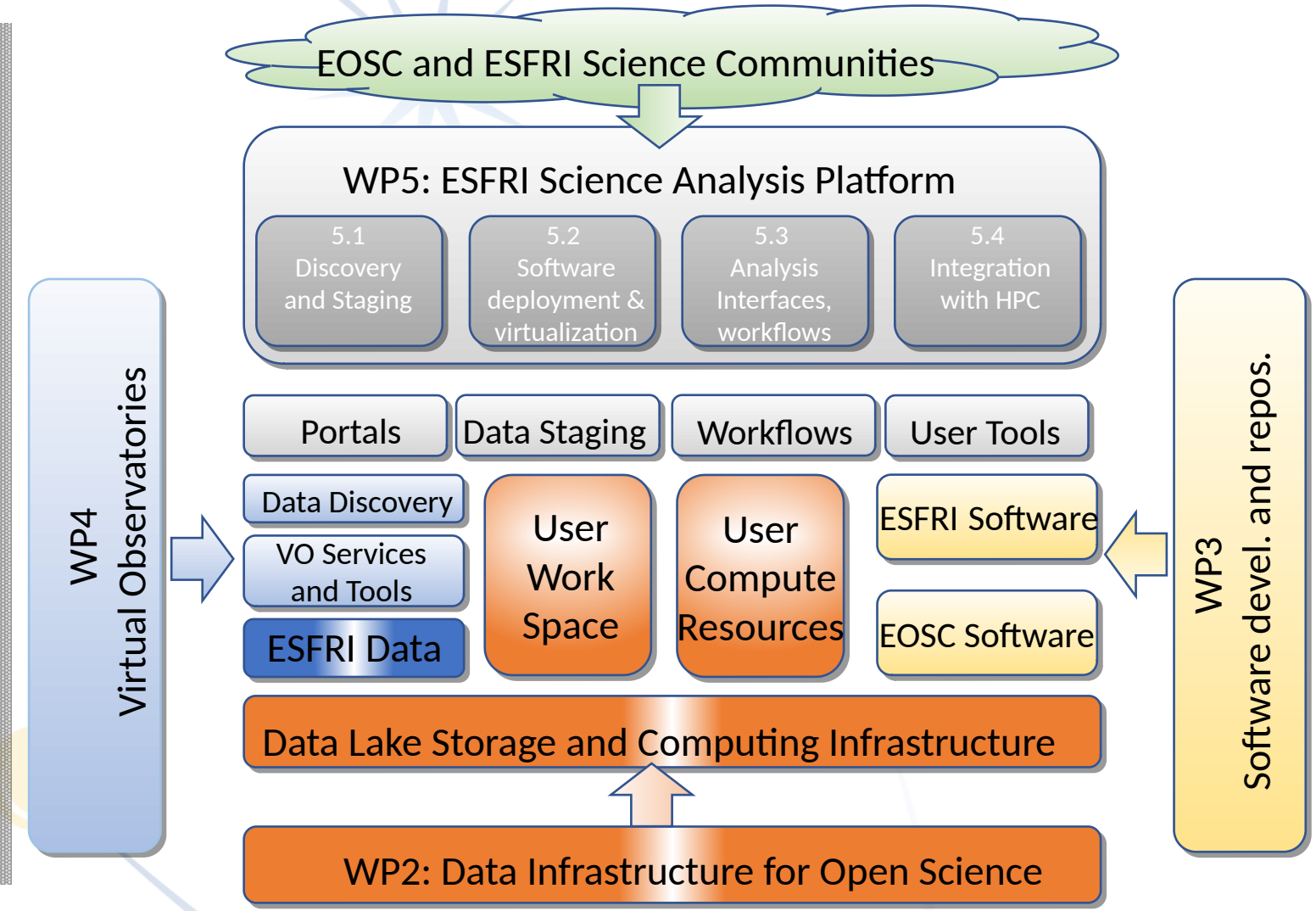
The European Science Cluster of Astronomy & Particle Physics ESFRI Research Infrastructures



