EUROPEAN OPEN SCIENCE CLOUD

ISABEL CAMPOS

CSIC

Consejo Superior de Investigaciones Científicas

CO-CHAIR OF THE TASK FORCE ON :

“RESEARCH INFRASTRUCTURES FOR QUALITY SOFTWARE”

EUROPEAN OPEN SCIENCE CLOUD

Task force

Authentication and Authorization Infrastructure Architecture (AAI)

Co-Chaired by: Christos Kanellopoulos (GEANT) and Jana Broncova (Masaryk U.)

Web page:

https://www.eosc.eu/advisory-groups/aai-architecture

Short url : https://bit.ly/3sNdBif

Background and Objectives (see the charter online)

Develop the next version of the EOSC-AAI Architecture

****Evolution of the AARC architecture**

Co-chairs

New version of the EOSC AAI Architecture

New Use cases and Requirements

Governance models for the EOSC AAI

What is the EOSC-AAI work ultimate goal ?

- The core of Scientific work are Research Infrastructures (RIs)
- They can be Laboratories, Universities, Facilities (with some big experiment perhaps)
- There are tens to hundreds of different services provided by an RI
  - Storage, Compute, Group Ware,...
- Sometimes there are a couple of different sciences supported per RI
  - Like DESY : HEP , Photon, Biology
  - Or national institutions like CSIC: HEP, Biology, Material Science, etc etc…

  They are called Science Communities

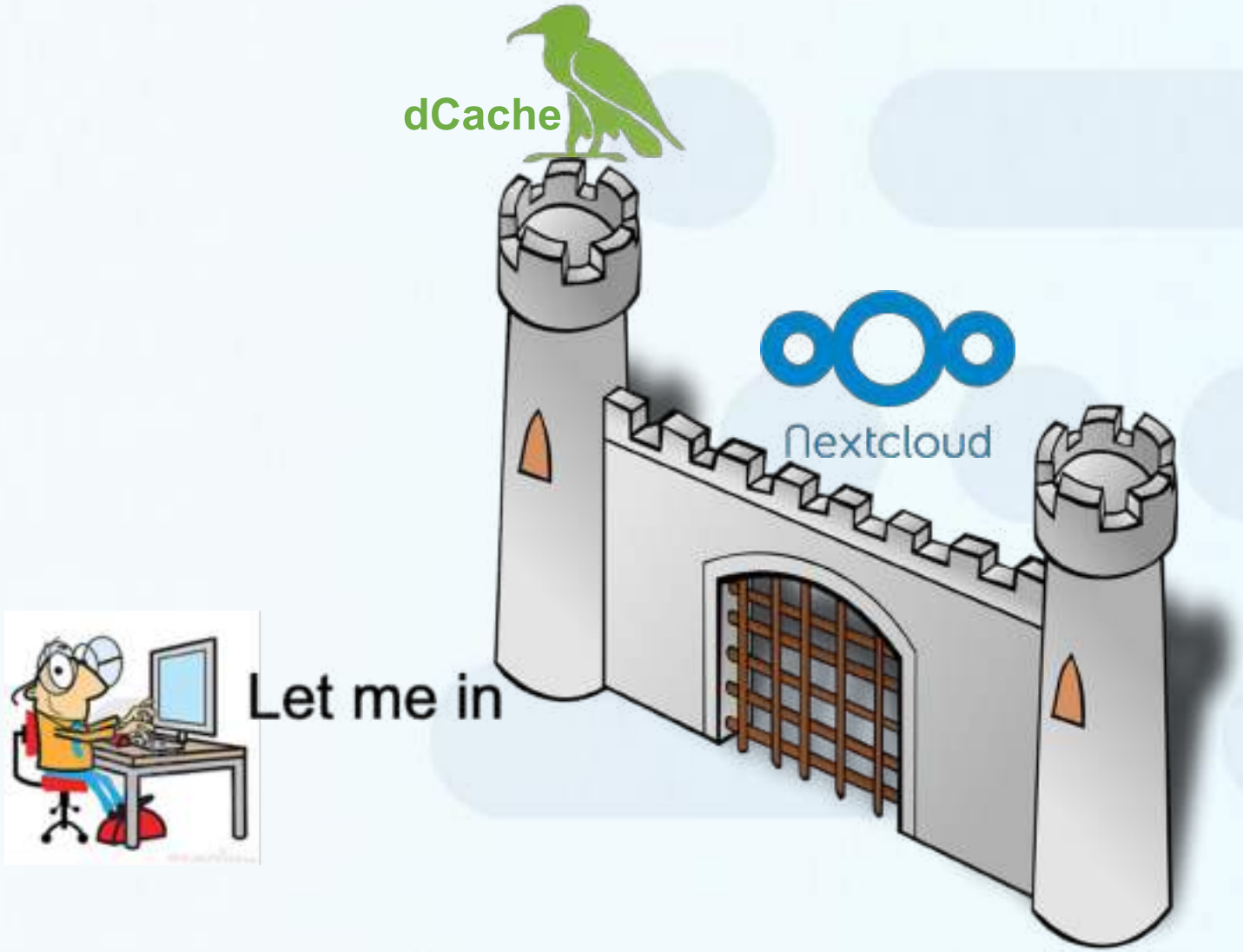
- If those sciences extend the RI, they are called e-infrastructures
  - Like the World-wide (Large Hadron Collider) Computing Grid, WLCG
    > Laboratories Sites around the world
  - The European Southern Observatory, ESO: 16 Member States
- And many scientists are member of different e-Infrastructures.

