EUDAT Collaborative Data Infrastructure

Data shared and preserved across borders and disciplines

EUDAT Conference 2026

Machine Actionable DMP and EOSC interoperability - from local to integrated

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2026-11-25

Why a common data model for DMPs?

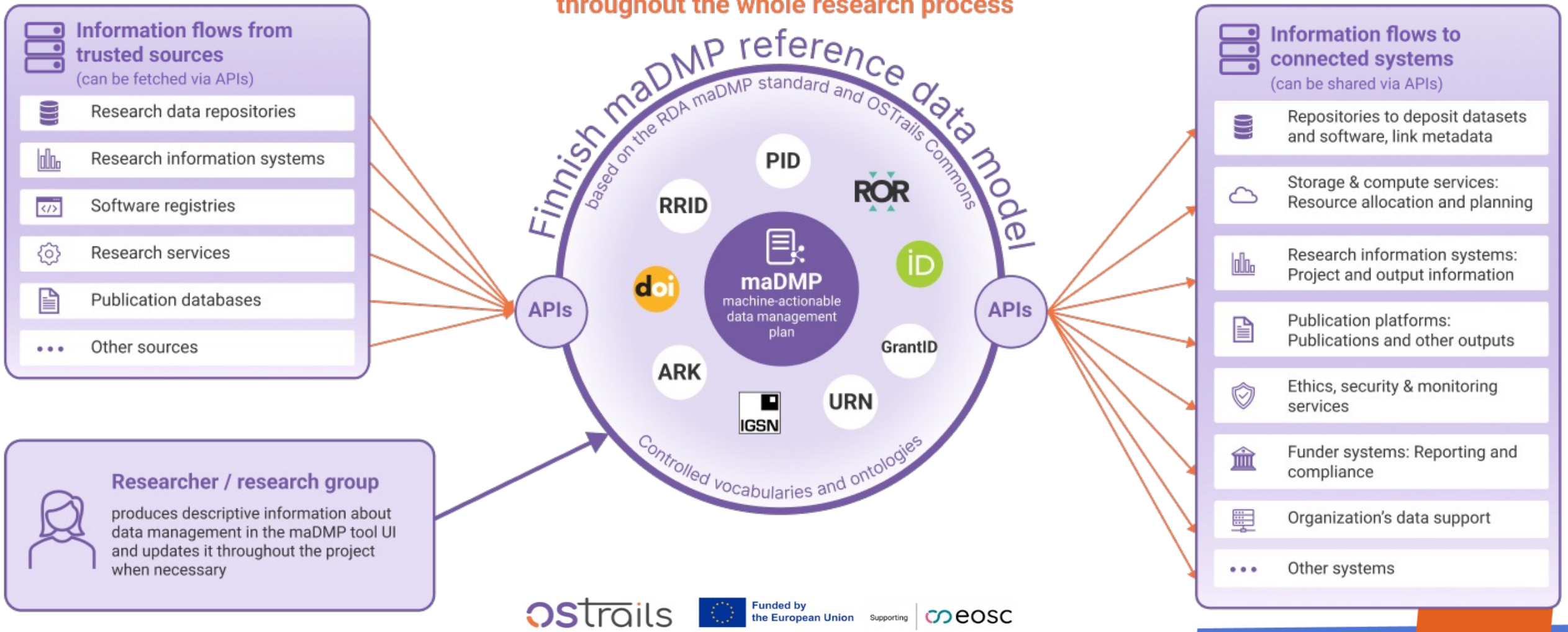


- **DMPs describe how research data is (or will be) managed**
  They are a required part of the research plan and help ensure the data can be reused (is FAIR).

- **Common data model would enable machine-actionable DMPs**
  The Research Data Alliance (RDA) proposed a common data model for DMPs to enable automated integration of information and updates, making them machine actionable.