Funded by the European Union's Horizon 2020 - Grant N° 824064

The European Science Cluster of Astronomy & Particle Physics ESFRI Research Infrastructures

- Multi Messenger Astronomy
  - Radio
    - SKA (Scare Kilometre Array)
    - JIVE VLBI (Very large Baseline Instrument)
  - Visible Light
    - European Extreme Large Telescope (ELT)
    - European Solar Telescope (EST)
  - Gamma Rays
    - CTA
  - Cosmic Rays: Neutrinos
    - KM3Net
  - Gravitational Waves
    - EGO-VIRGO
- High Energy Physics
  - HL-LHC
    - High Energy Particle
  - FAIR
    - High-density exotic matter physics



Funded by the European Union's Horizon 2020 - Grant N° 824064

International Virtual Observatory Alliance

Gathering and coordinating the **European contributions** to the Virtual Observatory (see also next slide).

Supporting the actors with community actions:

➔ **Data Providers, VO developers, Science Users.**

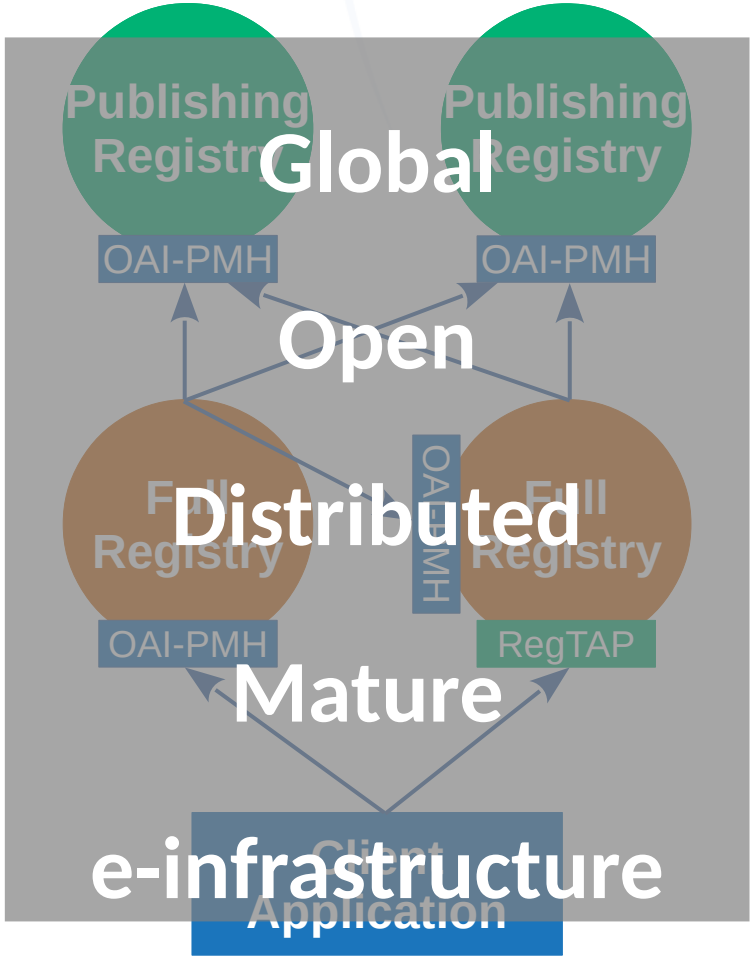
Continuing impact for “all-sky” astronomy.