The goal is that all Scientist can use their home identity to authenticate to get access to all the European resources

A daily life example

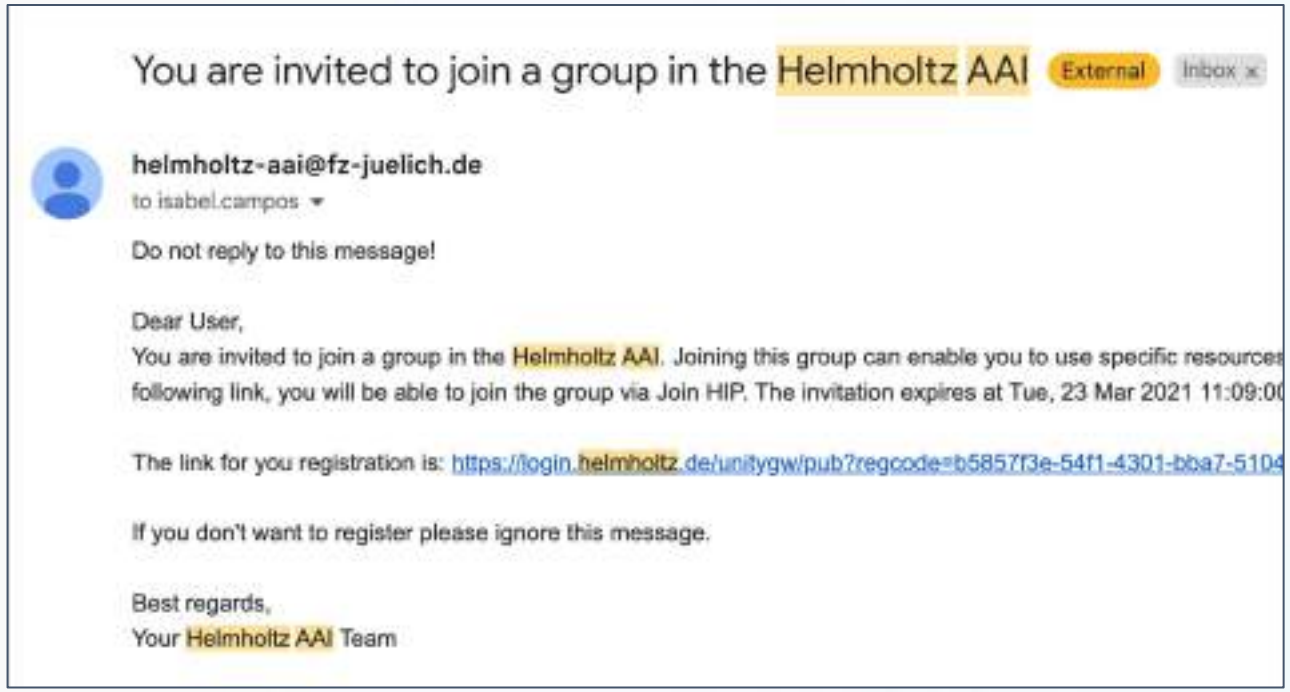
Researcher from institution A wants to share data with researcher from Institution B

For that both need to access the same storage facility operated by eg. Institution B



How does this work in practice ?

(1) Patrick sends e-mail to Isabel CSIC official account



(2) After checking that this was really Patrick (and not any spamer), Isabel **clicks on the invitation link**

