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F for Findability: Persistent Identifiers & Knowledge Graphs

Opening by Josefine Nordling

FAIRfest 20 February 2025
The Hague, The Netherlands (Madurodam)
Celebrating the advancements in FAIR solutions for EOSC

Welcome & Agenda

Time	Topic	Presenter
10:30 - 10:35	Welcome & Introduction	Josefine Nordling, *CSC*
10:35 - 10:50	Past: Recent PID developments	Tibor Kalman, *GWDG*
Present. Infrastructure for Findability: PID Providers		
10:50 - 11:00	Research Activity Identifier (RAiD)	Giacomo Cannizzaro & Clifford Tatum, SURF
Ensuring findability emplying PIDs		
11:00 - 11:20	EOSC compliant PID policies for Data/PID Managers	René van Horik, *DANS*
	Practical PID guides for national initiatives, service providers and institutions	Natascha van Lieshout, *SURF*
PID-enabled findability in discovery		
11:20 - 11:30	RDGraph & PIDs	Paolo Manghi, *OpenAire*

11:30 - 12:00	*Future: Panel session*	Moderator: Paolo Manghi
	Opportunities of enhanced discoverability - the PIDGraph	Gabriela Mejias, *DataCite*
	Enhancing resolvability of PIDs - the PID Meta Resolver	Sven Bingert, *GWDG*
	Facilitating end user implementations of PIDs	Josefine Nordling, *CSC*
	Assessing compliance with the EOSC PID Policy - the Compliance Assessment Toolkit and related Knowledge Base	Wim Hugo, *DANS*
	The Future of the EOSC PID Policy	Tibor Kalman, *GWDG*
12:00	Closing	Josefine Nordling, *CSC*

It’s a PIDty it did not work - Showcasing examples of PID failures

Join at menti.com!

Use code 6927 7068

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Past: Recent Persistent Identifier (PID) developments

Tibor Kalman (GWDG)

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Quiz ("Past"):

The first community-endorsed Persistent Identifier (that is still <u>in operation today</u>) was put in place…

a) 19th century (e.g 1801-1899)
b) 1900-1950
c) 1951-2000
d) 2001-2025

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PIDs & Impact on Findability

- PIDs play a crucial role in **enhancing** the **discoverability and accessibility** of research outcomes.
- PIDs and their **impact on** research **findability** have a multifaceted framework
  - ⇒ for all involved parties: a multi-layer issue
- EOSC Federation & EOSC Nodes
  - “Federation Handbook”
  - EU-, National-, Thematic-, E-INFRAS-, etc. nodes
  - National Policies
  - E-INFRAS, PID Providers
  - Global Data Initiatives

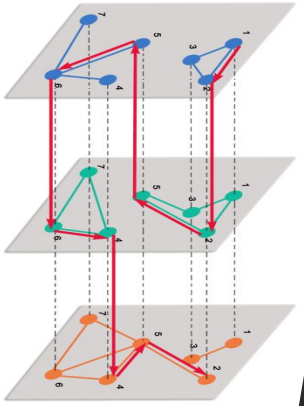
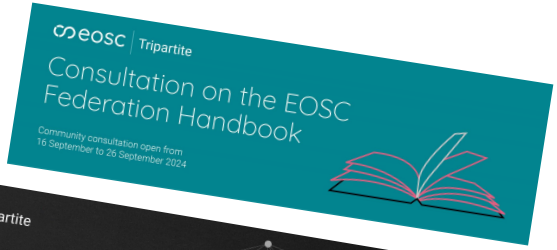
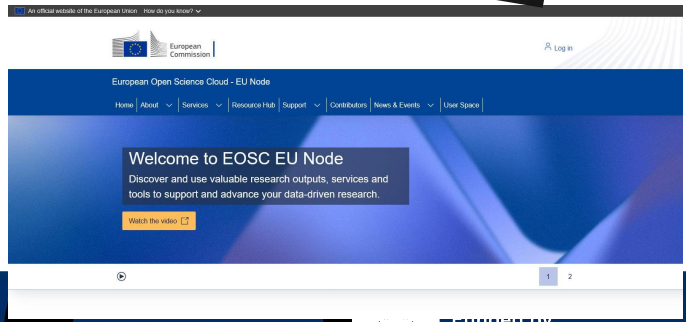


Image credit: Wikimedia:Multilayer Networks





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The EOSC Journey…

now

EOSC-A Task Force “PID“

Image credit: Image by starline on Freepik

EOSC-A “OA1 Expert Group“

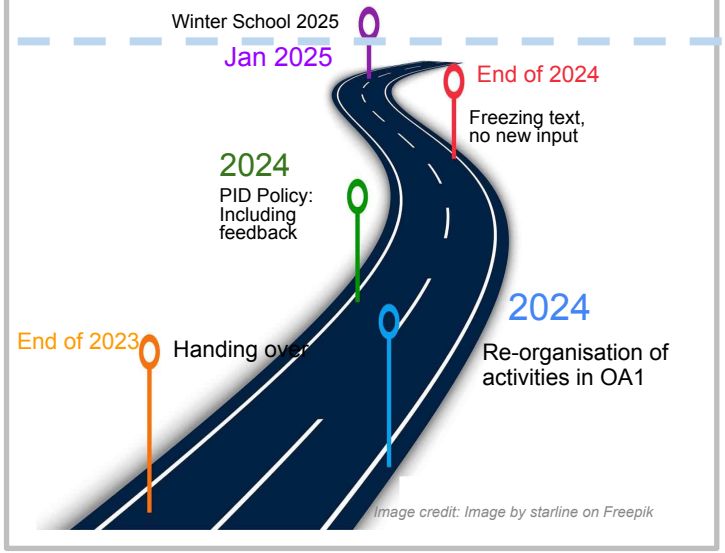


Image credit: Image by starline on Freepik

Trends

Identified recent trends: ***(Selection for FAIRfest)***

- **Example #1:** Usage of several **PID systems in parallel**
  - Demand for convergence (MetaResolver, Meta*Manager*, …)
- **Example #2:** Basic **features** became supported **on PID level**
  - Authorization & data protection (sensitive *meta*-data)
  - Typing in PIDs (FDO Forum, Research Data Alliance) and emerging new PID types
- **Example #3:** EOSC PID **Policy**

Example #1: PID systems in parallel

Issue: Multitude of systems are used to create and maintain PIDs.

- Different requirements; ease of technology, …
- Demand for convergence (MetaResolver, Meta*Manager*)

Challenge:

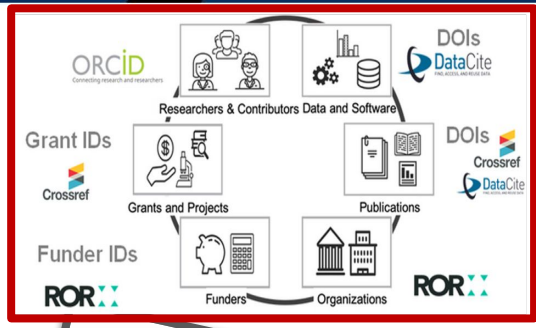
- To know which system is responsible for the resolution process.
- To understand the process that provides the referenced metadata, landing page, resource for a PID.

PID Meta Resolver:

- “One place to resolve PIDs”: integrates different systems.
- Knows where to route different types of identifiers (DOI, URN,...)
- Improves machine based data processing.

New issue:

- Something similar, but for *maintaining* PIDs.



PIDMR
EOSC PID
Meta Resolver

Example #2: Typing

Goal: FAIRify information on instrument by:

- assigning a PID to the instrument and
- registering its metadata.

Challenge:

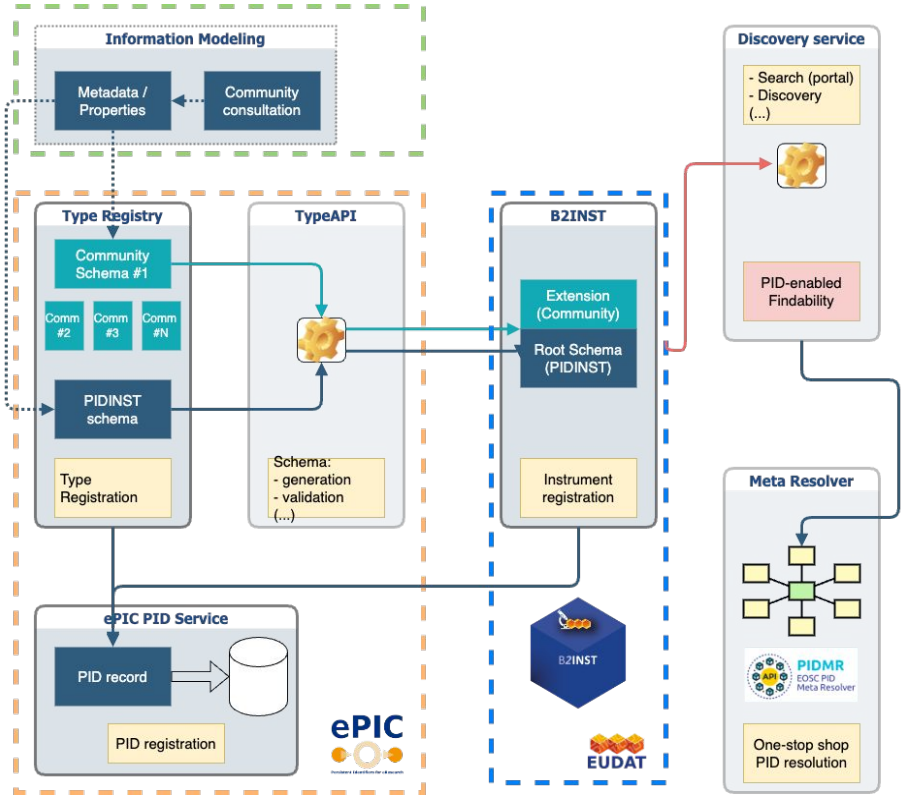
- Instruments are non-digital objects.
- So how to FAIRify non-digital objects?
- … and make them discoverable?

B2INST service:

- PID service for global and unique identification of instruments in the research domain.
- DTR integration: to maintain schemas centrally.

New issue: The policy challenge

- Who defines what?
- Who is responsible for which policy?
- RDA, FDO-F, ePIC, EUDAT, EOSC?



1. 2. 3.