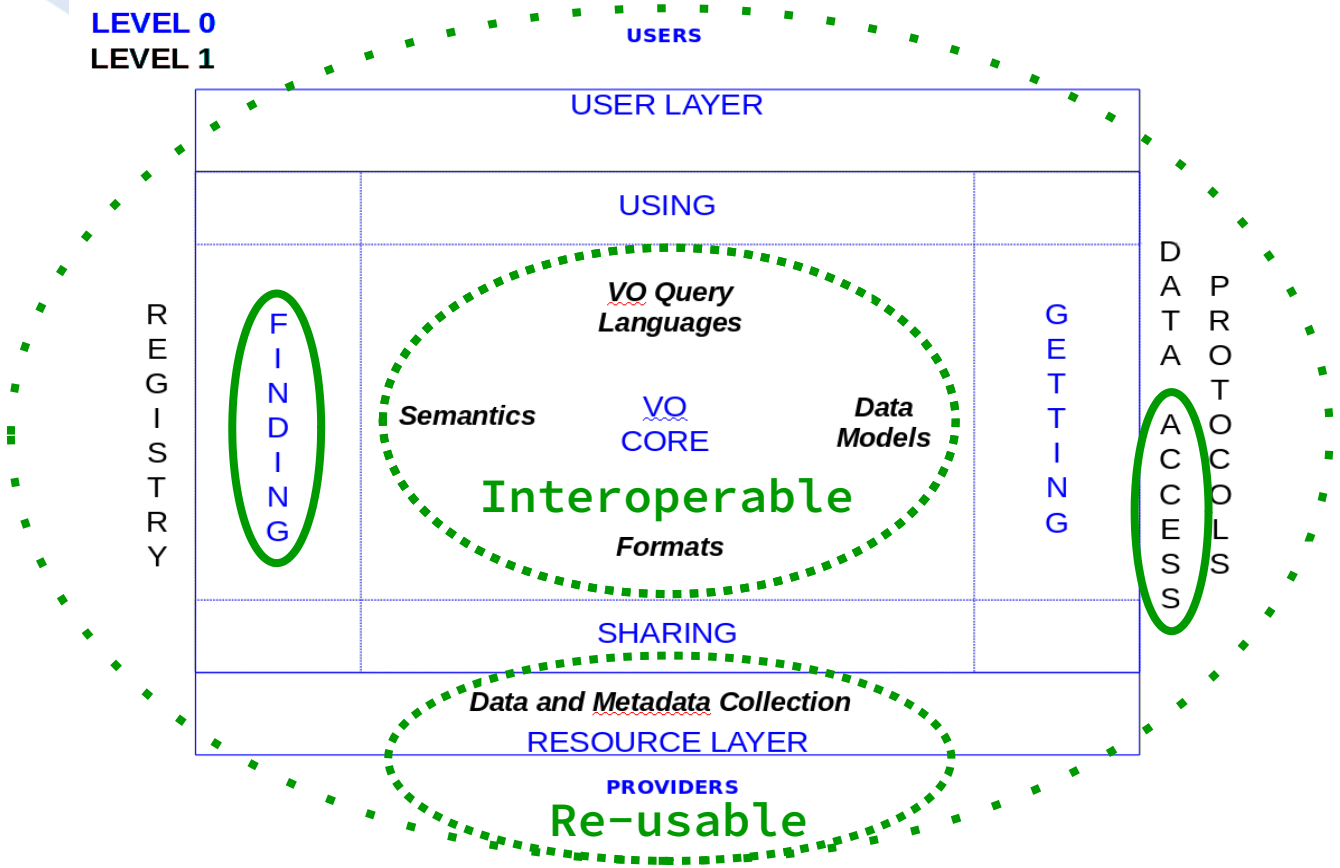
The Virtual Observatory (VO) is the vision that **astronomical datasets and other resources should work as a seamless whole.**

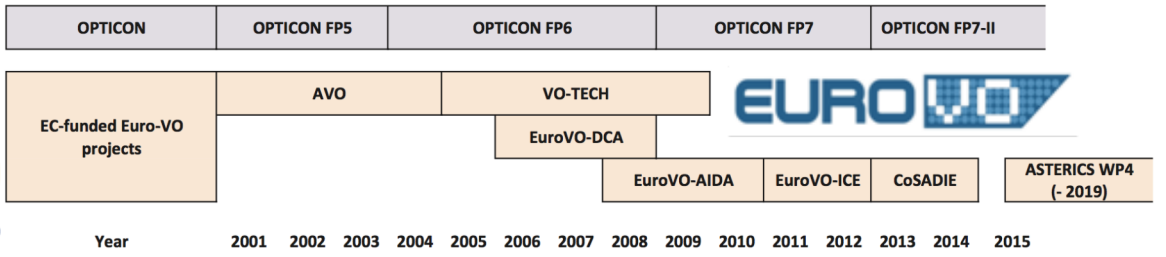
The IVOA is an **organisation that debates and agrees the technical standards** that are needed to make the VO possible.