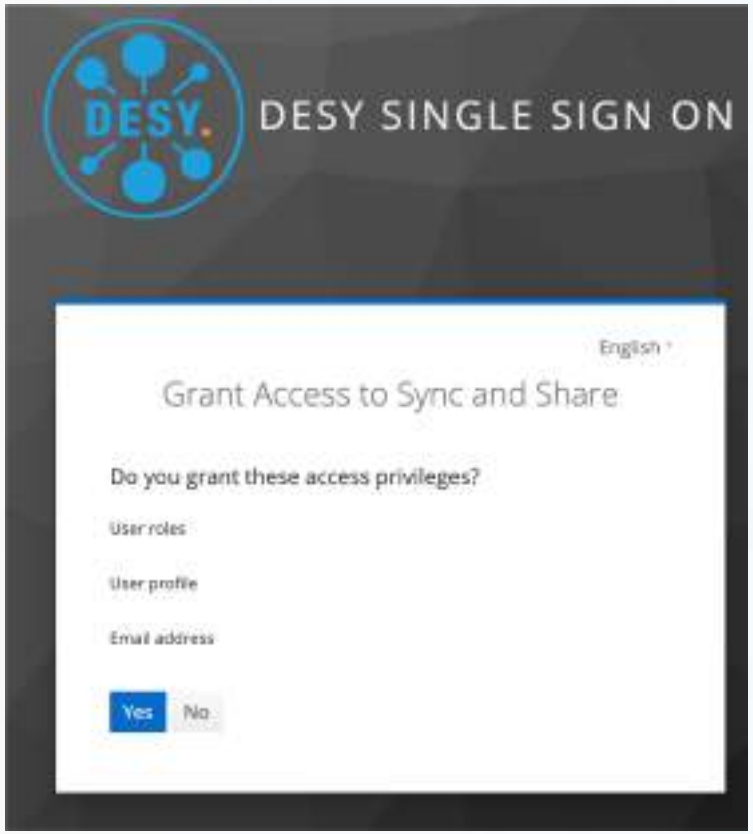
How does this work in practice ?

(3) … searches for CSIC in the list of authorized institutions to login, and clicks there:

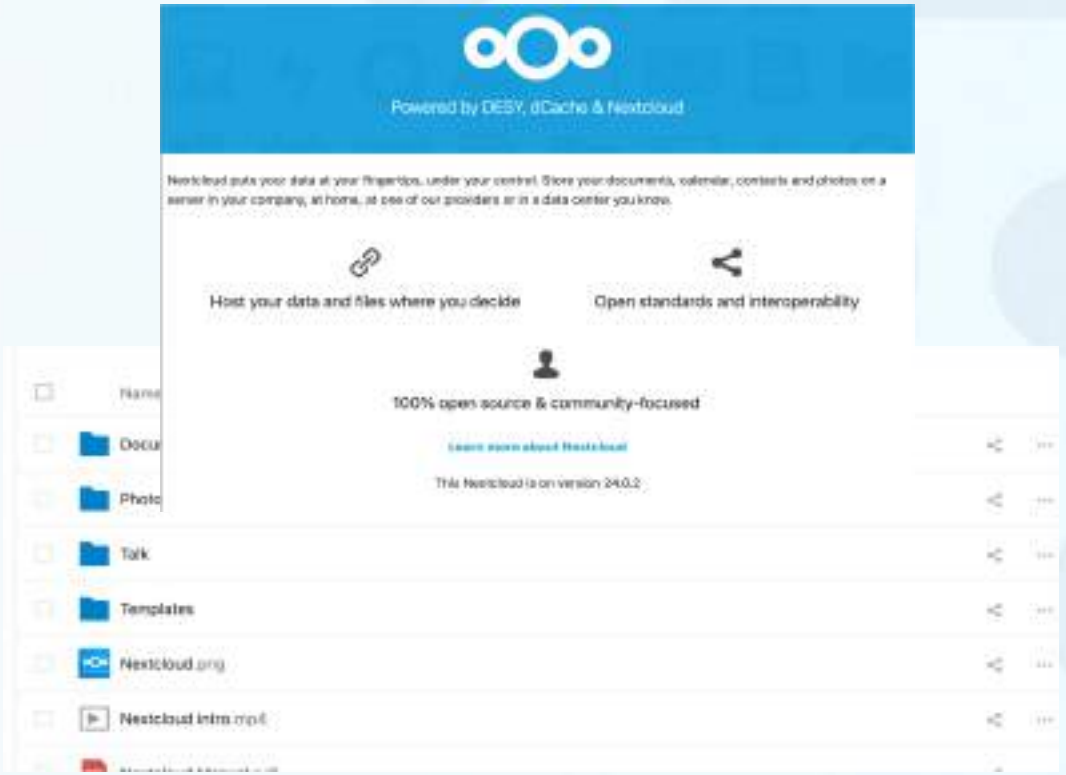
(4) a familiar interface pops-up… and logs in with her institutional credentials

How does this work in practice ?

(5) … ends up here and clicks on “Yes”
(on the suspicion that clicking “No” will led her nowhere)



(6) … transfers Terabytes data (all FAIR of course) in the cloud storage resources of DESY



What is the AAI Task Force up to?