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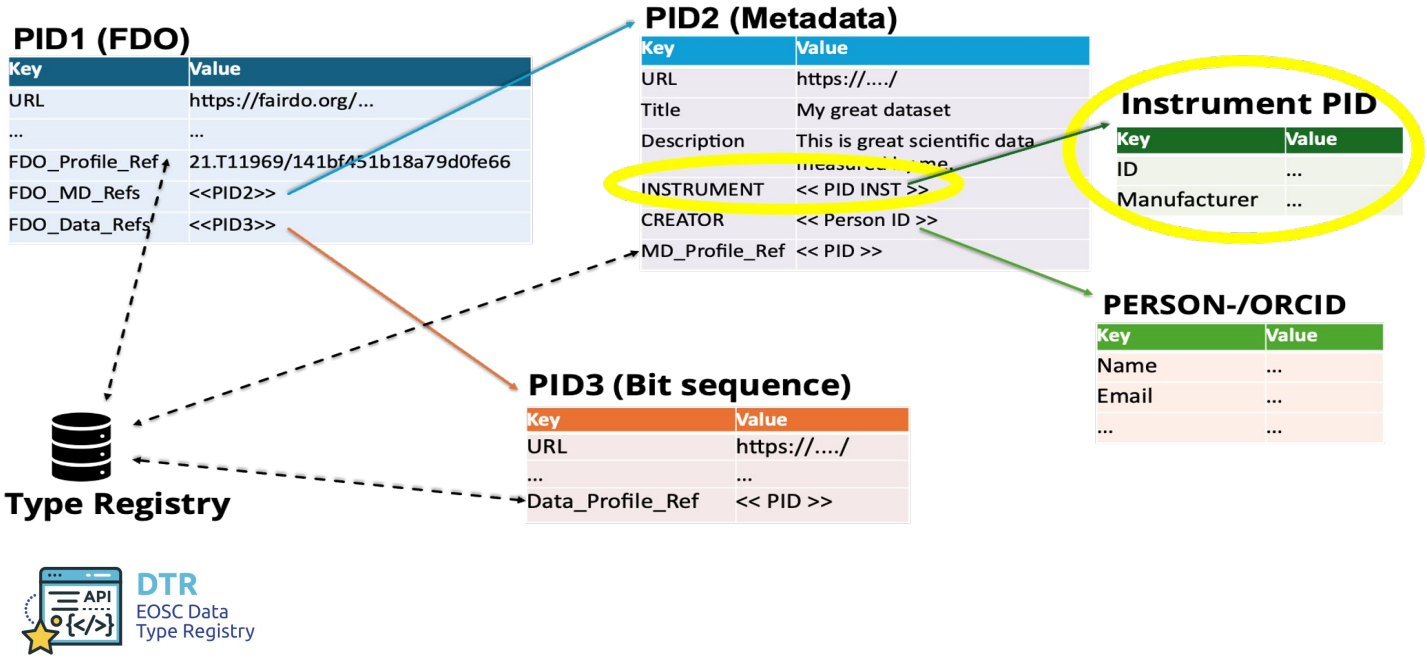
The big picture - FAIR Digital Objects (FDOs)



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Example #3: Policies & EOSC PID Policy

EOSC PID Policy

- New version of “EOSC PID Policy” is ready for consideration
  - Project participation was extremely valuable and important (writing process)
  - Projects helped OA1 to validate the Policy
- Next steps are not entirely clear
- EOSC PID Policy is fundamental for the federation and should be considered together with other policies.

Supporting PID implementation:

- Emerging results of projects (KERs: functions) will soon be available and will advance the Federation (“making EOSC a better place”)
- Resources for implementing PIDs will be available
  - Projects developed software (CAT, etc), services (PIDMR, DTR, etc) and a PID Knowledge Base to support the PID Policy.

Example #3: Policies & EOSC PID Policy

Recommendations:

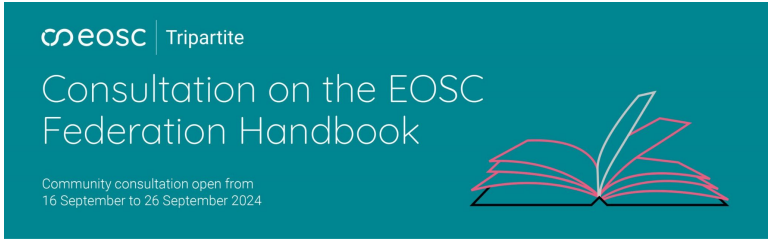
- Ownership & authority
- Suggestion for governance:
  - EOSC Federation adopts the PID Policy (the same way like other policies)
- To build well-grounded Web of FAIR Data and enable uptake of AI □assessment body is needed (PID)
  - Until then: self-assessment (via CAT) + experts' review
- Efficient AI requires PIDs (most prominent implementation: FDOs)

Technologies and alignment:

- Advanced technologies -- but often unclear governance and/or missing policies.
- Trust is nowadays handled differently (web browsers + certificates vs. PID systems).
  - New features required (PKI). Aligning those separate worlds?
- Interoperation != Interoperability

What else?

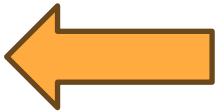
- Well, have some more…
  - EOSC PID Architecture document
  - SRIA & MAR
  - EOSC Federation Handbook
  - …



Solution:

The first community-endorsed Persistent Identifier (that is still in operation today) was put in place…

1) **19th century (e.g 1801-1899)**
2) 1900-1950
3) 1951-2000
4) 2001-2025



1893 - International Classification of Diseases (now managed by WHO)

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RAiD
Research Activity iDentifier

A single source of truth for research project activities

Clifford Tatum – SURF, Leiden University
Giacomo Cannizzaro - SURF

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Question: The ORCID identifier, aimed at uniquely identifying researchers, is also used to identify non-human “things”

YES

NO

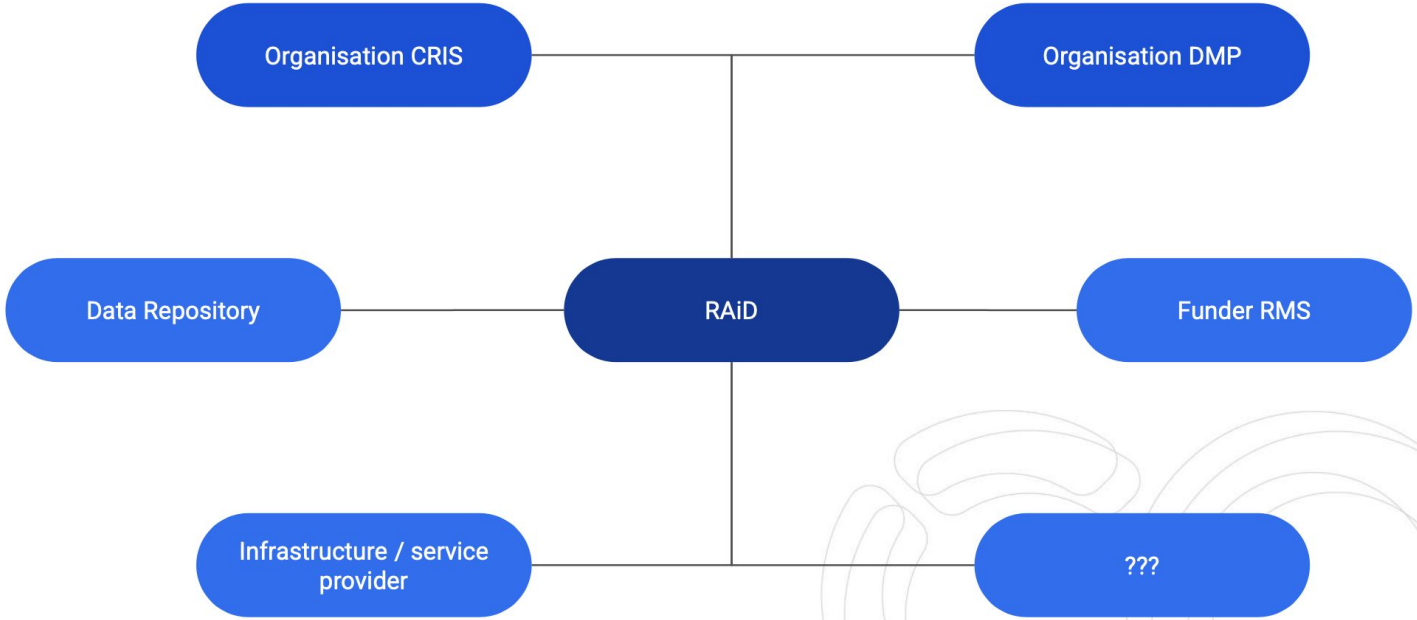
Facts about RAiD

- RAiD is a PID, a registry, and a collaborative metadata management system for research projects and activities, linking **organisations, people, inputs, and outputs** to a project and storing other **key project information**.

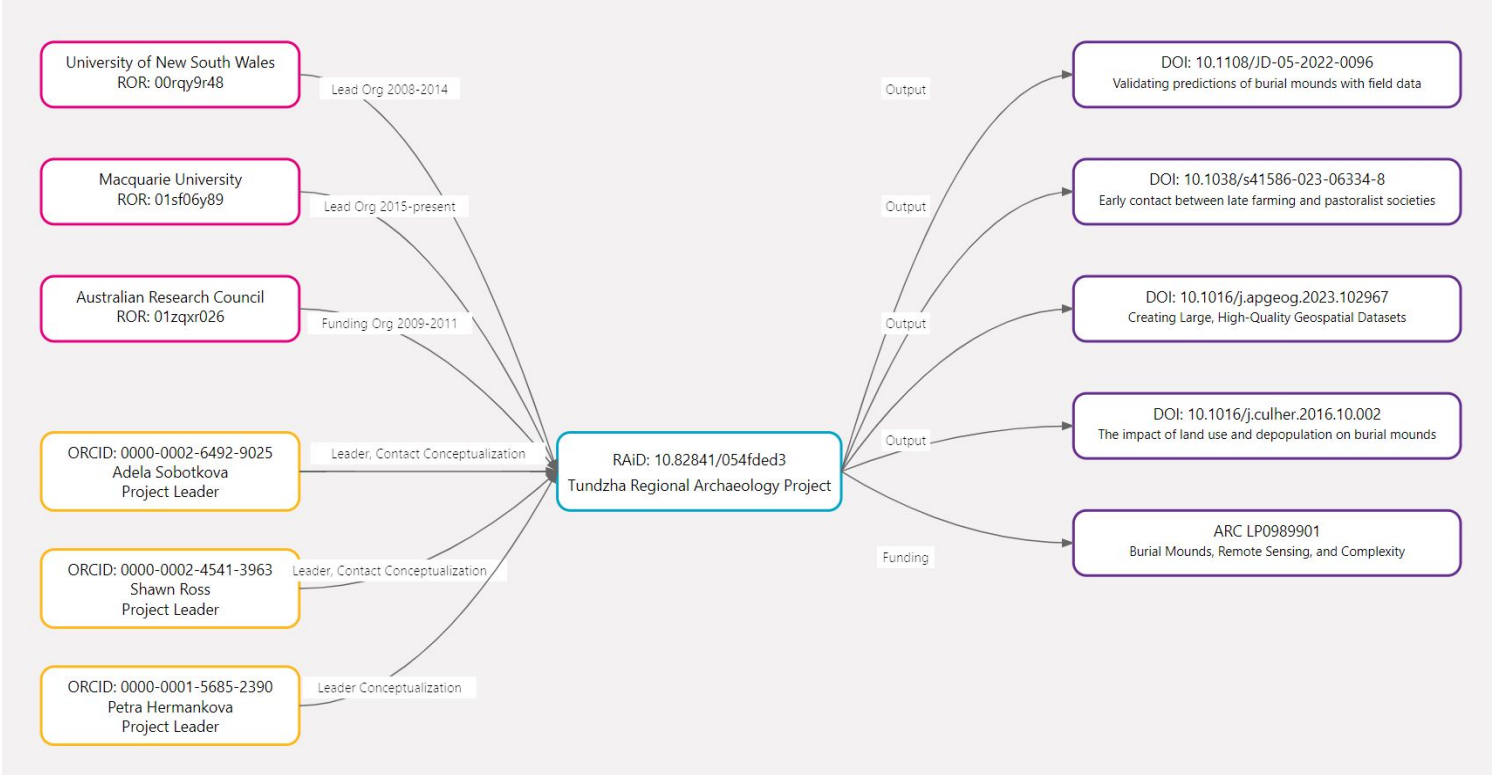
- Governed by **ISO Standard 23527:2022** with the **ARDC as the global Registration Authority** and lead developer of the system.

