



Academic Computer Centre
CYFRONET AGH

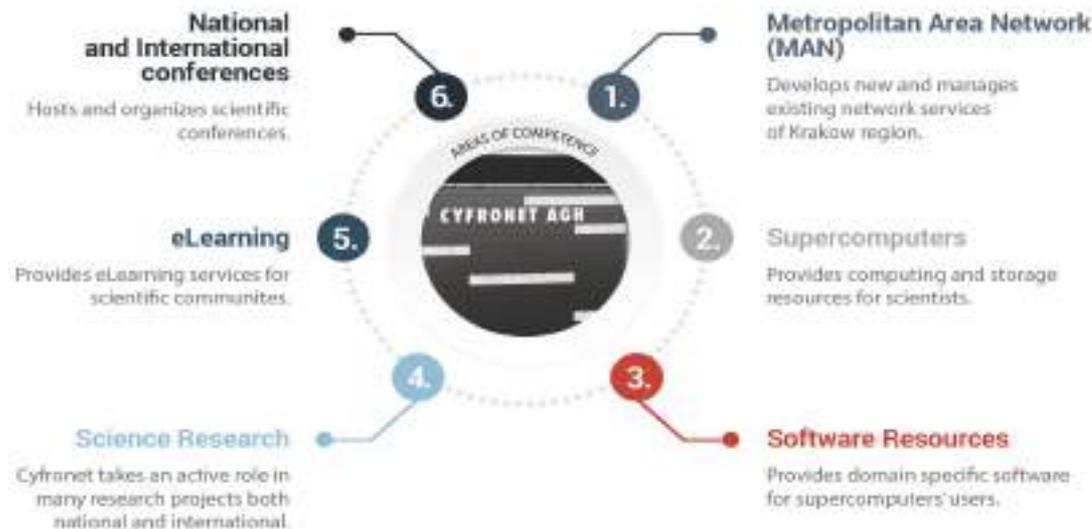


Roksana Wilk, ACC Cyfronet AGH

Head of Data Processing Laboratory, Cyfronet's EOSC and Open Science affairs rep

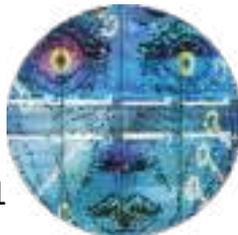
Skills and competences in Open Science

- The largest Polish Academic Computer Centre
 - 50 years of experience in IT provision
 - Centre of excellence in HPC, Grid and Cloud Computing
 - Home for Athena, Ares and Prometheus supercomputers
 - LUMI consortium partner (EuroHPC pre-exascale supercomputer #3 on TOP500)
- Legal status: an autonomous within AGH University of Science and Technology
- Staff: 180+ , ca. 80 in R&D
- Leader of PLGrid: Polish Grid and Cloud Infrastructure for Science
- NGI Coordination in EGI e-Infrastructure



Prometheus

- 2.40 PFLOPS
- 53 568 cores
- From 2015 to 2021 1st HPC system in Poland (475th on Top 500, 38th in 2015)



Athena

- 7.71 PFLOPS
- 384 A100 GPGPUs
- 1st HPC system in Poland (since 2022, 105th on Top500)
- 9th on Green500



Ares

- 4.00 PFLOPS
- 38 112 cores
- 290th on Top 500



Computing portals and frameworks

- OneData
- PLG-Data
- Rimrock
- InSilicoLab

ONE DATA

in silico
LAB

rimrock

Storage

- 60+ PB
- hierarchical data management



Data Centres

- 3 independent data centres
- dedicated backbone links

Computational Cloud

- based on OpenStack

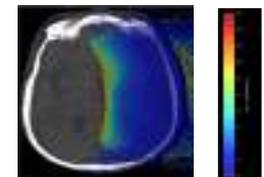
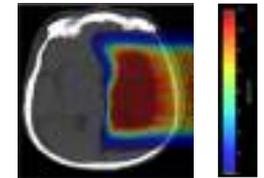
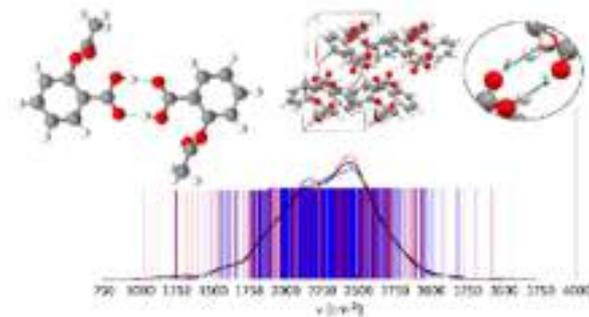
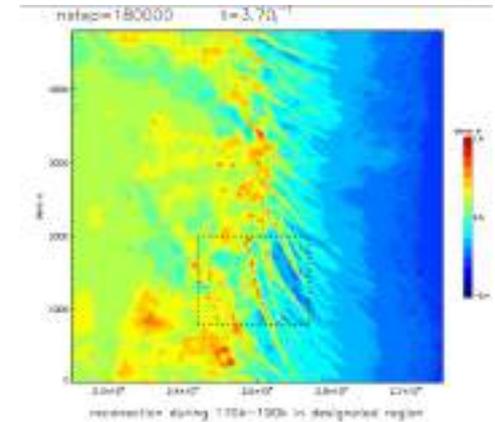


Research & Development

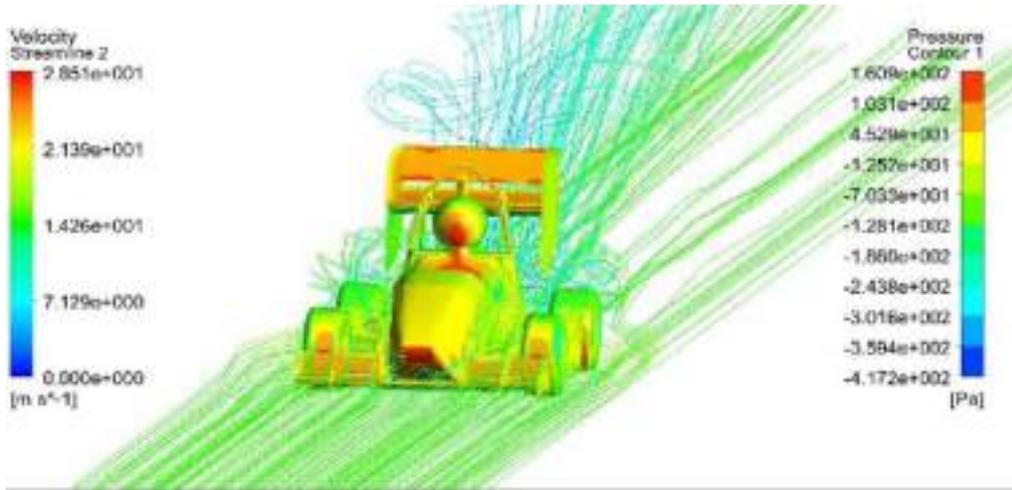
- distributed computing environments
- computing acceleration
- machine learning
- software development & optimization