Enhance the AARC architecture to provide a truly large scale and international collaborative experience

- Enable the harmonisation of national AAIs so that they can seamlessly work together. EOSC TF AAI drives this to the next level, allowing this across different initiatives in Europe

  → New development: these are not only European initiatives, but include National ones

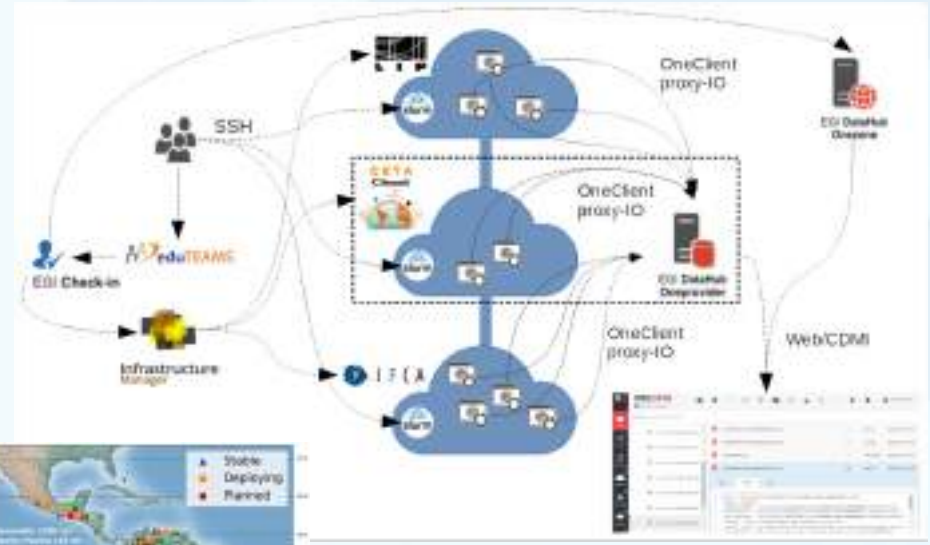
- Current example in Germany: **HIFIS (Helmholtz Cloud Infrastructure)** implements the AARC architecture. **NFDI**, in which HIFIS is one of four players, will be able to have an integrated AAI following the guiding principles (and the details) of **EOSC-AAI**

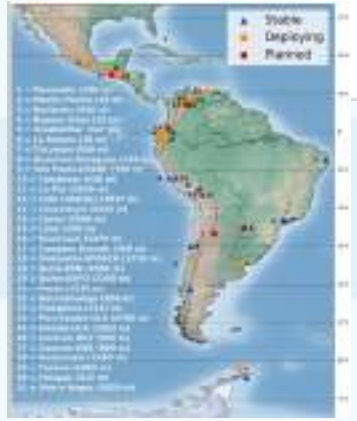
"AARC Entity Category"
Enable the distribution of Attributes of Researchers at large scale
=> Up to now this was possible only within well defined infrastructures (EGI, WLCG, ...).

"Remote Token Introspection"
Enable different infrastructures (think EGI + EUDAT) to use tokens crosswise.
=> Allowing EUDAT users to read data from EGI

In EOSC-Synergy already, we were able to have users from multiple "providers" (proxies)