- RAiD will be implemented in the EOSC catalog and the RAiD service will be delivered form the RAiD RA at SURF.

Using RAiD as ‘source of truth’ for many systems



Entities related to a RAiD



RAiD provides persistent, unique and resolvable information for research projects.

RAiD is designed to address a key challenge faced by researchers, research administrators, funders, publishers, and others in the research ecosystem—maintaining consistent and up-to-date information on projects throughout the research lifecycle.

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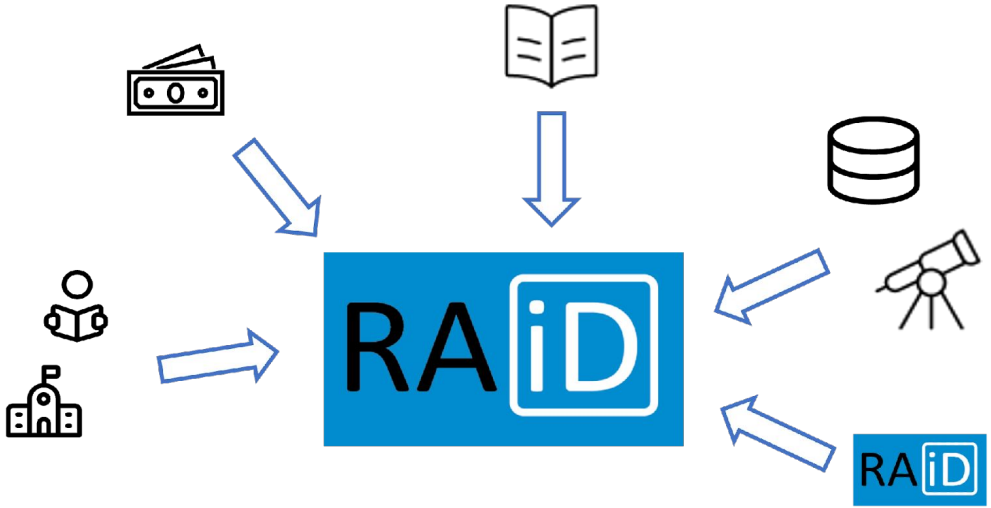
RAiD envelope

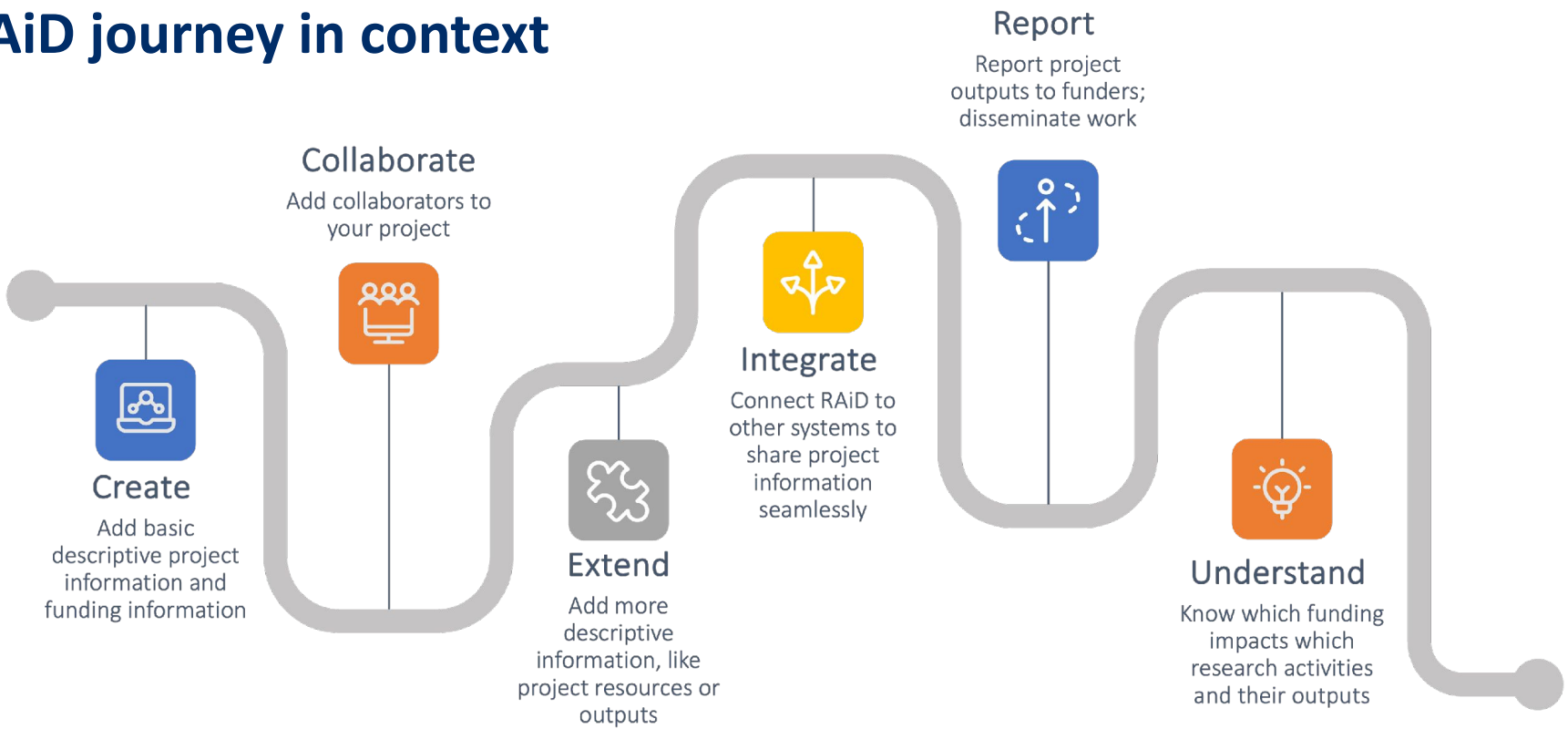
Dates	Titles	Descriptions	Contributors
Organisations	Related Objects	Alternate Identifiers	Alternate URLs
Related RAiDs	Access	Subjects	



“PID First!”

Versioning

RAiD journey in context



User story: Registering, tracking and reporting research project information as a Primary Investigator (PI)

As a **Primary Investigator** I want to establish a **single-source of truth for project information**, to keep a record of project activity from inception and throughout its development.

A RAiD envelope contains core, project-specific metadata and project-contextual PIDs, linking project resources like instruments, data, funding, contributors, and research outputs like published datasets and papers.

By recording this project information as we go, we can easily report on research project activities for our own organization, but also to funders who are financing this work.

User story: Discovering and sharing information - onboarding of new collaborators

As a **Primary Investigator** I want to **onboard new researchers and collaborators** onto the project in a cohesive way:

- A PhD student needs to read foundational literature and learn the experimental setups.
- A senior researcher needs to align their expertise to the project and disseminate information.
- A data expert needs to understand the procedures in place and find areas of improvement.

With RAiD, I can quickly give these collaborators access to all the necessary resources in a homogeneous way using a single PID. I can use RAiD it to circulate any new information to the broader collaboration.

A RAiD represents a single source of truth for research projects.

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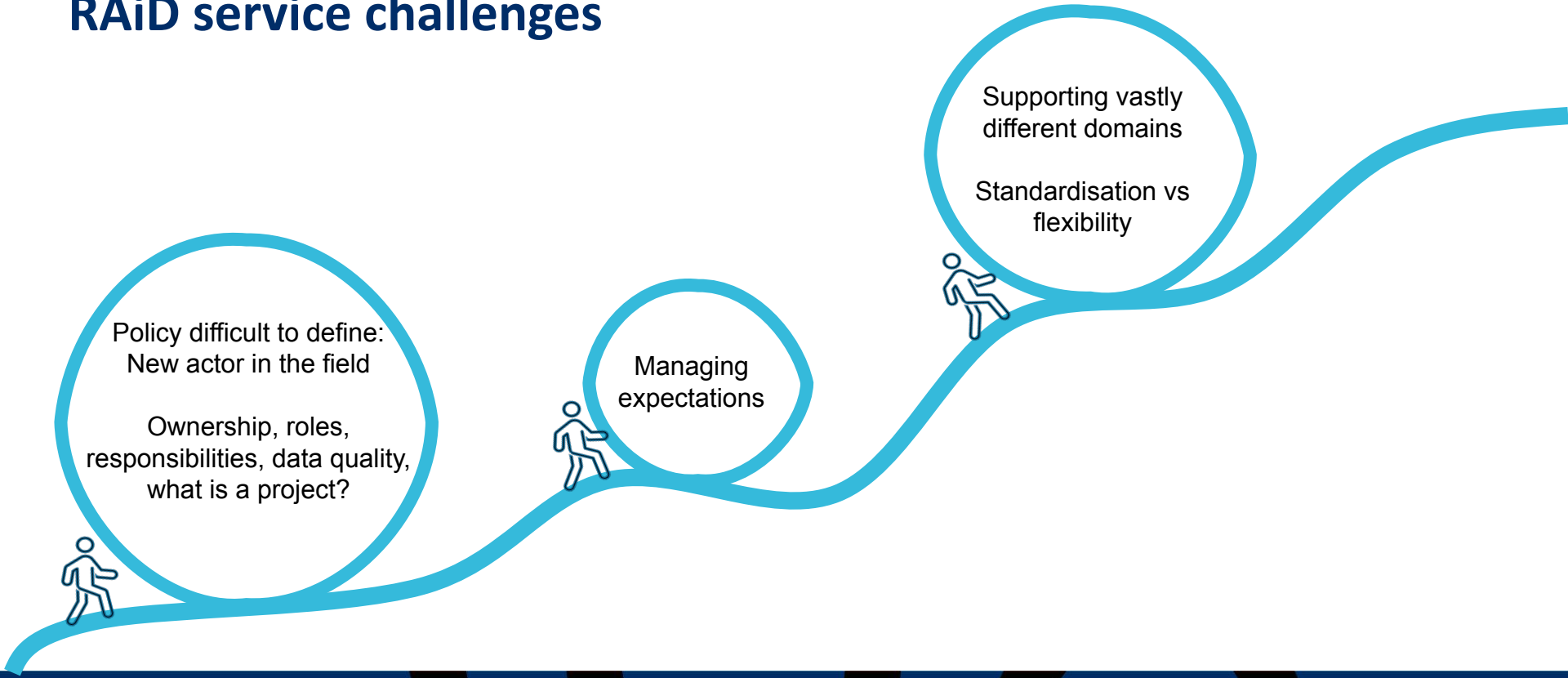
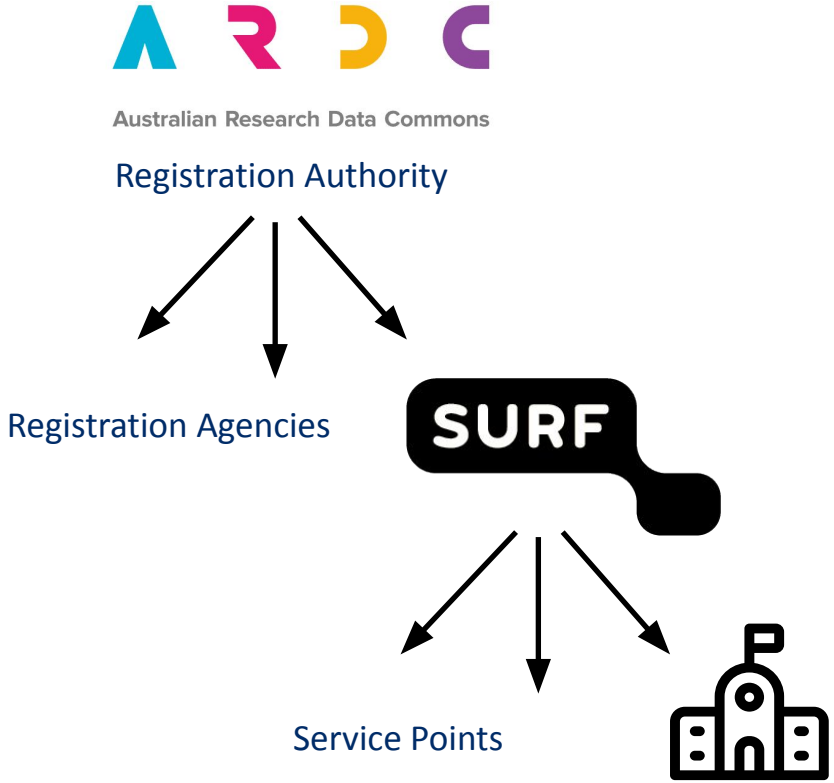
RAiD service challenges