- **Astrophysics: users' own code**
 - Particle in Cell written in Fortran
 - Production runs - 9600 cores
 - One run up to 460 800 h CPU time – 53 years
- **Chemistry: CPMD, CP2k, Jaguar, Gaussian**
 - Importance of hydrogen bonds in biomolecules
 - Jobs: 24-240 cores
 - Hundreds of thousands of jobs with walltime < 1 h
 - Efficient usage resources through backfill
- **Biophysics: Proton therapy**
 - Monte Carlo simulations of a proton beam
 - Monte-Carlo based treatment planning
 - Jobs:
 - thousands of jobs with MC simulations (hours on hundreds of nodes)
 - Interactive large data processing with Jupyter notebooks



● AGH Racing – Formula Student



● AGH Solarboat – Solar Sport One and Monaco Solar & Energy Boat Challenge



Open Publications

SKILLS & EXPERIENCE

Welcome to the PLGrid portal!

At this point you can prepare to use the PLGrid infrastructure - create affiliation, apply for a service or a grant. We encourage you to use [PLGrid user manual](#). If it is necessary to contact Infrastructure employees, we recommend creating message in the system [Helpdesk PLGrid](#).

The most important functionalities



Affiliation

The PLGrid infrastructure provides resources to people associated with Polish science. Enter the scientific unit under which you conduct the research. Then select whether you are an employee or if you work with some of employees (e.g. as a student or a PhD student).



Services

To be able to use the resources, select the services that interest you (big data, storage, cloud computing, social tools), ways to access them and additional services, which will improve the use of the Infrastructure.



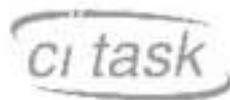
Teams

In order to request a proper grant, create a team that reflects the research group with which you want to share the grant. The team can be one person team.



Grants

The use of resources takes place within grants - contracts for the use of resources, defining the parameters of the resources made available. Apply for a grant, provide the research topics and technical parameters of the grant.



-  Affiliation
-  Services
-  Teams
-  Certificates
-  Projects
-  **Grants**
-  Proper grants
-  LUMI projects
-  Technical grants
-  Test grants
-  Publications
-  Reports
-  Messages
-  Profile

GRANT GENERAL 1/4

The main settings of the grant

Grant is a continuation *

YES NO

Selected preceding grant

GRANT ID	plggsat4envi2021
TEAM	plggsat4envi
START	13-01-2021
END	12-01-2022
GRANT STATUS	Expired

Grant duration

Start date * (Start date of the grant)

End date * (End date of the grant)

- 1. GENERAL
- 2. RESOURCES
- 3. PUBLICATIONS
- 4. SUMMARY

 Chat with grant support

No new messages

Details

All changes have been saved

GRANT
plgsat4envi2022

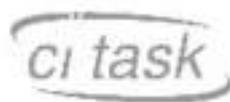
TEAM
plggsat4envi

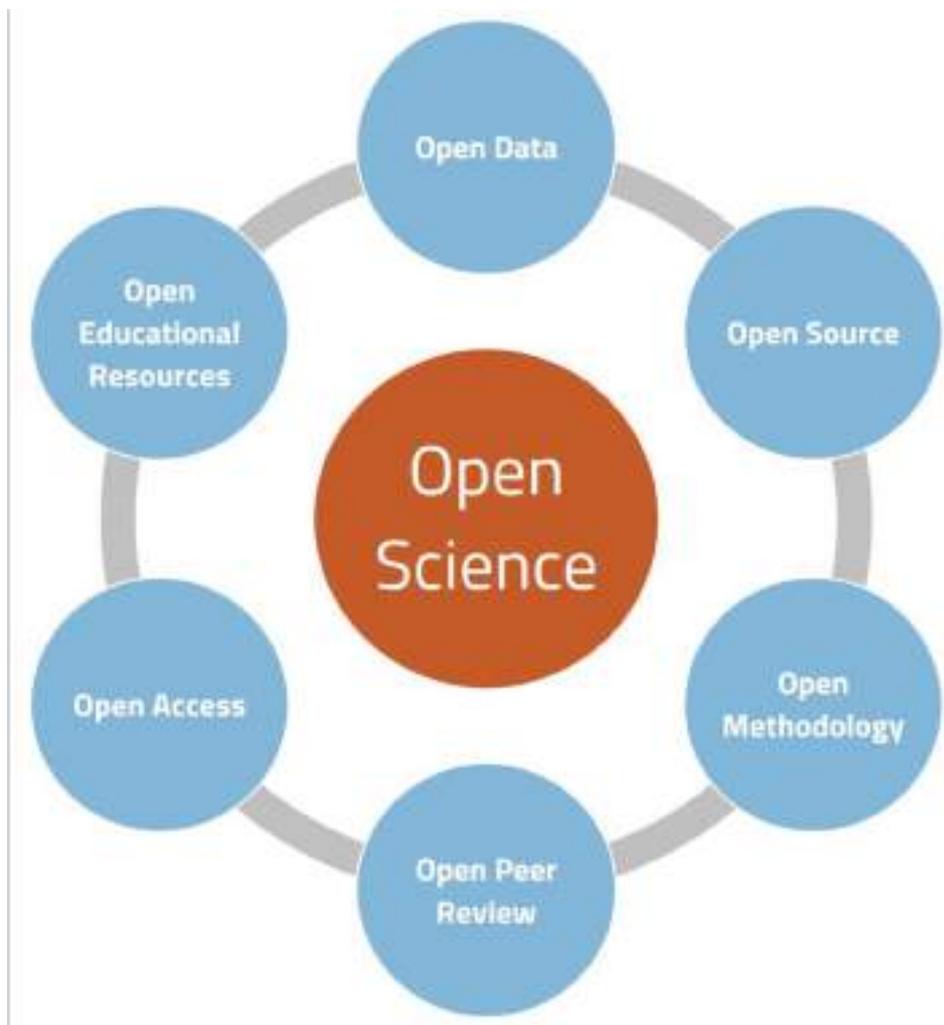
AFFILIATION
Państwowy Instytut Badawczy, Instytut Meteorologii i Gospodarki Wodnej

GRANT CATEGORY
Medium

STATUS
Accepted

DOCUMENT ON THE SIDE
PLGrid User





WHO ARE YOU?
I AM A...