LAGO is not managed at EGI, but at eduTEAMS: works because of the compatibility





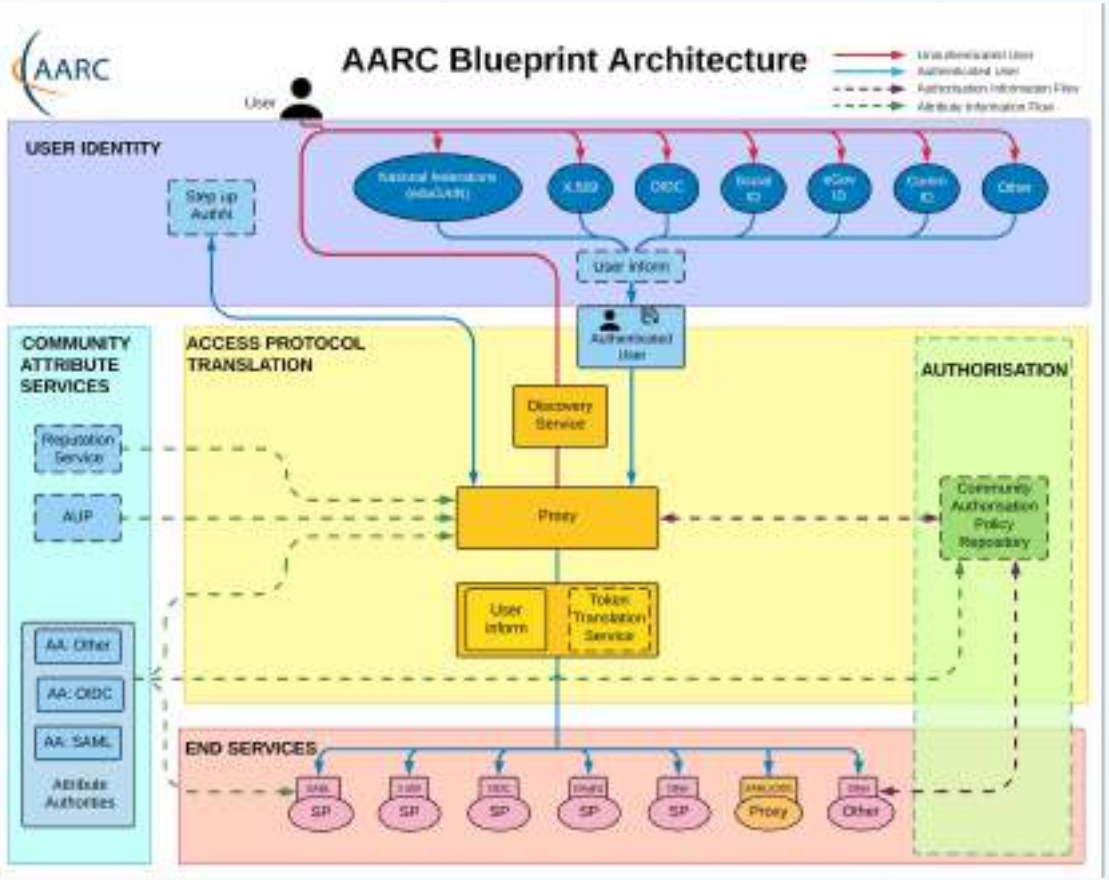
LAGO

Ciemat
Centro de Investigaciones Energéticas, Medioambientales y Tecnológicas

EOSC SYNERGY

I will not utter here an explanation of the AARC Architecture

https://aarc-project.eu/architecture



Questions on the details of the architecture? profit from the physical presence here of true experts on AAI:

Marcus Hardt (KIT) is around: he will tell you everything you need to know on AAI (and more!)

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Task force

Infrastructures for quality research software

Co-Chaired by: Isabel Campos (CSIC) and Roberto di Cosmo (INRIA)

Web page:

https://www.eosc.eu/advisory-groups/infrastructures-quality-research-software

Short url : https://bit.ly/3y9RtIE

Background and Objectives (see the charter online)

Background:

- **Research software:** Software **produced by researchers** and **used as an enabler for scientific activities**
- **Quality:** Criteria to be defined in this TF

Objectives:

- **Foster** the development and deployment of **tools and services** that allow researchers to properly **archive, reference, describe** with proper metadata, **share and reuse research software**.
- Improve the **quality of research software**, both from the **technical** and **organizational** point of view for research software **in general and** in particular the software used **in the services offered through EOSC**.
- **Increase recognition** to software developers and maintainers of research software as a valuable research result, **on a par with publications and data**, in the Open Science landscape.

Task Force Sub-group on “Software Lifecycle”

Software Lifecycle

Kay Graf (FAU/ECAP)
Raphael Ritz (MCPDF)

D1 - Software Research Lifecycle (to be completed soon)

Deliverable 1 of the SG1 - "On the Software Lifecycle" - Task Force on Infrastructure for quality research software

Contributors: Raphael Ritz, Jason Maassen, Bernd Flemisch, Kay Graf, Uwe Konrad, Guy Courtebaisse (please add)

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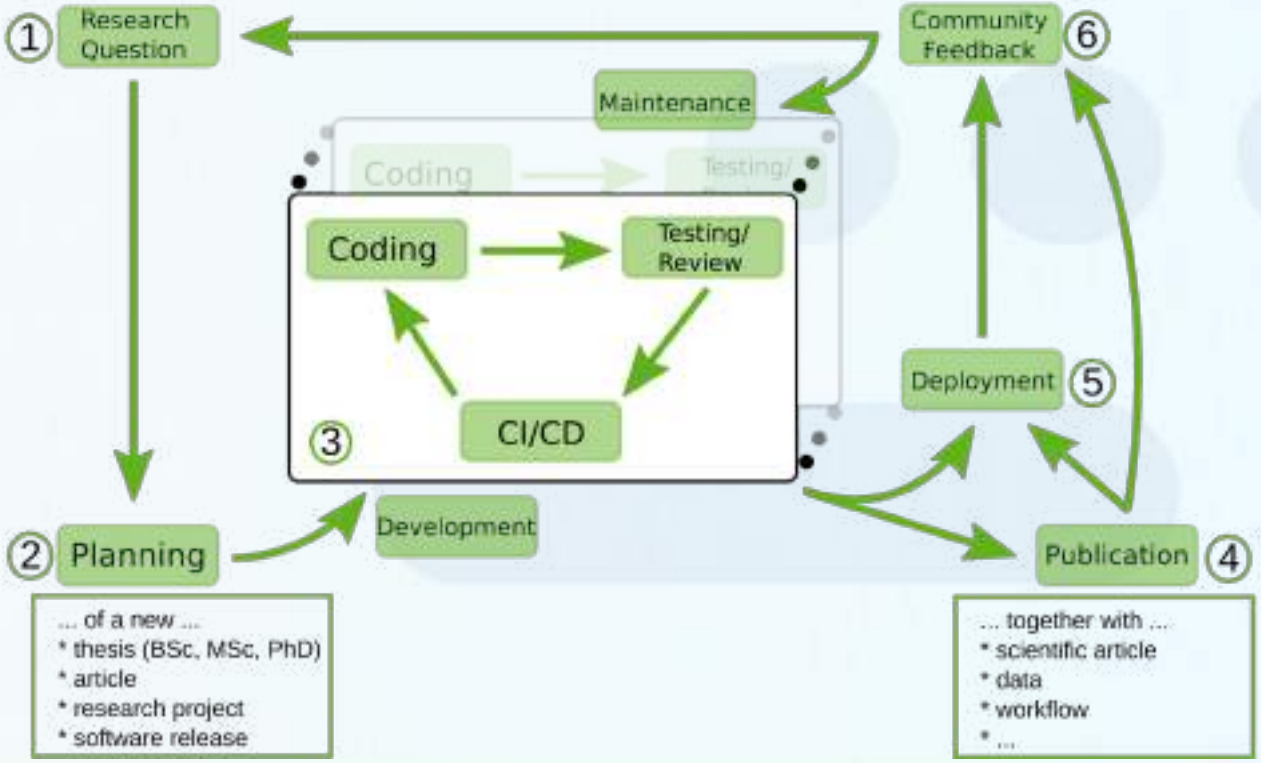
Analyze approaches, tools and platforms across all phases of research software developments, **identify gaps** as well as the **best practices**. Formulate **actionable recommendations** for researchers, organizations and decision bodies.