Funded by the European Union’s Horizon 2020 - Grant N° 824064

IVOA FAIR Architecture





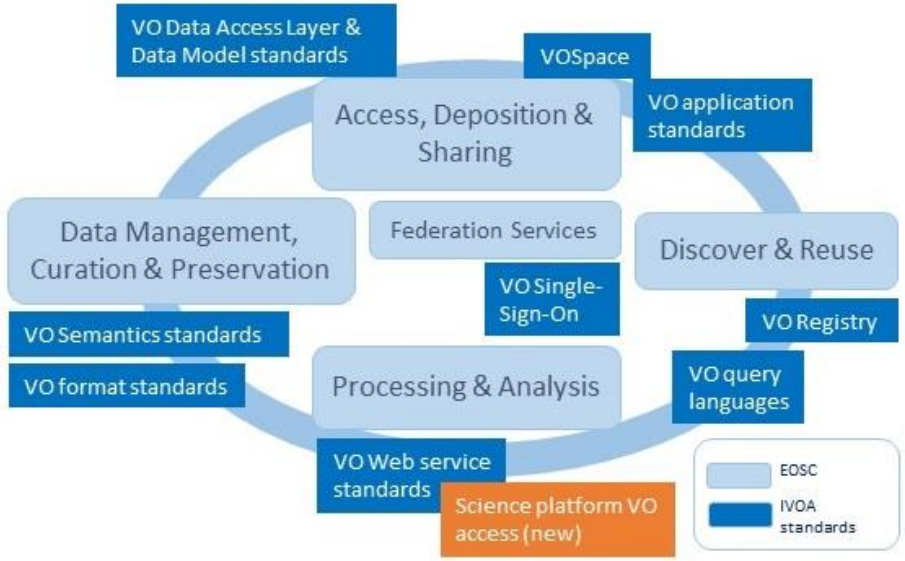


Genova et al. 2015

Funded by the European Union's Horizon 2020 - Grant N° 824064

Connecting ESFRI projects to EOSC through VO framework
CEVO (WP4)

- Connect the ESFRI and other astronomy RI to the EOSC through the VO framework
- Refine and further implement FAIR principles for astronomy data through common standards for interoperability
- Establish data stewardship practices to add value to the scientific content of ESFRI data archives



Funded by the European Union's Horizon 2020 - Grant N° 824064

Storage, computing, applications…

- WP2 DIOS
  - Contribute to the **federation of global EOSC resources** through an implementation of the Data-Lake concept to **manage extremely large volumes of data** up to the multi-exabyte scale
- WP3 OSSR
  - **Support for "scientific software"** as a major component of the ESFR-RI “data” to be stored and displayed **in EOSC** via dedicated **community-based catalogues**
- WP5 ESAP
  - Implementation of **scientific analysis platforms enabling EOSC researchers** to organize data collections, analyse them, access ESFRI's software tools, and provide their own customized workflows

Funded by the European Union’s Horizon 2020 - Grant N° 824064

Storage, computing, applications…

- WP2 DIOS
  - Contribute to the **federation of global EOSC resources** through an implementation of the Data-Lake concept to **manage extremely large volumes of data** up to the multi-exabyte scale
- WP3 OSSR
  - **Support for "scientific software"** as a major component of the ESFR-RI “data” to be stored and displayed **in EOSC** via dedicated **community-based catalogues**
- WP5 ESAP
  - Implementation of **scientific analysis platforms enabling EOSC researchers** to organize data collections, analyse them, access ESFRI's software tools, and provide their own customized workflows

Interoperability of these goals connected to CEVO activities!

Funded by the European Union’s Horizon 2020 - Grant N° 824064