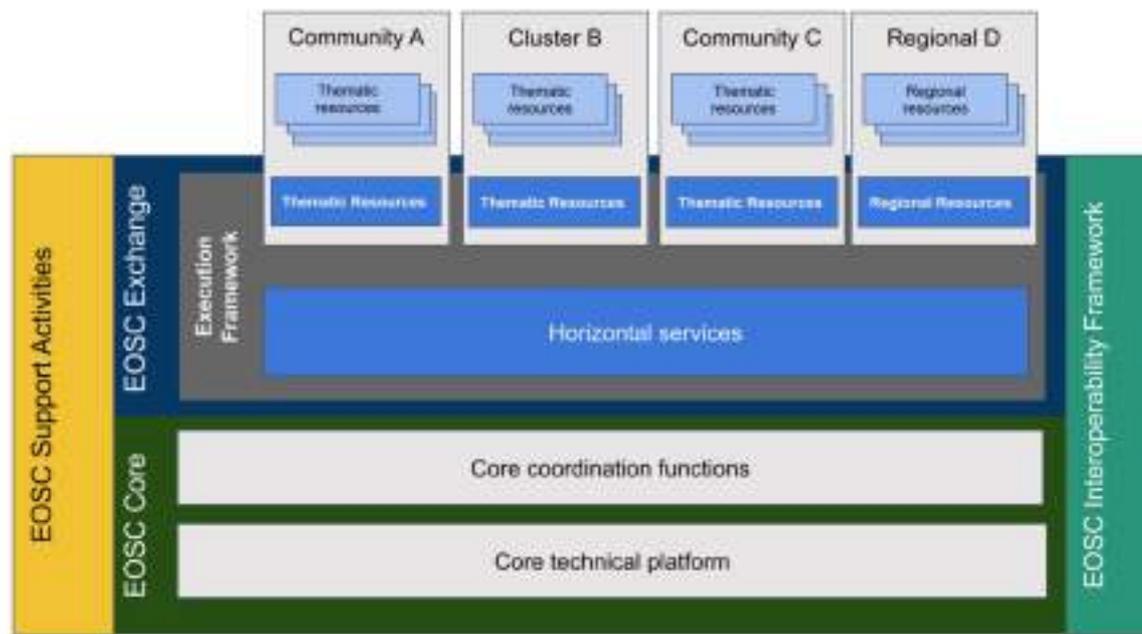


Citizen
Science/Educators

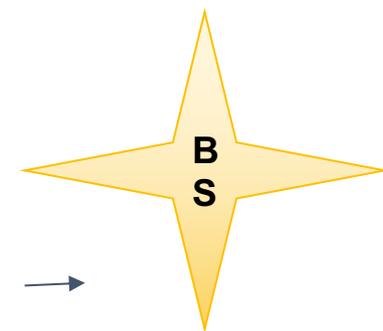
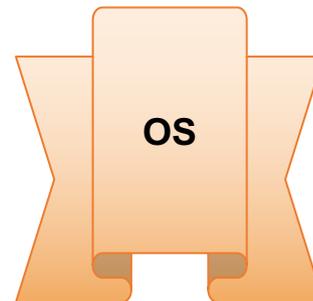




- Supporting tools →
- Features and operation ->
- **Knowledge and skills**



- Supporting tools →
- Features and operation →
- **Knowledge and skills**





e-Infrastructures

Ex: EUDAT, EG, national e-infrastructures (e.g. national research clouds), OpenAIRE, PRACE, FENIX, OHSuicide

- ✓ Software & other research products
- ✓ Storage
- ✓ Computing
- ✓ Services
- ✓ Training



Research Infrastructures

Ex: ERCO, ESFRU, EPODnet, Capemixis, DIAS (Data and Information Access Services), clusters

- ✓ Software & other research products
- ✓ Storage
- ✓ Datasets
- ✓ Computing
- ✓ Services
- ✓ Training



Higher Education Institutes (HEIs)

- ✓ Software & other research products
- ✓ Publications
- ✓ Services
- ✓ Storage
- ✓ Datasets



Research Institutes

Ex: Research performing organisations, universities, research centres

- ✓ Software & other research products
- ✓ Publications
- ✓ Datasets



Archives & Repositories

Ex: Institutional thematic and national repositories, archives and aggregators

- ✓ Software & other research products
- ✓ Datasets
- ✓ Publications



Computing & Data Centers

Ex: BCL, CSC, PSYC, CERN

- ✓ Software & other research products
- ✓ Storage
- ✓ Computing
- ✓ Services
- ✓ Training