Figure 1: Graphical representation of the software lifecycle



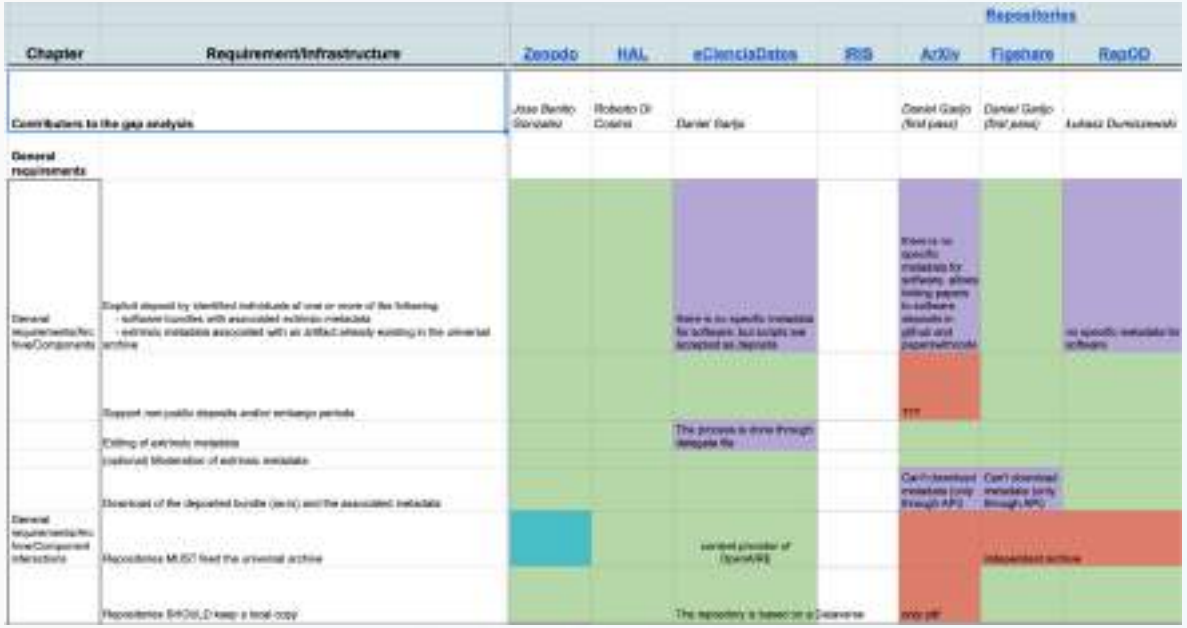
Task Force Sub-group on “Information Science”

Information Science

José B. Gonzalez Lopez (CERN)
Moritz Schubotz (FIZ Karlsruhe)

Raise awareness of the **EOSC SIRS** report on Scholarly Infrastructures for Research Software and **foster adoption** of its recommendations **in existing and future infrastructures**.

A GAP analysis on the existing popular repositories is being made



A document compiling the current status versus the SIRS report is being compiled and will be made public (Q4 2022)