Getting RAiD Operational

The steps we are taking to get RAiD running in the Netherlands:

- Gathering use cases for pilots from different institutes (also funders)
- Deploying the service using Service Points
  - ARDC > SURF > Service Points at Institutes > End-Users



Question: Most PIDs are domain-agnostic, but some are not. Can you guess which domain has the most tailor-made PIDs in operation?

a. Astronomy
b. Earth and Environmental Science
c. Humanities
d. Life Sciences
e. Physical Science

Question: Most PIDs are domain-agnostic, but some are not. Can you guess which domain has the most tailor-made PIDs in operation?

a. Astronomy
b. Earth and Environmental Science
c. Humanities
d. Life Sciences
e. Physical Science

Life Sciences has over 25 domain specific PIDs in operation!

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EOSC Compliant PID Policies for PID Managers

Presenter : René van Horik - DANS
Wim Hugo - DANS

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Is this statement true?

All Digital Object Identifiers (DOIs) are a Handle, but not all Handles are a DOI.

yes

no

How can we define ‘EOSC compliant PID policies for PID Managers’?

In order to answer this question have to know:

1. What is the importance of the EOSC PID policy and what do we gain from it?
2. What is the role of PID managers in the PID ecosystem?
3. Which services, standards, mechanisms, management tasks play a role in a PID policy?
4. Which guidelines are applicable when formulating an EOSC compliant PID policy?

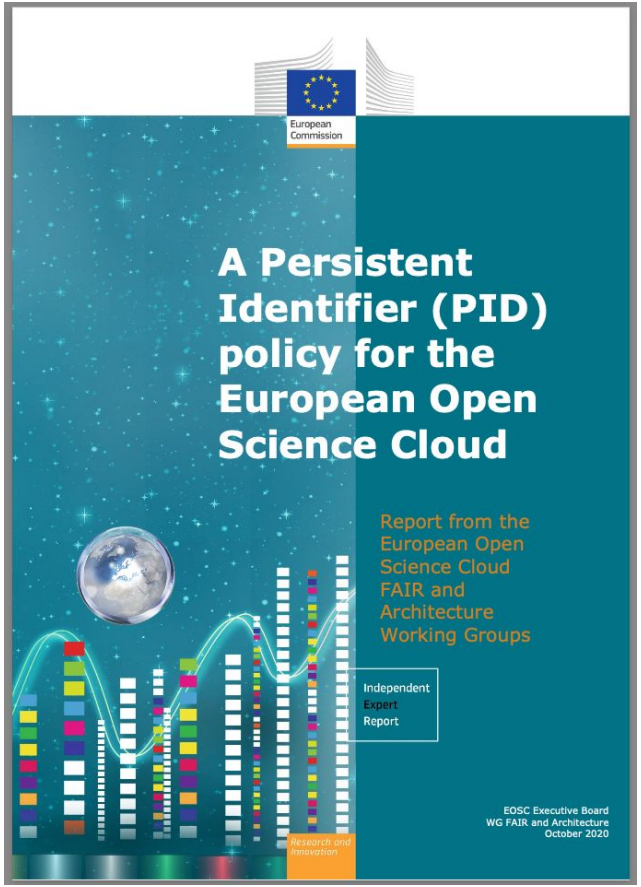
Bonus question:

5. How to assess the compliance of a PID policy for PID managers?

What is the importance of the EOSC PID policy and what do we gain from it?

Random example of principle / objective of the EOSC PID policy:

"The basic services of PID registration and resolution will have no cost to end users." (page 9)



European Commission: Directorate-General for Research and Innovation, Hellström, M., Heughebaert, A., Kotarski, R., Manghi, P. et al., *A Persistent Identifier (PID) policy for the European Open Science Cloud (EOSC)*, Publications Office, 2020, **https://data.europa.eu/doi/10.2777/926037**

What actors and roles can we distinguish in the ‘PID Ecosystem’?

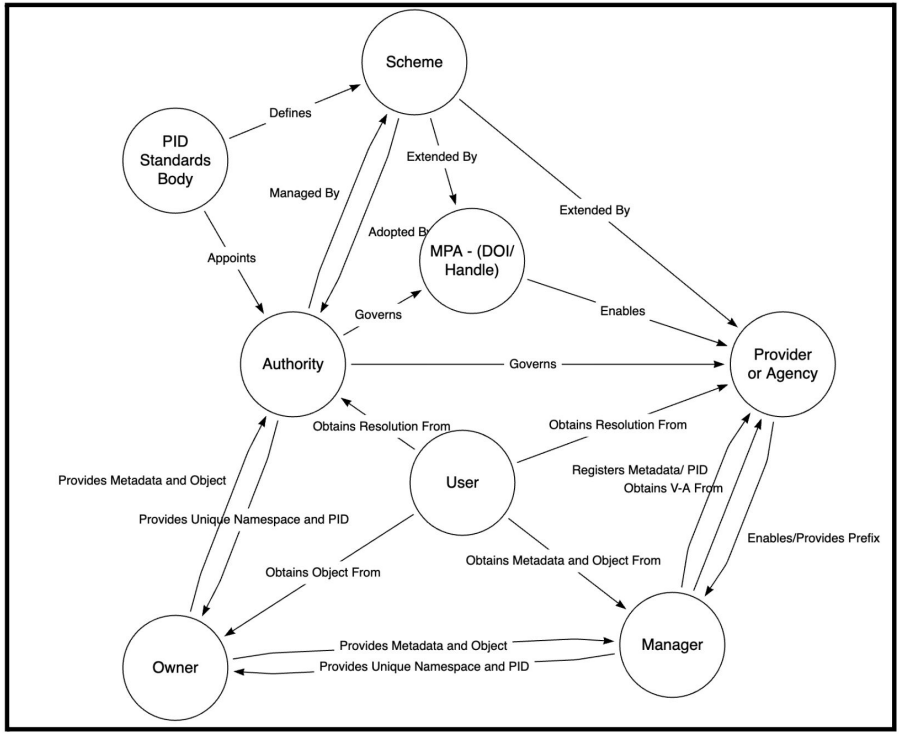


Figure 2 - Actors and Roles in the PID Ecosystem

van Horik, R., & Hugo, W. (2024). D3.3 - Guidelines for creating a user tailored EOSC Compliant PID Policy. Zenodo. https://doi.org/10.5281/zenodo.14092489, p. 14

Scheme	A set of rules and standards defining the nature of a PID Template of specific PID. E.g. Handle/ DOI/ ORCID/ ROR
Authority	A controller responsible for maintaining the rules for defining the integrity of PIDs within a PID Scheme. DONA foundation (for the Handle id) ARK alliance (ARK for the ARK id). Manages namespaces within the scheme to guarantee uniqueness.
Provider	An organisation which provides PID services in conformance to a PID Scheme, subject to its PID Authority. Datacite (legal entity) Crossref (legal entity) National Library (URN:NBN id) CLARIN (ePIC) (legal entity) Manages kernel metadata.
Manager	Responsible to maintain the integrity of the relationship between entities and their PIDs, in conformance to a PID Scheme defined by a PID Authority. For example, PID Managers may include a provider of a data repository, a data catalogue, or a research workflow system. Registers the PID on behalf of the owner and ensures minimum (kernel) metadata is available. Ensures that the PID remains linked to the object or concept being referenced.
Owner	Organisation or Individual who has the authority to create a PID, assign PID to an entity, provide and maintain accurate Kernel Information for the PID. The owner of t he work is the owner of the PID. E.g. author of work / legal depositor. The person that can be held responsible to maintain the metadata.

Which services, standards, mechanisms, management tasks play a role in a PID policy?

Introducing the PID Stack

A specific set of services and actors (Authorities, Schemes, Providers, and Multi-Provider Agencies), supported by standardisation, resolution mechanisms, and namespace management that results in a branded or unique PID service for PID Managers. Stacks can reuse services provided by Actors - for example the same Scheme can be used by many Stacks.

All Digital Object Identifiers (DOIs) are a Handle, but not all Handles are a DOI.

yes

Scheme	Authority	MPA[21]	Provider (Registration Agencies)	Manager (Examples)
Handle System	DONA Foundation	International DOI Foundation	CrossRef DOI	
Handle System	DONA Foundation	International DOI Foundation	DataCite DOI	DANS, Zenodo
Handle System	DONA Foundation	ePIC Consortium	GRANT, CLARIN, …	GRNET, GWDG
ISNI	ISNI-IA	ISNI-AA	e.g. British Library	
ISNI	ISNI-IA			
ISNI	ORCID	N/A	ORCID	NWO
N2T	ARK Alliance	N/A	CDL	Individual Owners
URN	URN:NBN	N/A	URN:NBN:NL	Individual Owners
URN	URN:NBN	N/A	URN:NBN:FI	Individual Owners
URN	URN:ISBN	N/A	National Libraries	National Libraries

Table 2 - Examples of PID Stacks

MPA = Multi-Primary Administrator is an organisation that is authorised and credited by the authority (e.g. the DONA foundation) to operate identifier services (such as the GHR, the Global Handle Registry).

van Horik, R., & Hugo, W. (2024). D3.3 - Guidelines for creating a user tailored EOSC Compliant PID Policy. Zenodo. https://doi.org/10.5281/zenodo.14092489 p. 16

Which guidelines are applicable when formulating an EOSC compliant PID policy?

Principles and objectives of the EOSC PID policy (and other resources) are translated into criteria for (for PID managers)

- E.g. "the basic services of PID registration and resolution will have not cost to end users" (= fragment of the EOSC PID policy)
- is translated in criterion "the basic services of PID registration and resolution SHALL have no cost to end users" (criterion 22)

A total of 35 criteria are defined (for all 5 actors in the PID ecosystem)

- The table below gives an overview of the first 11 criteria extracted from the EOSC PID policy (and other resources)

#	Criterion	Imperative	Scheme	Authority	Service Provider	Manager	Owner
C1	Minimum Operations	SHOULD			✓		
C2	Sensitive Metadata	MAY		✓	✓		
C3	Ownership	MUST		✓	✓		
C4	Maintenance	SHOULD					✓
C5	Update Functionality	MUST			✓	✓	
C6	Ownership Transfer	SHOULD				✓	
C7	Resolution Integrity	MUST				✓	
C8	Guidance	SHOULD			✓		
C9	Community Engagement	SHOULD			✓		
C10	Versioning - Schema	SHOULD			✓		
C11	Versioning - Procedure	SHOULD			✓	✓	
…	…	…	…	…	…	…	…

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Which guidelines are applicable when formulating an EOSC compliant PID policy?