Publishers & Journals

- ✓ Publications



Libraries

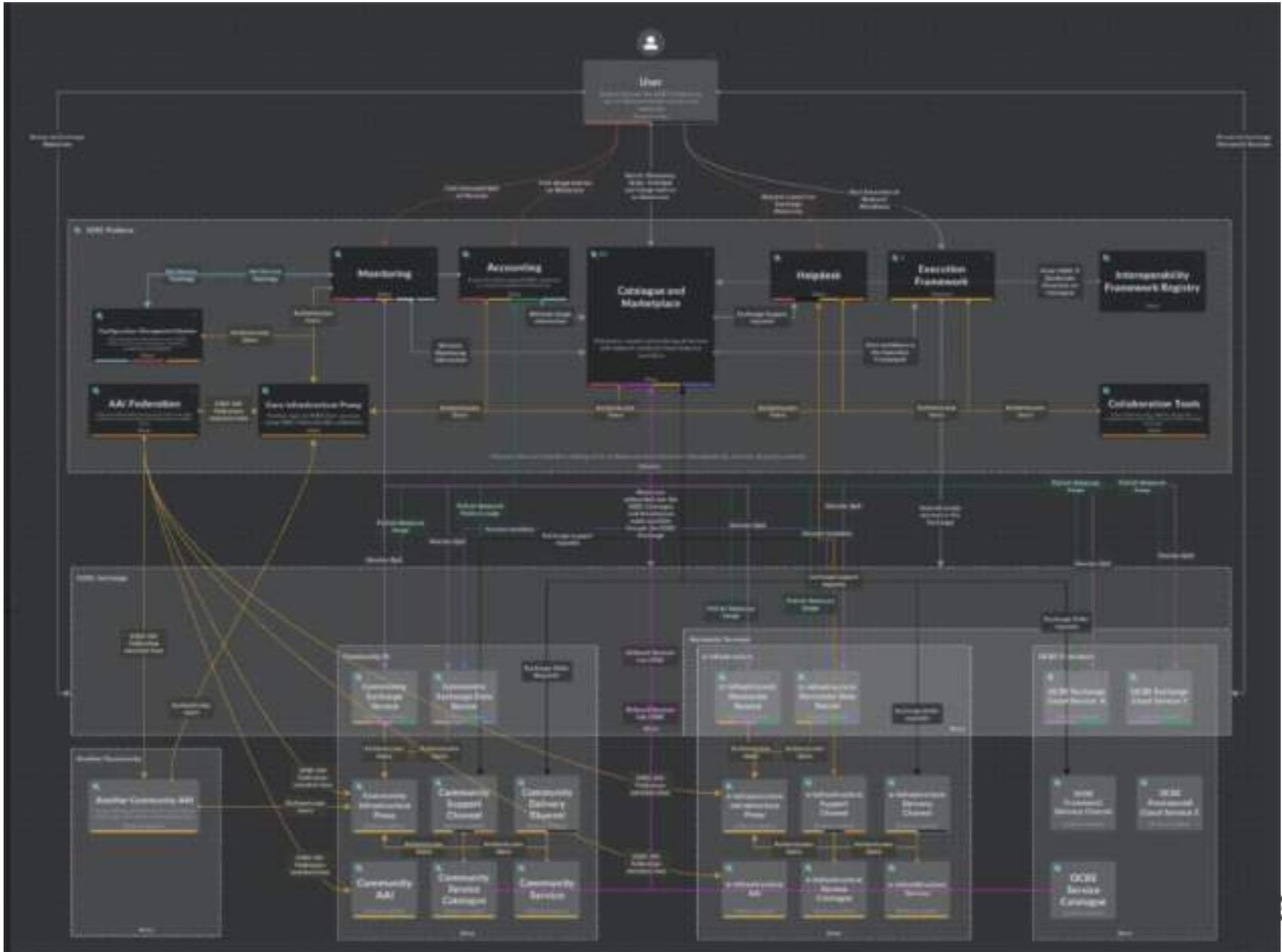
Ex: University libraries, institutional libraries, national libraries, LIBER

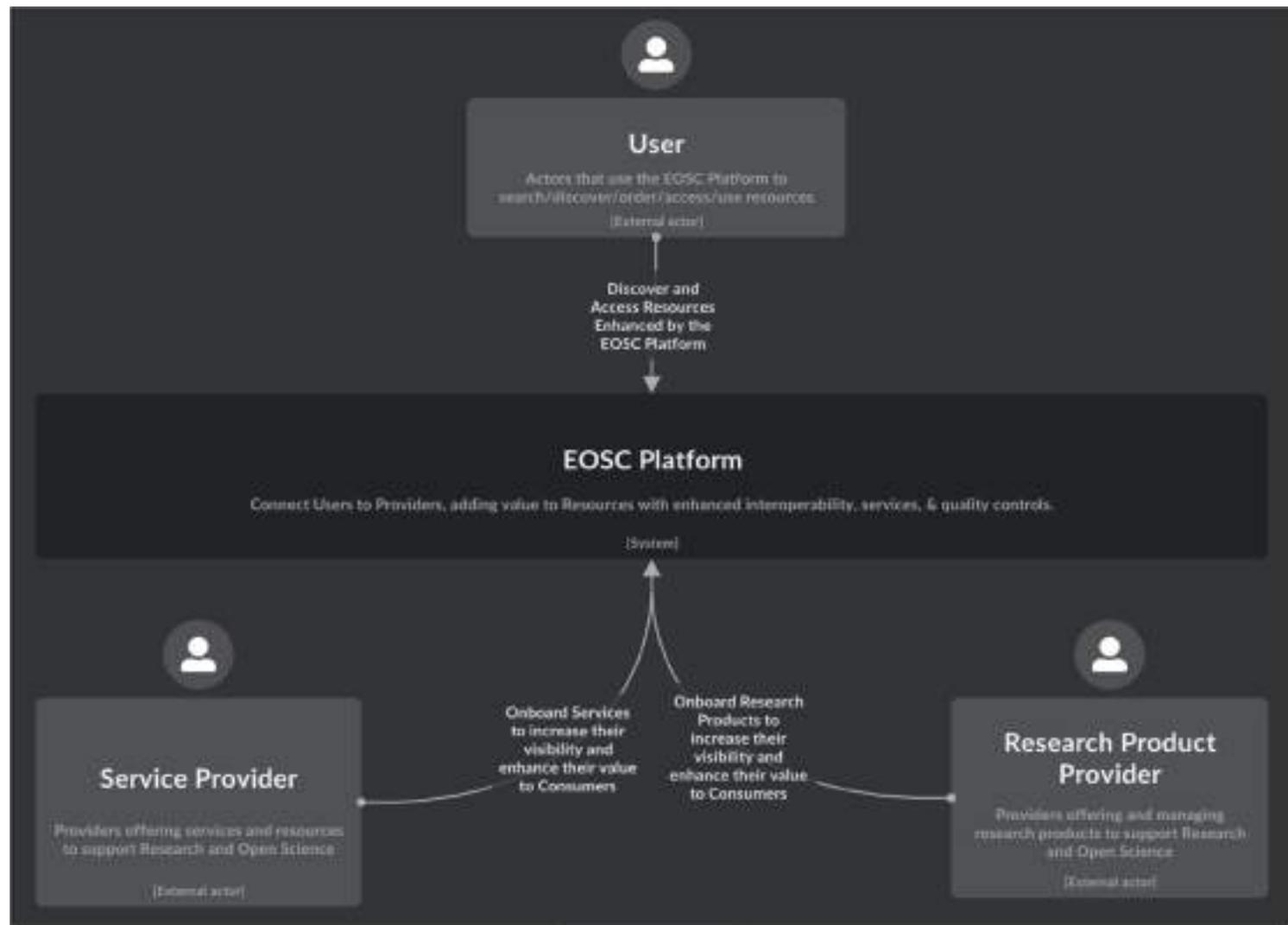
- ✓ Publications
- ✓ Datasets
- ✓ Training