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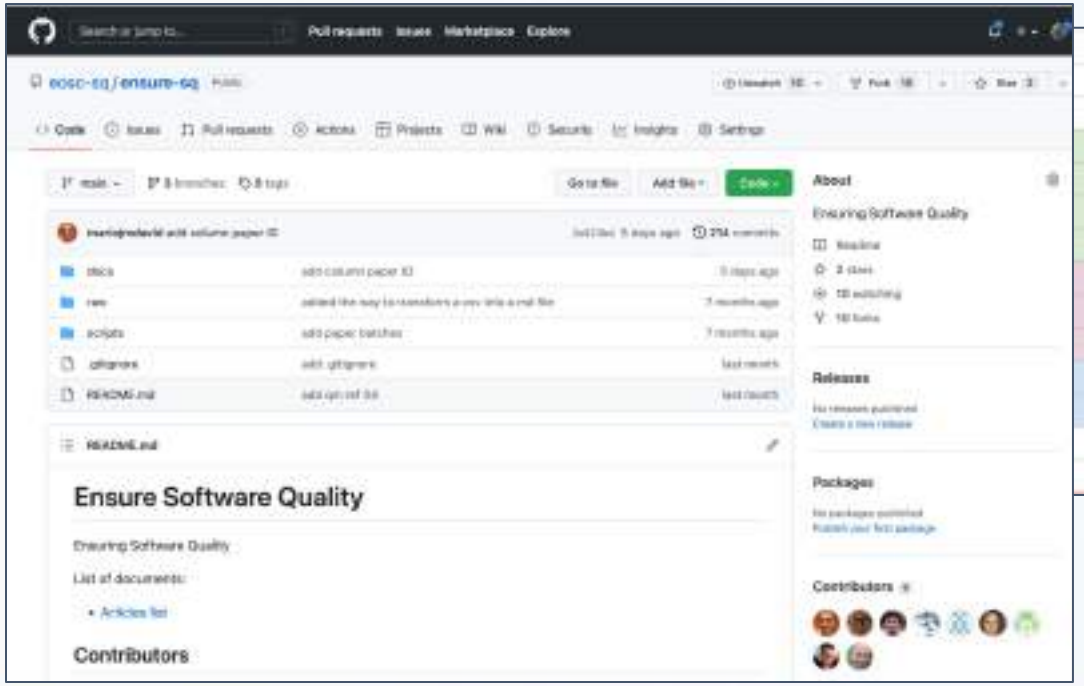
Software Quality

Miguel Colom (ENS, Paris- Saclay)
Mario David (LIP, Lisbon)

Identify relevant **criteria** to assess the **quality** of research software, based on existing **best practices**, and **tools and mechanisms to measure** them.

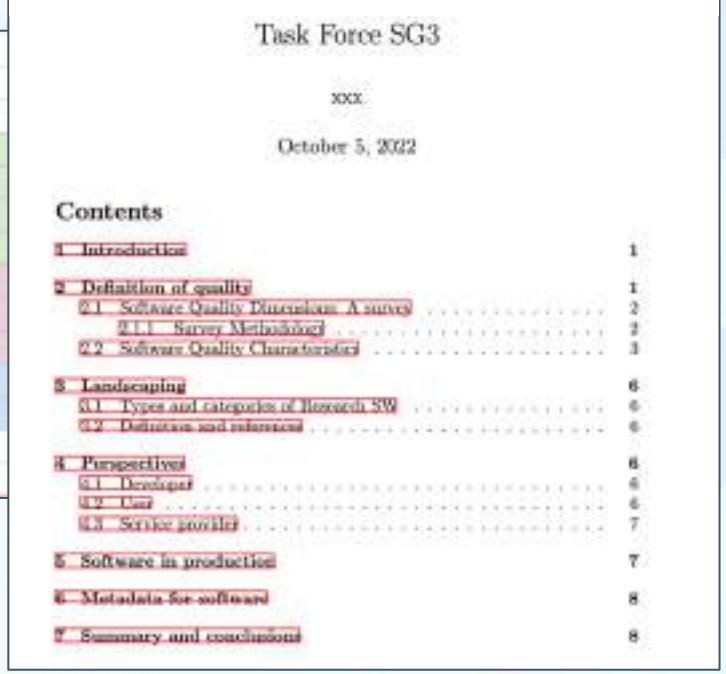
https://github.com/eosc-sg/ensure-sg



Collaborative work

	Metrics
11	Estimated rebuild value
11	Percentage of Redundant code
11	Lines of code per unit
93	Number of assertions SLOC
45	Binary size
45	Number of lines
11	Cyclomatic Complexity per unit (McCabe)
45	Complexity of the source code
93	cyclomatic complexity test/source ratio
11	Number of parameters per unit
126	Number of Arguments
11	Number of incoming calls per module
11	Complex compound set of metrics

[D] Analysis of the survey of Software Quality criteria: gaps and evolution


Task Force SG3

xxx

October 5, 2022

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Experts on of Software Quality Infrastructures vhere in Faro you can speak to

Mario David (LIP)

Laura del Caño (CNB-CSIC)

Pablo Orviz (CSIC)

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Task force

Technical Interoperability of Data and Services

Co-Chaired by: Eva Sciacca (INAF) and Alvaro López (CSIC)

Web page:

https://www.eosc.eu/advisory-groups/technical-interoperability-data-and-services

Short url : https://bit.ly/3a7vPEW

Background and Objectives (see the charter online)

Background:

- Starting from the **EOSC Interoperability Framework (EIF)** recommendations the TF aims at supporting the development of the **EOSC Core** and **Exchange**.
- Activities include engaging with the community to coordinate the federation of thematic services, infrastructure services, generic services and datasets and activities to advance the composability of resources.