01	Select a PID Stack that is globally unique and persistently resolvable
02	Manage persistence
03	Manage versions
04	Involve stakeholders
05	Conform to a PID Stack checklist
06	Select an appropriate scale -> *related to Criterion 22 "no cost for end users"*
07	Selecte appropriate identifiers schema and structure
08	Consider resolution options
09	Maintain resolution integrity
10	Manage metadata
11	Consider implementation of Machine-Actionable Extensions -> *related to Criterion 22 "no cost for end users"*
12	Monitor Resolution Integrity -> *related to Criterion 22 "no cost for end users"*
13	Take sensitive metadata into consideration
14	Consider periodic resolvability sampling -> *related to Criterion 22 "no cost for end users"*
15	Develop and implement sustainability and contiuity mechanisms
16	Adopt a level for maturity and availability of services

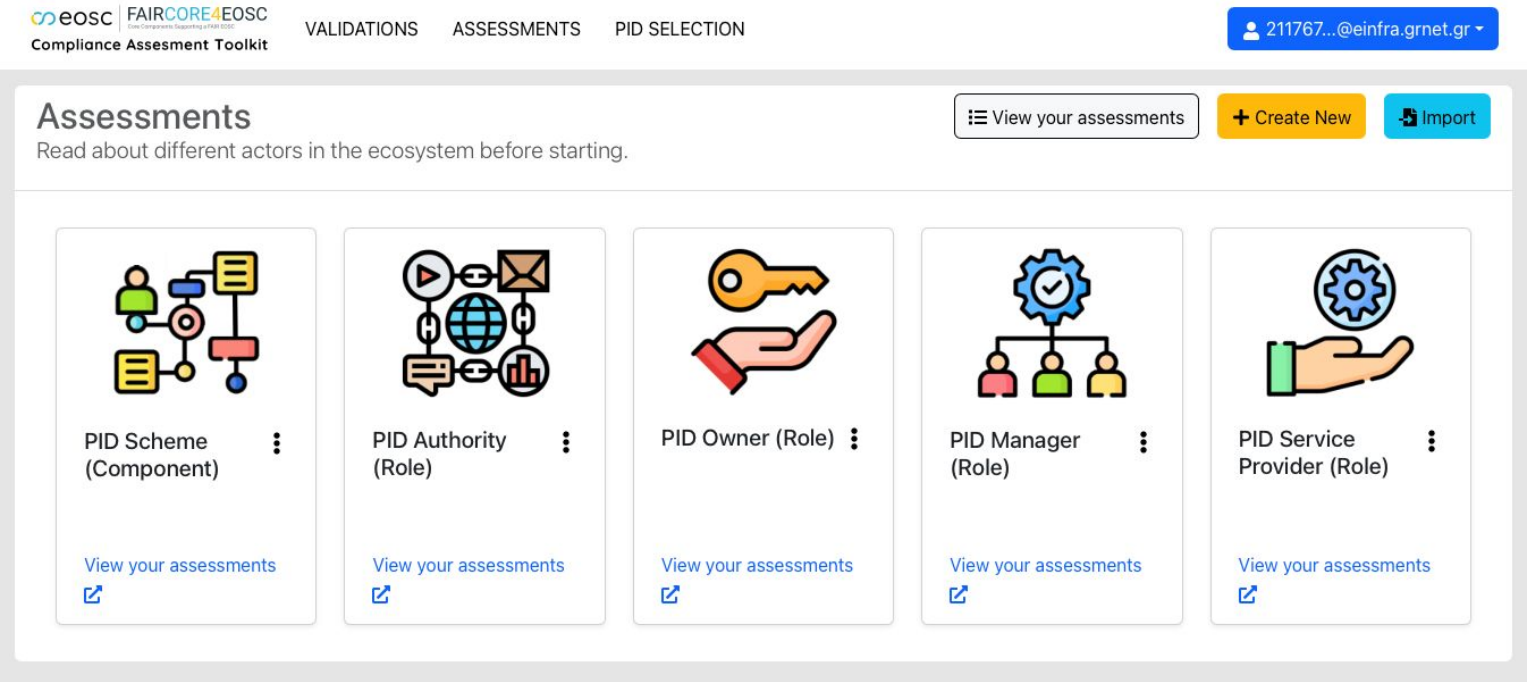
"16 guidelines for creating an EOSC compliant PID policy for PID Managers"

(van Horik, R., & Hugo, W. (2024). D3.3 - Guidelines for creating a user tailored EOSC Compliant PID Policy. Zenodo. https://doi.org/10.5281/zenodo.14092489 p. 34-46)

How can we define a ‘EOSC Compliant PID policy for PID Managers’?

1. (Evaluation/Review of) EOSC PID policy (and other resources) provides principles and objectives for PID policies 
2. The PID ecosystem defines the roles and functions for PID managers 
3. The PID stack defines a specific set of services for PID managers 
4. EOSC PID policy (and other resources) provides criteria for the compilation of guidelines to define a PID policy for PID managers 

Bonus: How to assess the compliance of a PID policy?



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Practical PID Guides for National Initiatives, Service Providers and Institutions

Presented by Natascha van Lieshout

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FAIR-IMPACT Project

Goal: Support the implementation of FAIR-enabling practices, tools and services across scientific communities and research outputs at a European, national, and institutional level.

How:

- Engage stakeholders using coordination and support mechanisms to optimize alignment
- Collaboratively identify current and emerging FAIR-enabling components (e.g. practices, policies, tools, technical specs)
- Translate components to be cross-domain and output type adoptable and support their application in other fields
- Define the needed support, governance and coordination mechanisms to ensure long term persistence of FAIR-enabling practices

Support offer #2: Creating EOSC compliant Persistent Identifier (PID) policies

Goal: *Develop a better PID policy/strategy, demonstrated through improved compliance with EOSC PID Policy using the compliance assessment toolkit (CAT).*

Basis stats:

Ran from May to Sept 2024
Part of Work Package “PIDs”
11 organisations
10k € offered to each team

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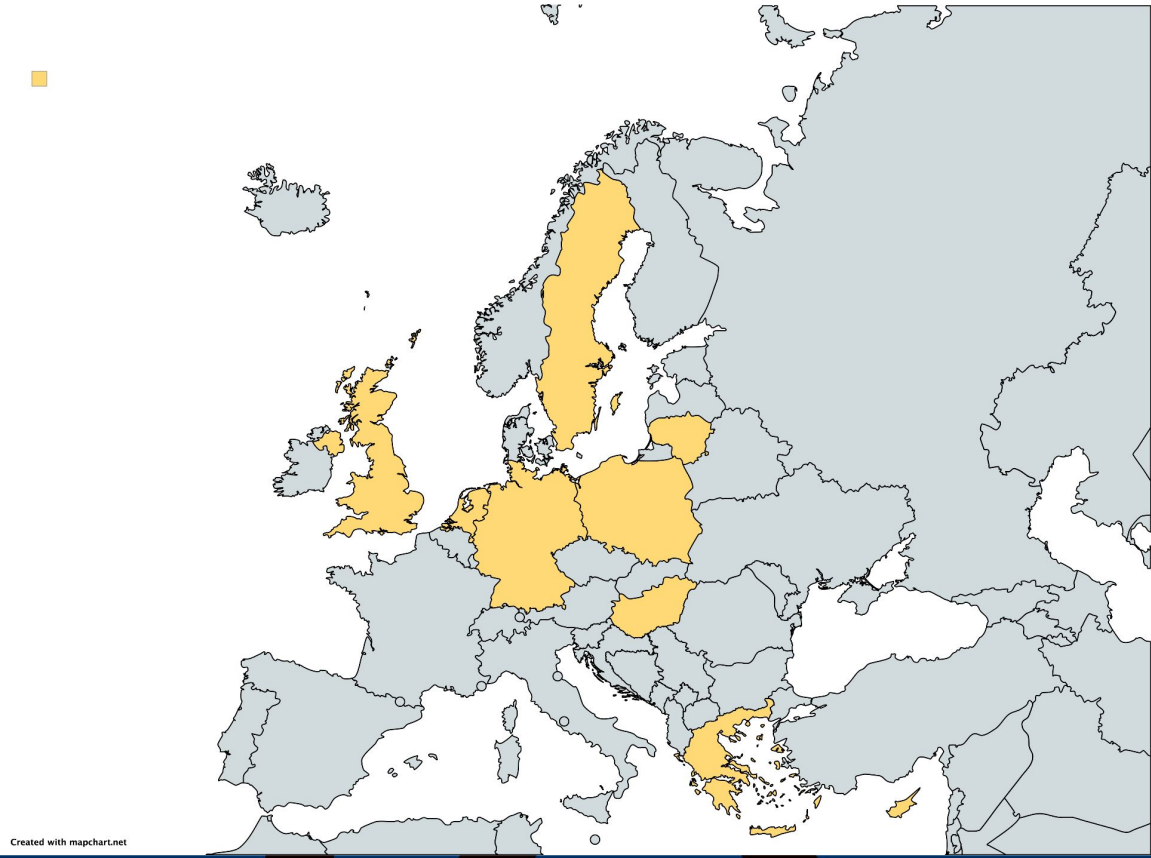
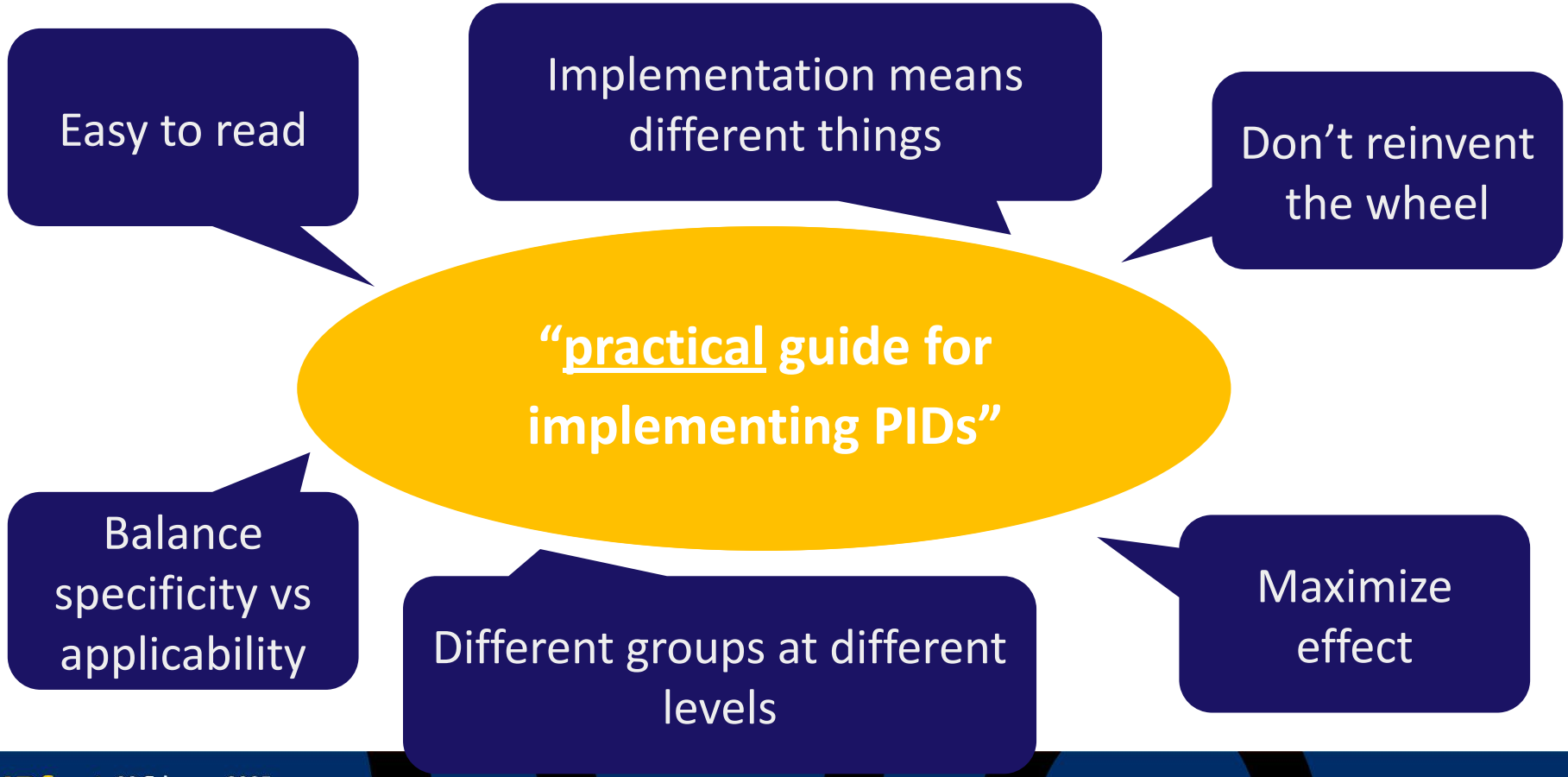
Participant Locations