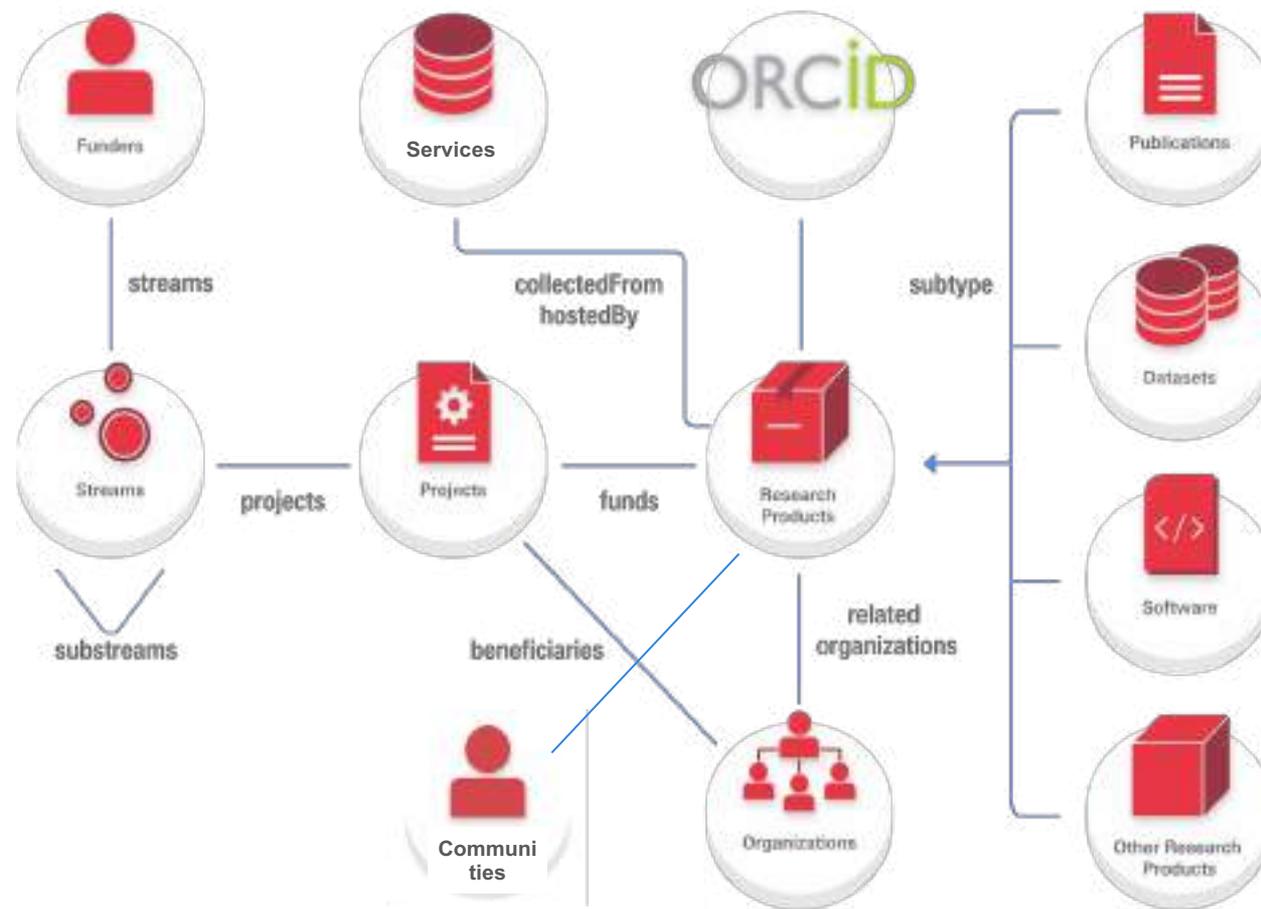


Commercial Providers

- ✓ Software & other research products
- ✓ Storage
- ✓ Datasets
- ✓ Computing
- ✓ Services
- ✓ Training
- ✓ Publications