Objectives:

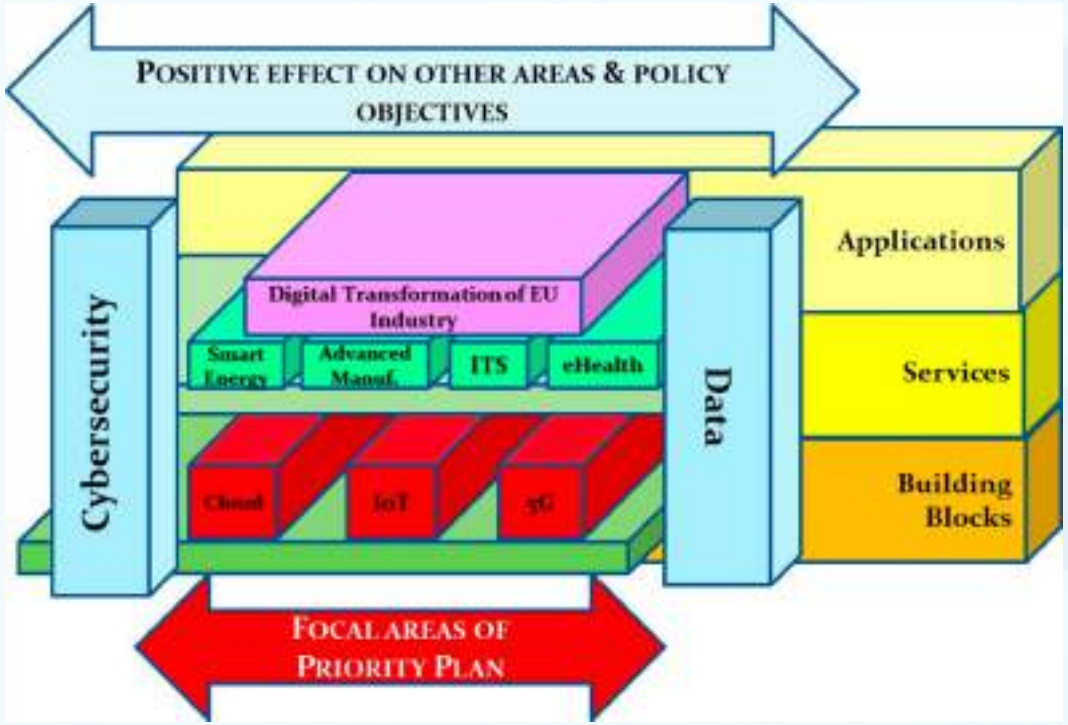
- A first principles discussion on the **guiding principles** for **interoperability**.
- A **landscape overview and analysis** of the existing systems and interoperability standards for data and services.
- Promote **alignment** between EOSC standards and other major activities (such as RDA, EuroHPC and GAIA-X).
- A **technical architecture** discussion for the EIF.

Challenge of creating an interoperable EOSC

- Interoperability: “The ability of computer systems or software to exchange and make use of information”

- The keyword here is: Standards :
  - Standards to exchange information between IT systems.

Example: W3C is an organization to promote open standards on the Web: HTML , CSS , etc…



The EC proposes to focus standard-setting resources and communities on 5 priority areas: **5G, Internet of Things, Cloud Computing, Cybersecurity and Data Technologies**

Ongoing work

Landscape, Overview and Scouting	**Landscaping phase started** Planned 2022 Q2 : Deliverable “A landscape overview (capabilities and gaps) of the EOSC IF”
Data technical interoperability	**Landscaping phase started** - Data formats study - Gap Analysis
Services technical interoperability	**Landscaping phase started** - Requirements and Use-Cases Identification - Gap Analysis

Working groups objectives

Landscape, Overview and Scouting Chair : Eva Sciacca INAF	Landscape overview and analysis of the existing systems and interoperability standards that are in place or being developed as part of EOSC Projects, national activities and computing / data centres related to the community and other initiatives including industry.
Data technical interoperability Chairs: Philip Wieder GWDG Joan Maso CREAF	Inventory of data and metadata formats, interfaces and access protocols, to identify and specify a minimal set of functionalities.
Services technical interoperability Chair: Damian A. Tamburri TU/e	Inventory of application programming interfaces, access protocols, best practices and standards, to identify and specify a minimal set of functionalities.
Technical Architecture recommendations (Not yet started)	Guiding principles for interoperability. Identify the main technical areas and gaps that require a further development of interoperability guidelines.

Landscaping should be done before all the paths are built and the flowers planted

EOSCpilot
The European Open Science Cloud for Research Pilot Project

EOSC secretariat.eu

EOSC Future

2017- 2019 2019- 2021 2021- 2023

Task Force on "EOSC Interoperability" to collect feedback

How many flowers will survive the EOSC landscaping?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