Participant Communities

NATIONAL LEVEL INITIATIVES	SERVICE PROVIDERS	RESEARCH PERFORMING ORGANISATIONS
SLICES-RI	Gdańsk	RAISE
EHRI-RI	KTU/LIDA	**RESEARCH COMMUNITIES & INFRASTRUCTURES**
	TARKI	SZTAKI
	SND	GESIS
	SURF	
	RSpace	

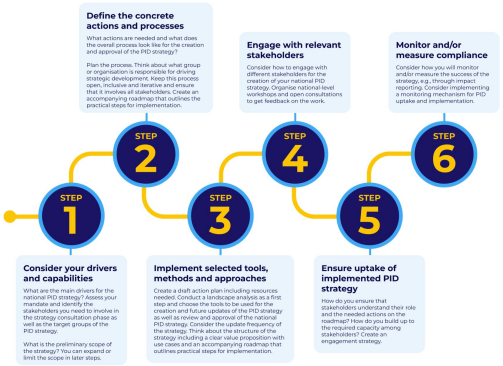

Easy to read
Implementation means different things
Don’t reinvent the wheel
“practical guide for implementing PIDs”
Balance specificity vs applicability
Different groups at different levels
Maximize effect

Practical PID Guide for National Initiatives

This guide is intended for organisations, groups or consortiums planning to implement a national level PID policy, strategy or set of recommendations.

Recommendations from the RDA National PID Strategies Guide and Checklist (2023)
Ensure you have:

- A clear value proposition with use cases
- A group or organisation that is responsible for driving strategy development
- An open, inclusive, iterative process that involves all stakeholders
- An accompanying roadmap that outlines practical steps for implementation



Practical PID Guide for Service Providers

This guide is intended to assist and inspire service providers within the European research domain who require integrations with a PID service(s) to improve the FAIRness, openness and utility of their offerings.

Practical PID Guide for Institutions

This guide is intended to assist and inspire institutions who have the responsibility to maintain the integrity of the relationship between entities (such as datasets, publications, and researchers) and their persistent identifiers. Examples are 'handles' for datasets, 'DOIs' for publications and 'ORCIDs' for researchers. Institutions in this respect are assigned the role of "PID managers": they must ensure that the persistent identifiers remain linked to the object or concept being referenced.

A number of guidelines and steps directed at institutions have been distinguished (see R14). The most prominent ones that an institution (in the role of PID manager) MUST follow are detailed here.

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Practical PID Guide for National Initiatives

Step 1: Consider your drivers and capabilities

Step 2: Define the concrete actions and processes

Step 3: Implement selected tools, methods and approaches

Step 4: Engage with relevant stakeholders

Step 5: Ensure uptake of implemented PID strategy

Step 6: Monitor and/or measure compliance

Practical PID Guide for National Initiatives

Recommendations from the RDA National PID Strategies Guide and Checklist (2023)

Ensure you have:

- A clear value proposition with use cases
- A group or organisation that is responsible for driving strategy development
- An open, inclusive, iterative process that involves all stakeholders
- An accompanying roadmap that outlines practical steps for implementation

Practical PID Guide for Service Providers

Step 1: Define what your PIDs will identify

Step 2: Involve your stakeholders and identify their role

Step 3: Identify PID visibility requirements

Step 4: Select a PID Service(s)

Step 5: Integrating PIDs in your system

Step 6: Advanced Policy Development

Step 7: Monitoring the PID service(s)

Practical PID Guide for Institutions

Step 1: Select a PID Stack that is globally unique and persistently resolvable

Step 2: Manage Persistence

Step 3: Manage versions

Step 4: Select an appropriate scale

Step 5: Maintain resolution integrity

Step 6: Develop and implement sustainability and continuity mechanisms

You want research to be findable?
Employ PIDs across the research landscape.
It'll take work but you're not alone.
There's guides.

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the European Union

Link to Document:

Link contains **Infographics, References** and **Glossary**

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RDGraph and PIDs

Paolo Manghi

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Is this statement true?

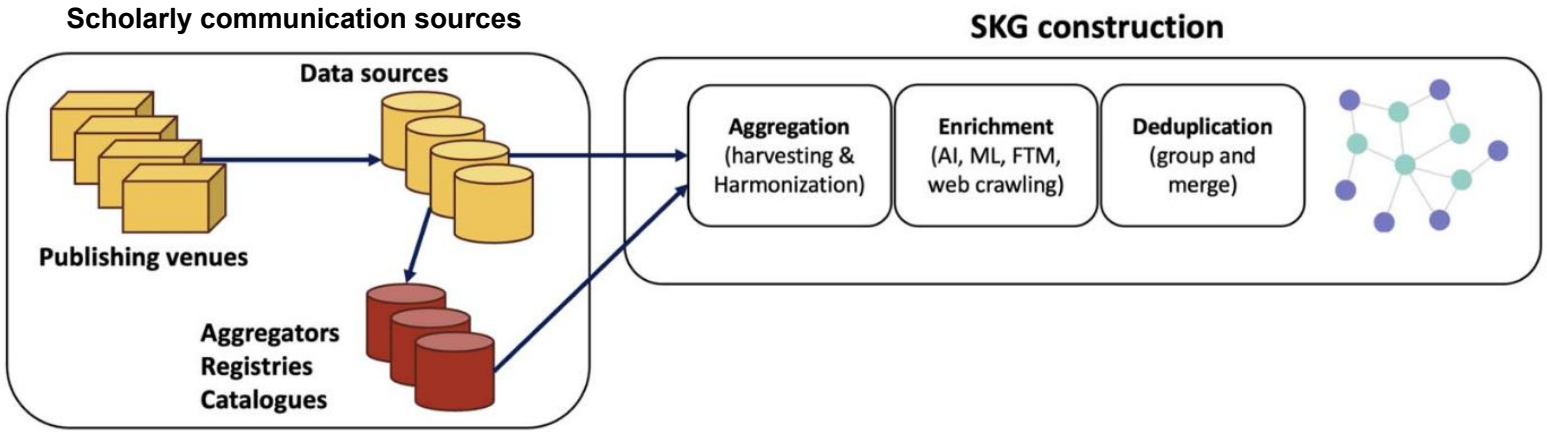
A PID from a given PID Registry will **forever resolve** to **the same entity** or **expected type of entity**

You bet!

Yeah sure…

What's and Why's of SKG

- Cross-disciplinary, cross-borders (metadata) maps of science
- Built by aggregating metadata from ScholComm Sources
- Used for Discovery and Research Assessment



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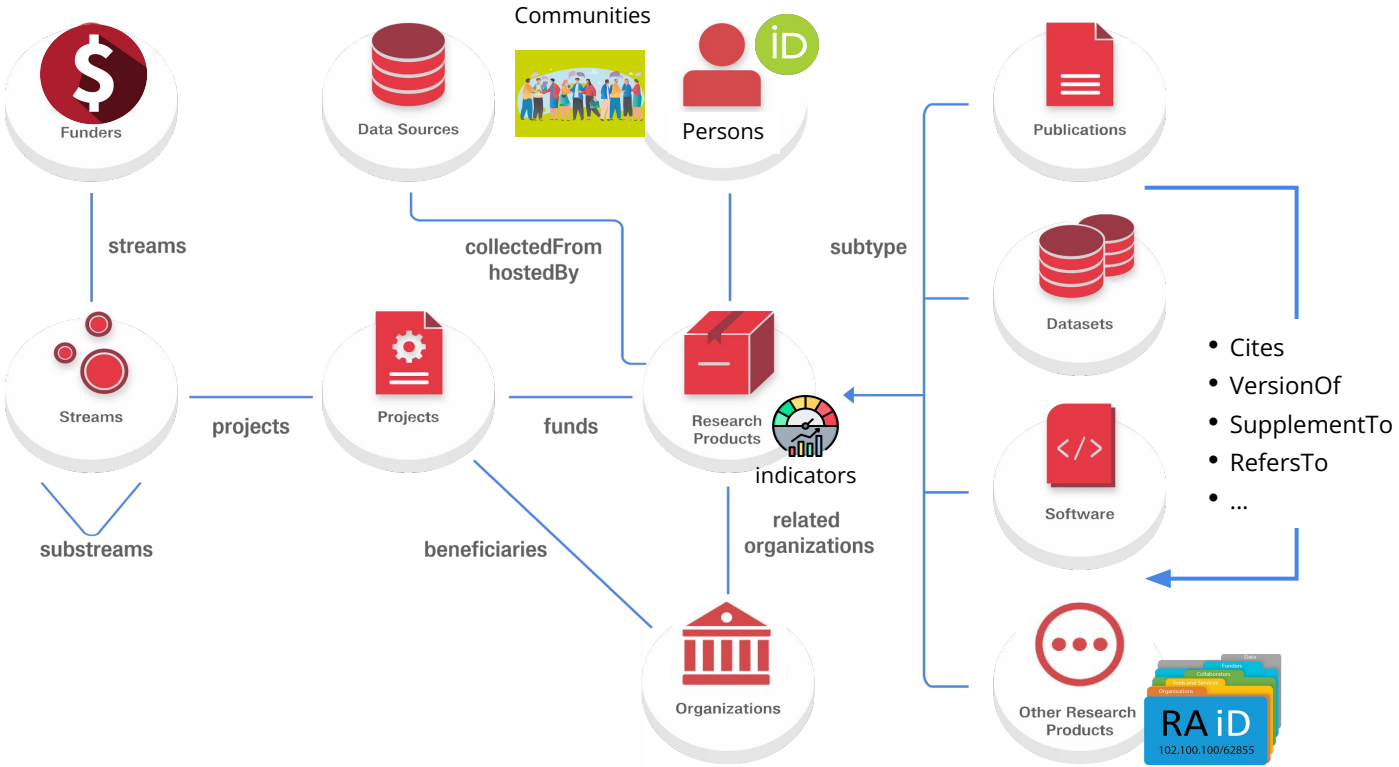
RDGraph Data Model: OpenAIRE Graph Data Model extended