1. RAiD handle: a persistent, unique string of numbers, minted via the RAiD API.

2. The metadata envelope records time/date stamped PIDs for

- Funders
- Organisations
- Collaborators
- Tools and Services
- Data

Source <https://www.raid.org.au>
Requirements from WP4



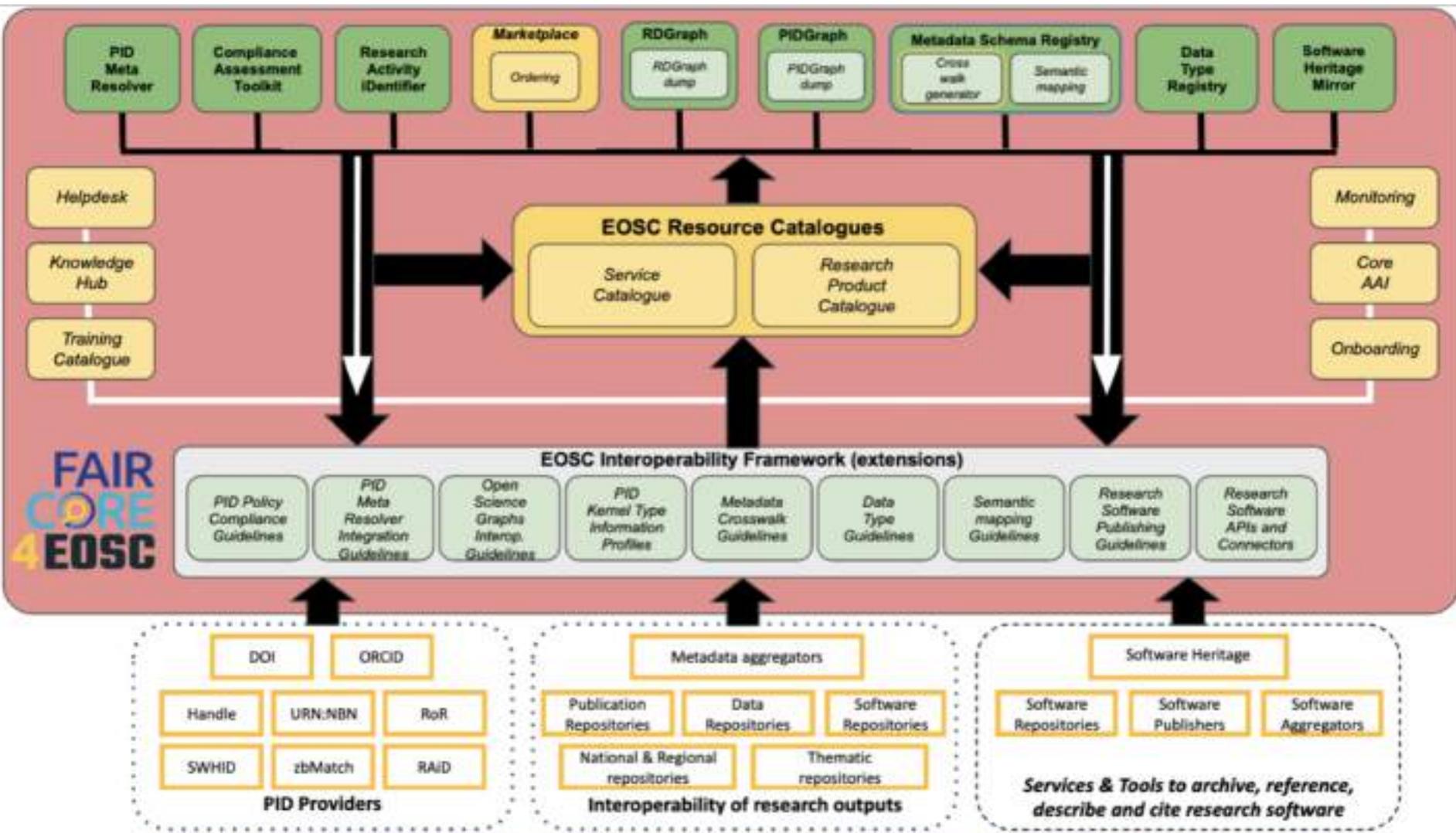
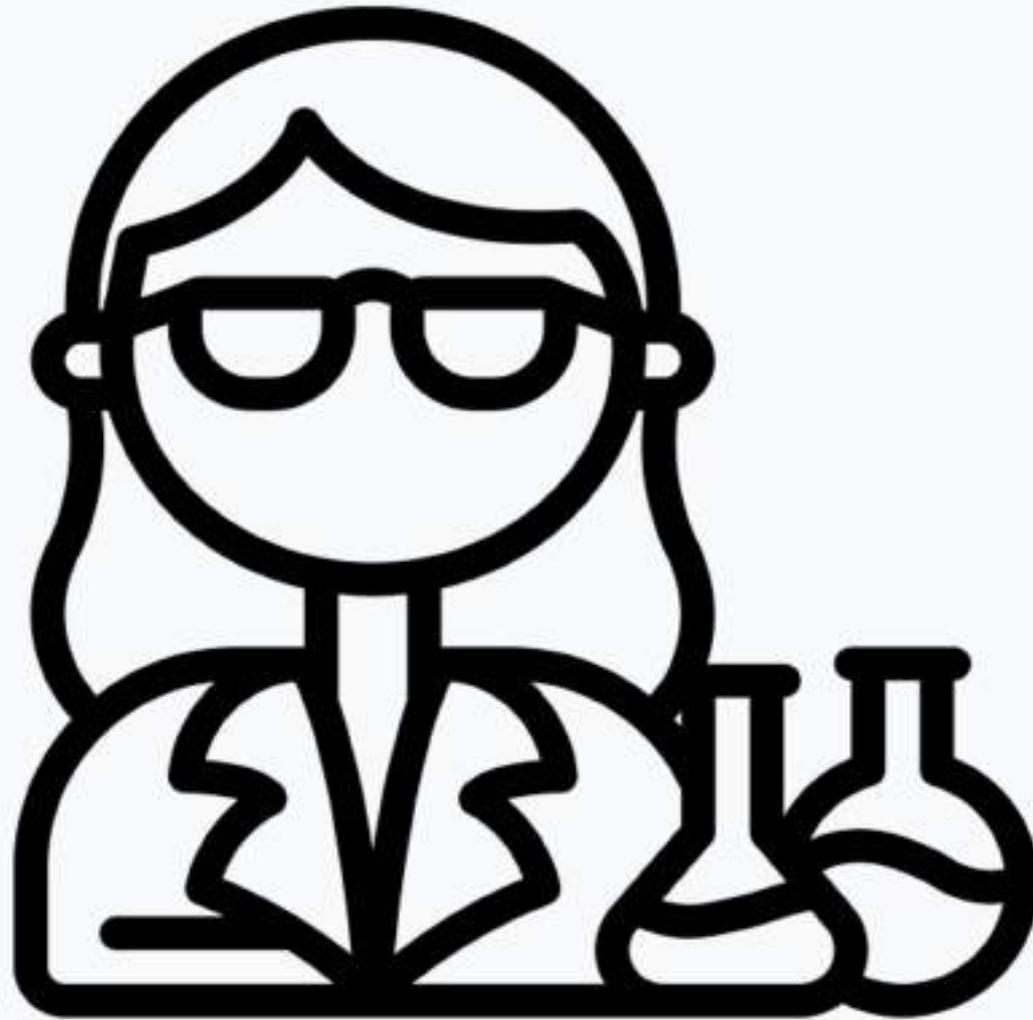
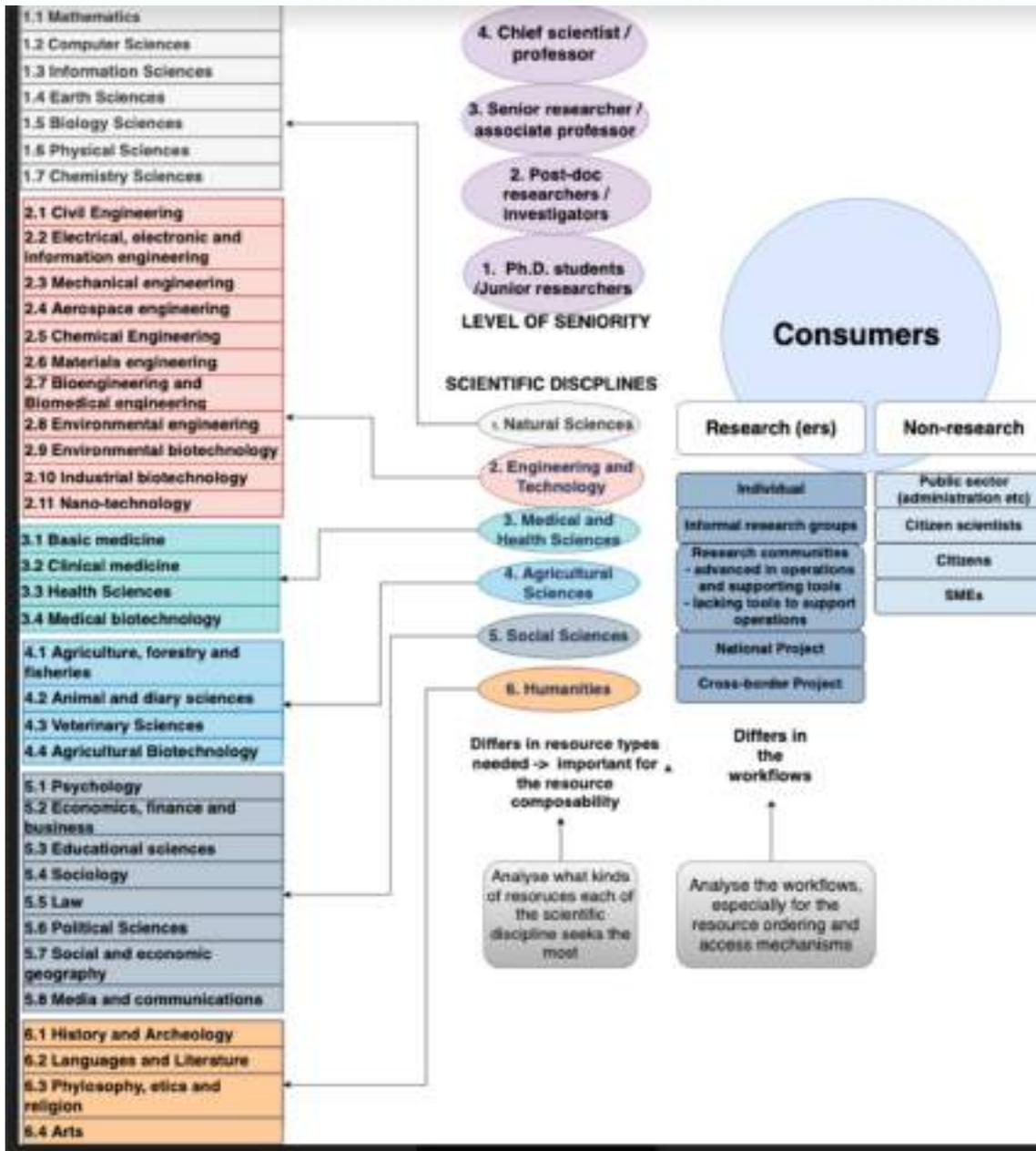