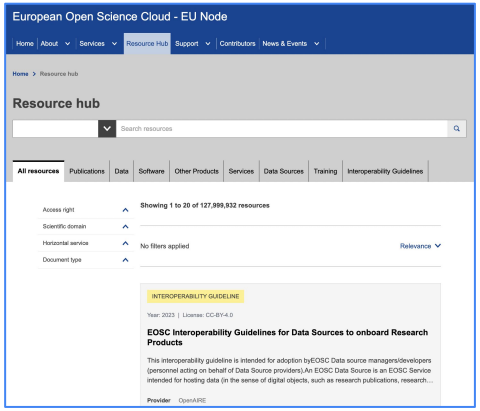


FC4E Research Discovery Graph (RDGraph)

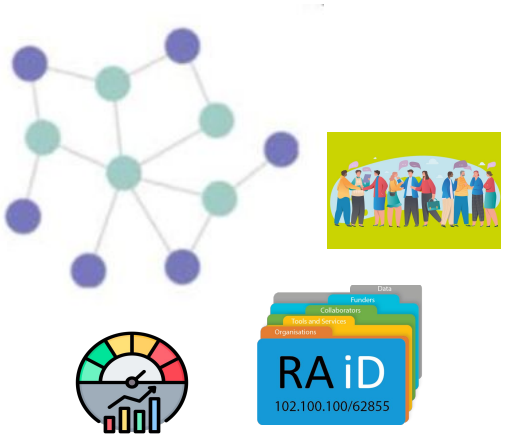
SKG interoperability framework

OpenAIRE Graph

EOSC Knowledge Graph



FC4E Research Discovery Graph



Graph extensions

- Indicators: citations, popularity, influence, impulse
- Research Activities
- Communities

PIDs in RDGraph

Authors

ORCID

Microsoft Academic

Organizations

GRID

ROR

CORDIS

and other funders

Products

DataCite

EMBL-EBI

arXiv.org

Identifiers.org

Crossref

Funders/Projects

CORDIS

FCT Fundação para a Ciência e a Tecnologia

NWO

Science Foundation Ireland sfi For what's next

ACADEMY OF FINLAND

and other funders

OpenAIRE

Data sources

re3data.org REGISTRY OF RESEARCH DATA REPOSITORIES

OpenDOAR

DOAJ DIRECTORY OF OPEN ACCESS JOURNALS

+ journal lists from publishers

FAIRSFAIR

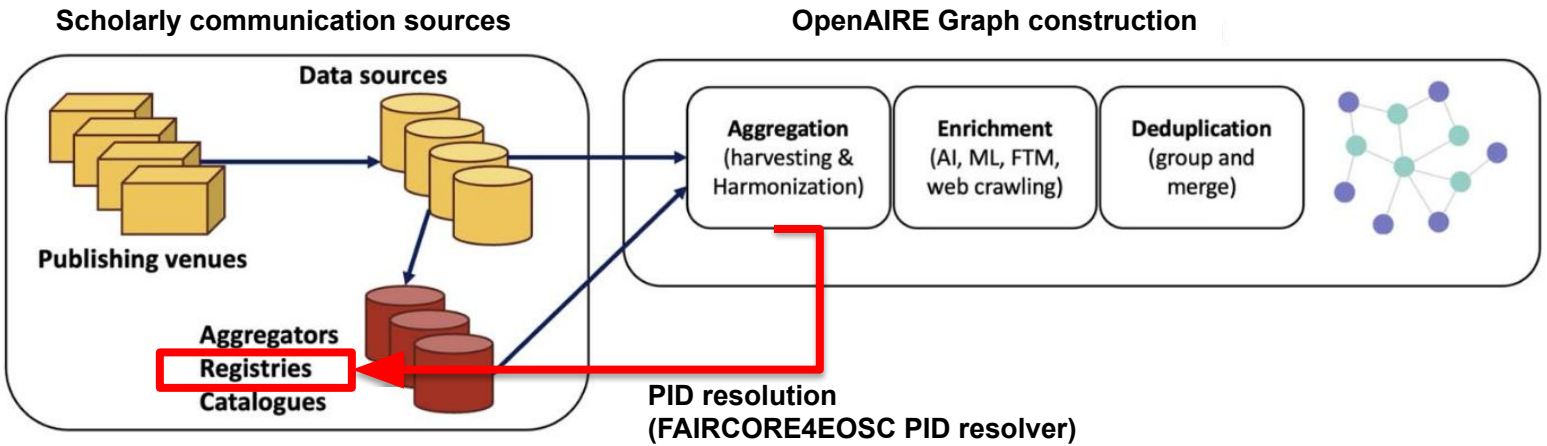
Services (fortcoming...)

EUROPEAN OPEN SCIENCE CLOUD

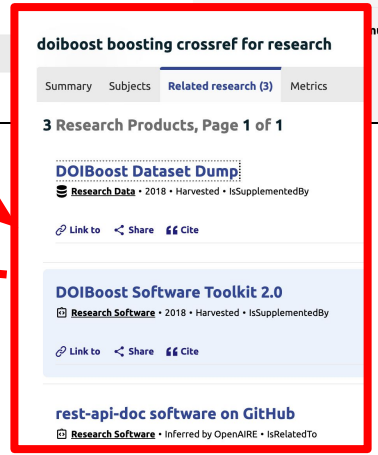
...Clusters and RIs service catalogues

PID registries shape the fabric of Scientific Knowledge

- Resolution: decoupling persistent identification and web URLs
- Enabling “stable” reality models: **interlinkining**, **enrichment**, and **deduplication**

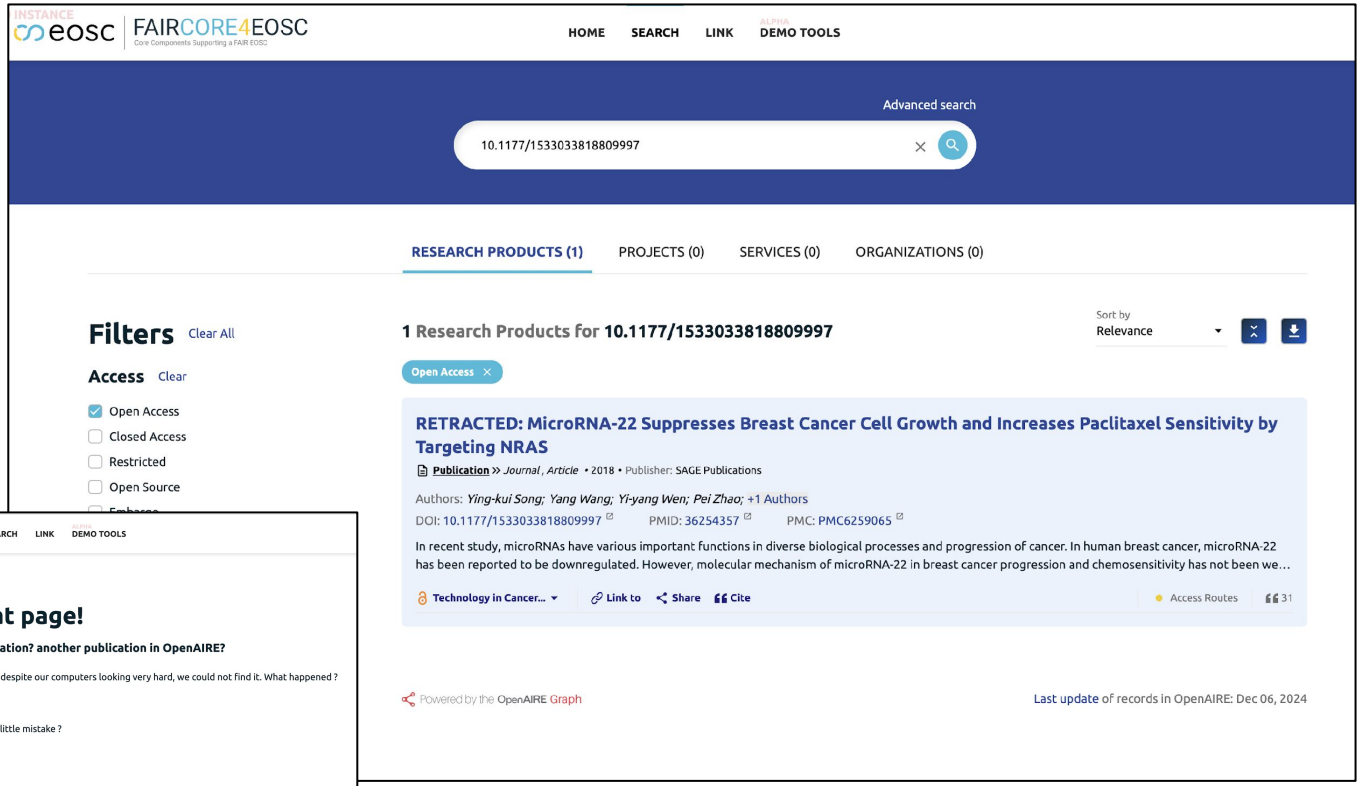


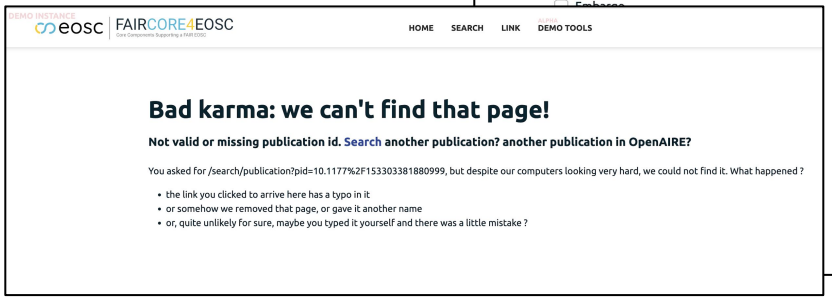
PID-enabled findability



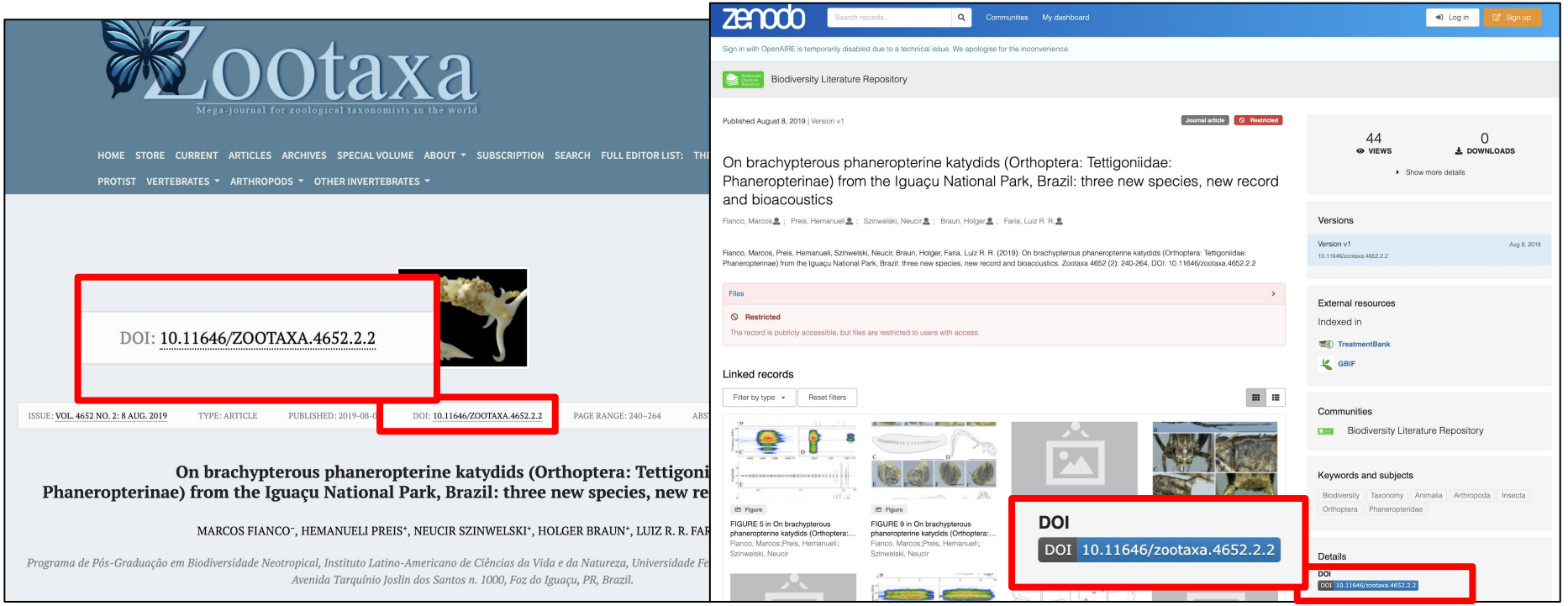
So, is everything done??