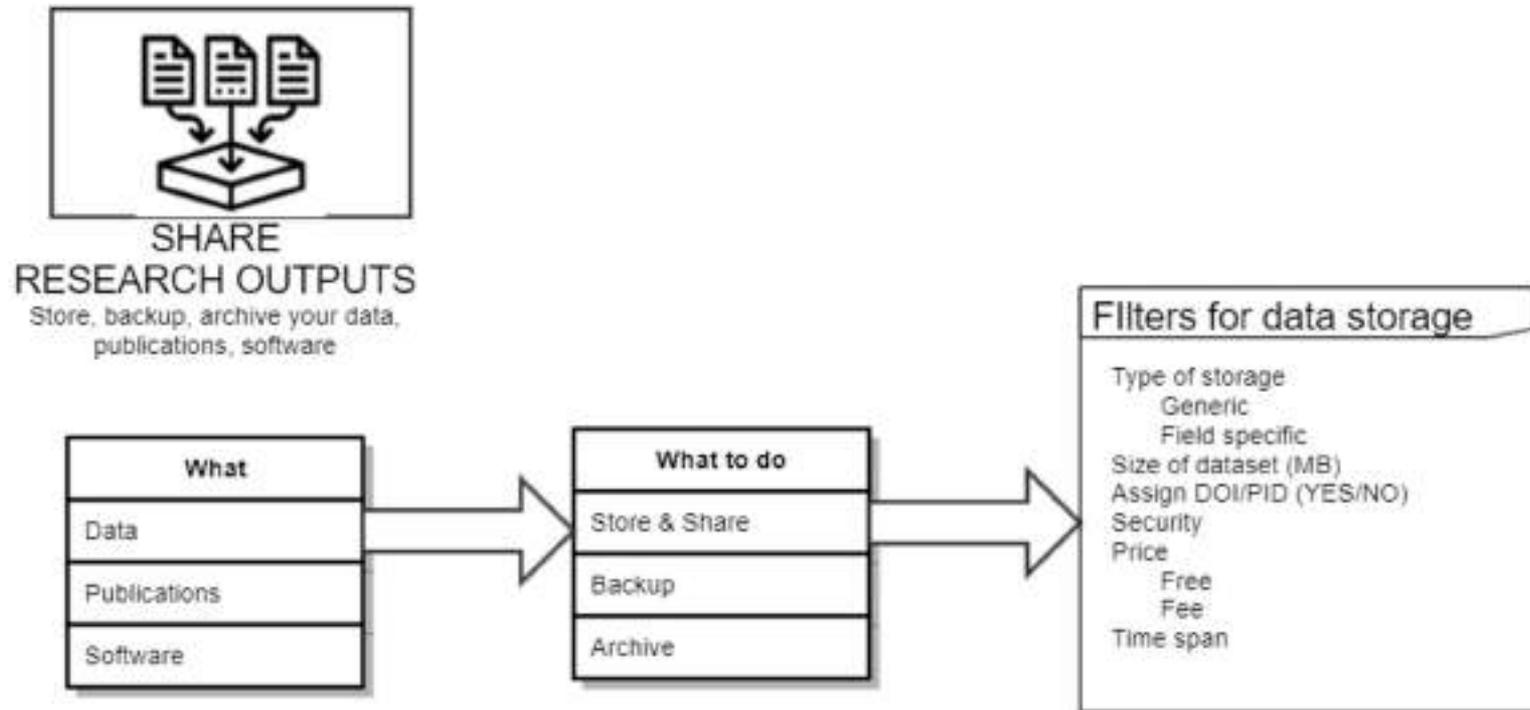
Figure 1 Architecture overview of the new FAIRCORE4EOSC components in relation to the EOSC-Core