Retractions and Link Rot



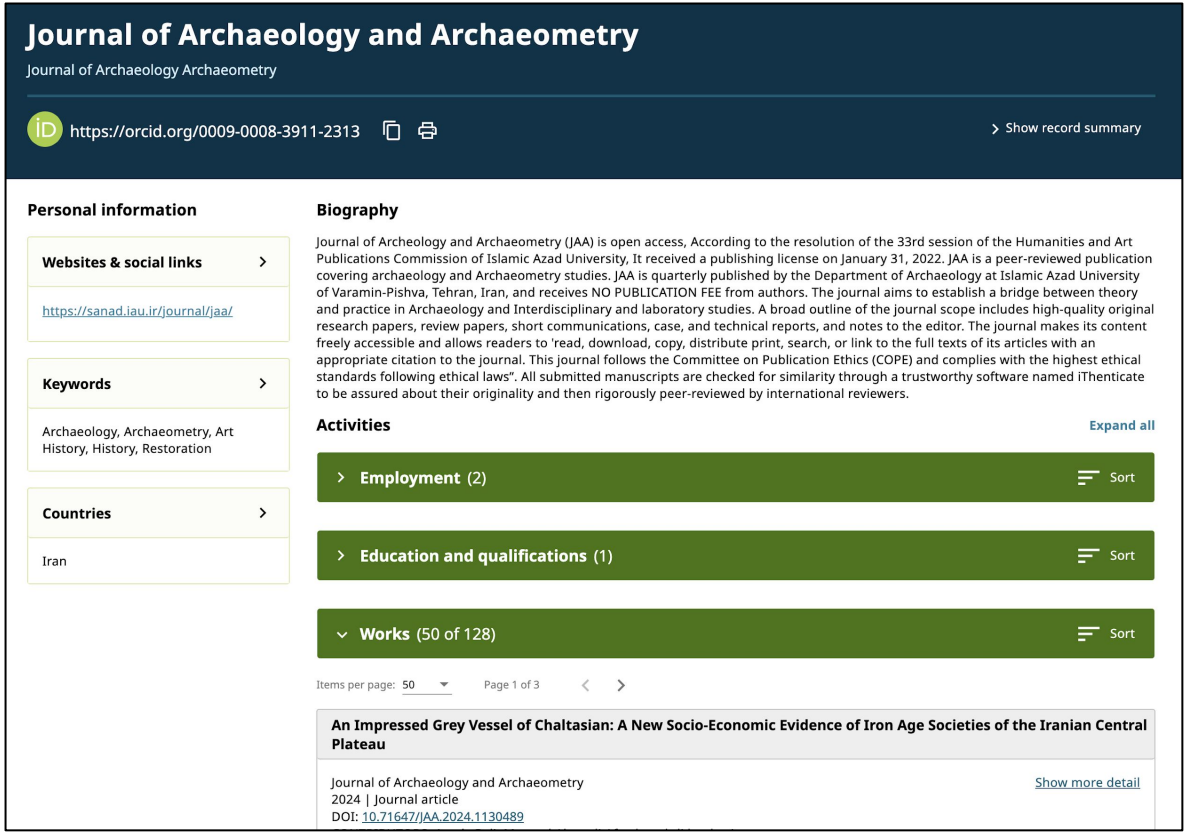


Overuse: Two DOIs, two records, two data sources



Multiple PIDs for the same objects

Misuse: ORCID for journals!



Journal of Archaeology and Archaeometry

Journal of Archaeology Archaeometry

https://orcid.org/0009-0008-3911-2313

Show record summary

Personal information

Websites & social links

https://sanad.iau.ir/journal/jaa/

Keywords

Archaeology, Archaeometry, Art History, History, Restoration

Countries

Iran

Biography

Journal of Archeology and Archaeometry (JAA) is open access, According to the resolution of the 33rd session of the Humanities and Art Publications Commission of Islamic Azad University, It received a publishing license on January 31, 2022. JAA is a peer-reviewed publication covering archaeology and Archaeometry studies. JAA is quarterly published by the Department of Archaeology at Islamic Azad University of Varamin-Pishva, Tehran, Iran, and receives NO PUBLICATION FEE from authors. The journal aims to establish a bridge between theory and practice in Archaeology and Interdisciplinary and laboratory studies. A broad outline of the journal scope includes high-quality original research papers, review papers, short communications, case, and technical reports, and notes to the editor. The journal makes its content freely accessible and allows readers to 'read, download, copy, distribute print, search, or link to the full texts of its articles with an appropriate citation to the journal. This journal follows the Committee on Publication Ethics (COPE) and complies with the highest ethical standards following ethical laws". All submitted manuscripts are checked for similarity through a trustworthy software named iThenticate to be assured about their originality and then rigorously peer-reviewed by international reviewers.

Activities Expand all

Employment (2) Sort

Education and qualifications (1) Sort

Works (50 of 128) Sort

Items per page: 50 Page 1 of 3

An Impressed Grey Vessel of Chaltasian: A New Socio-Economic Evidence of Iron Age Societies of the Iranian Central Plateau

Journal of Archaeology and Archaeometry
2024 | Journal article
DOI: 10.71647/JAA.2024.1130489

Show more detail

We need clear usage policies and ensure quality control

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Findability - Panel Discussion

Moderator: Paolo Manghi

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Granular Findability and Quality Assurance

Wim Hugo

Finding (and accessing) ***research outputs*** and the ***definitions of concepts and things*** described in the research hinges on an **Ecosystem of Persistent Identifier Stacks** - not all of which are well managed and governed, sustainable, or provides requisite functionality at the desired level of performance.

The ***Compliance Assessment Toolkit,*** developed by FAIRCORE4EOSC , and its accompanying ***Knowledge Base*** assists with improvement of fitness for use and selection of appropriate persistent identifiers for specific entities and use cases, supported by guidance and best practices.

"Link Rot"
More at 13h50

Facilitating end user implementations of PIDs

Josefine Nordling

Versioning

- ➔ Develop a versioning policy/procedure of PIDs
- ➔ Clearly communicate the boundaries constituting a minor or major change

Data Granularity

- ➔ Make a conscious choice that best serves the needs of potential re-use
- ➔ Assign a PID and new metadata to the subsets of a dataset used in an analysis

Source: https://www.freepik.com/

Sensitive Data

- ➔ Take a lifecycle perspective on sensitive metadata issues for PIDs
- ➔ Evaluate any pre-existing provenance history of custody

Complex Data Citation

- ➔ Only assign one PID of the same type for each unique digital object for consistent citations

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PID MetaResolver (PIDMR)

Sven Bingert

Harmonize the use of PIDs in **data management** and **data analytics** processes and supporting **FDO**s

Various (P)ID systems in use, resolvable

- via different API and technologies
- into different answers
  - Landing Page
  - Meta Data
  - Digital Object

PIDMR allows to integrate and use various PID systems in FDOs

PIDMR is

- based on stable and sustainable software
- using Handle System
- globally scalable
- based on open source software
- integrated in EOSC

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The Future of EOSC PID Policy

Tibor Kalman

EOSC PID Policy

- Draft new version is ready for consideration.
  - Text frozen. Some minor clean-up needed.
- Next steps are not entirely clear.
- PID Policy is fundamental for the federation.

Recommendations "OA1 Expert Group (PID)":

- Ownership & authority:
  - Consider this together with other policies.
- Governance:
  - EOSC Federation adopts the PID Policy (the same way like other policies).
- Self-Assessment + Expert's review

Supporting PID implementation:

- Emerging results of projects (KERs) will soon come and will advance the Federation ("making EOSC a better place").
- Resources and support for implementing PIDs will be available:
  - Projects developed software (CAT, etc), services (PIDMR, DTR, etc) and a PID Knowledge Base to support the PID Policy.

Technologies and alignment:

- Advanced technologies -- but often unclear governance and/or missing policies.
- Efficient AI requires PIDs (most prominent implementation: FDOs)

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Opportunities of enhanced discoverability

Mike Bennett

Increasing discoverability of research outputs - leveraging PIDs to provide a graph of people, places, and things

PIDGraph Data during FAIRCORE4EOSC

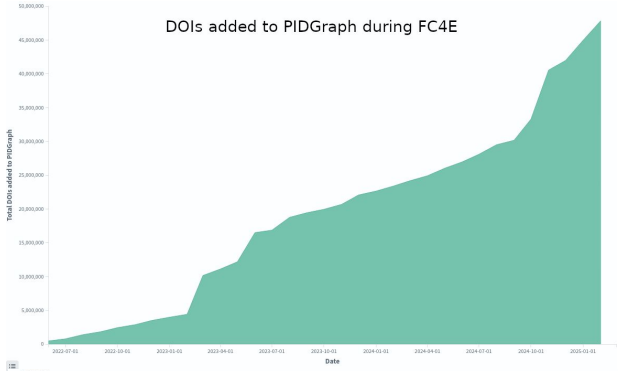
- 50 million DOIs added to PIDGraph
- 400 million vertices added to PIDGraph

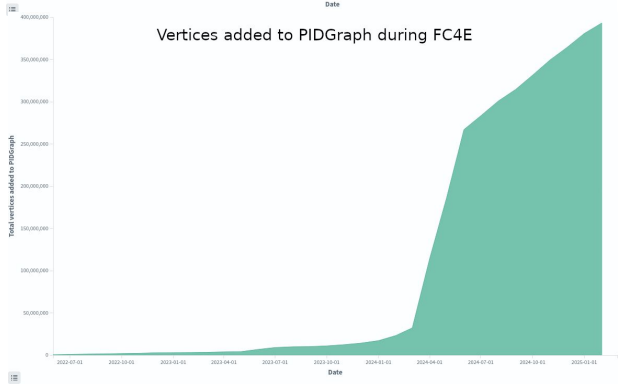
PIDGraph Data Dumps

- Designed for a range of use cases, from bootstrapping entire systems (e.g OpenAire RDGraph) to targeted analysis and data enhancement (e.g Research.fi)

PID Links

- Bringing in new relationships from FAIRCORE4EOSC partners





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