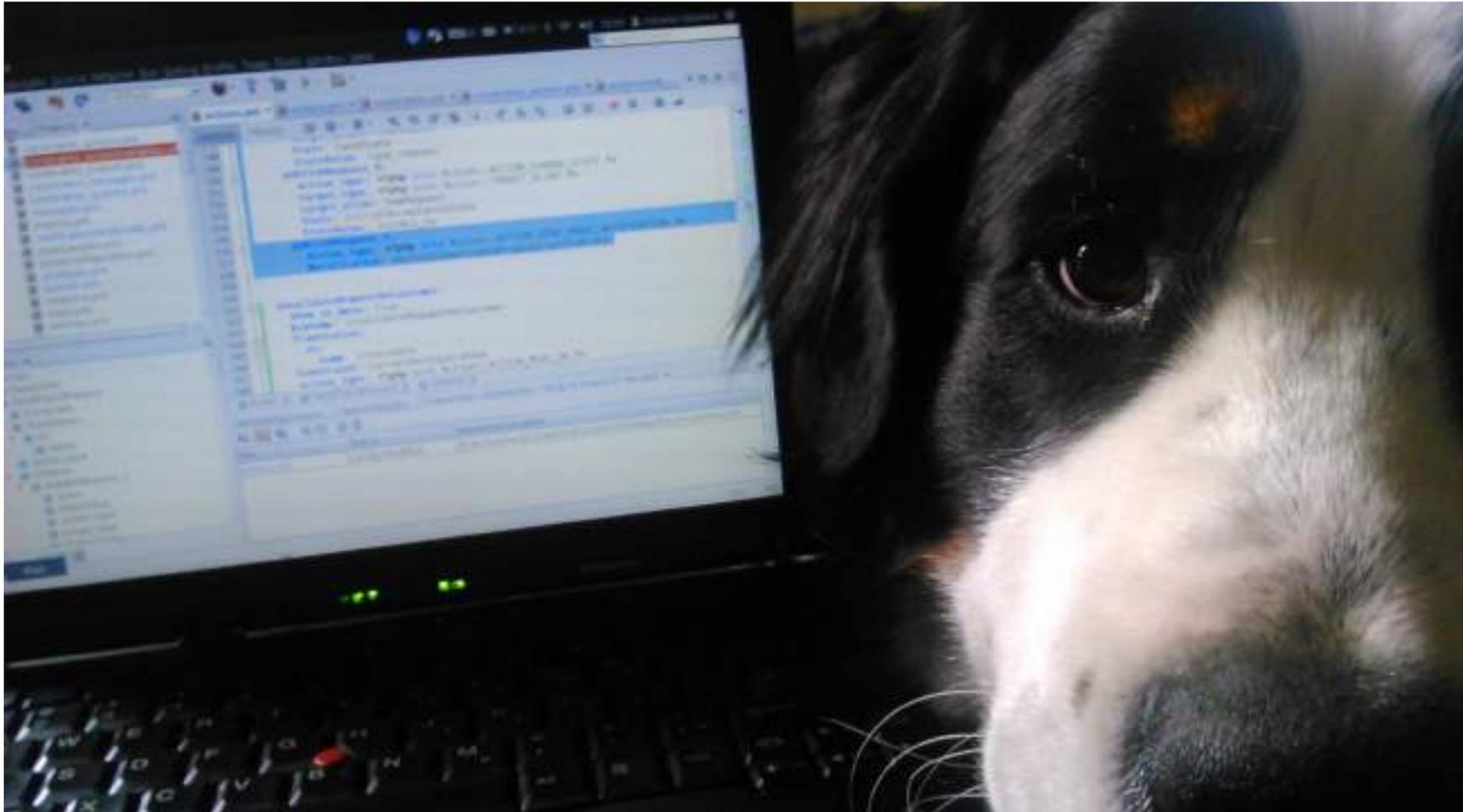




They come in as many flavours as you can imagine



- PROCESSING
 - Capabilities needed: transfer, compute (possibly external), **processing tool**, storage (possibly external)
 - What matters for this goal:
 - For storage:
 - Size of the dataset
 - Time of retention
- PUBLISHING YOUR DATASET
 - Capabilities needed: **publishing service**
 - What matters for this goal:
 - Size of the dataset
 - DOI
 - free/not free
 - Domain
 - Security (anonymise personal data/licence)
- ANONYMISATION
- MOVE/STORAGE YOUR (BIG) DATA (place where I can keep my data to use it during my processing)
 - Capabilities needed: transfer, **storage**
- USE EFFICIENT COMPUTING RESOURCES
 - Capabilities needed: **computing**, storage (possibly external)
- DISCOVER/RE-USE DATA
- MAKE YOUR REPOSITORY FINDABLE IN OPEN SCIENCE
 - Capabilities needed: **data sources**
 - What matters for this goal:
 - Connecting of metadata?
- DATA MANAGEMENT
- PRODUCE DATA (physical instruments)



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