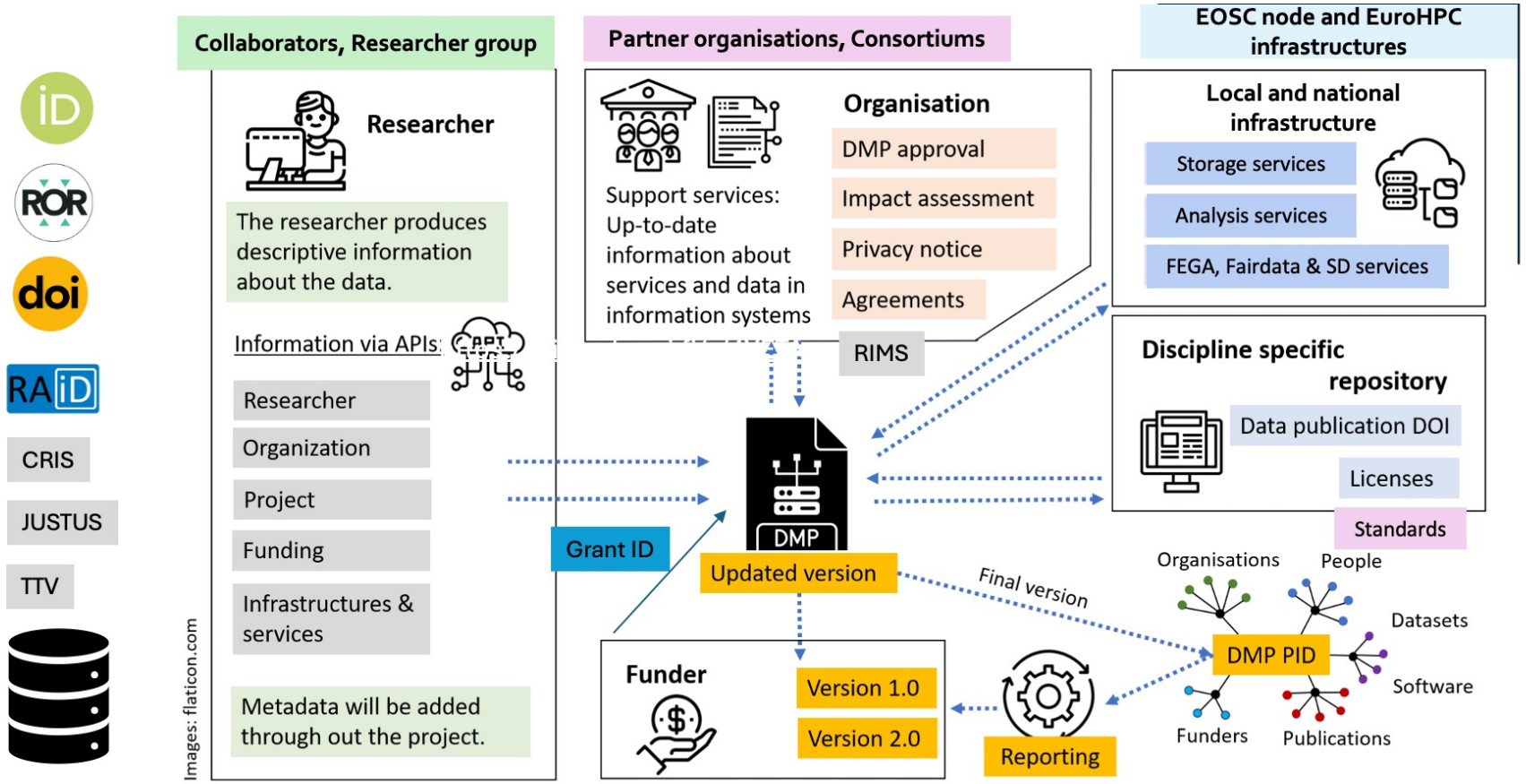
- **maDMP is a living document utilizing PIDs and structured data**
  It connects dynamically with institutional systems, funders, service providers and repositories over a project's lifecycle in the research ecosystem

maDMP is a living, interconnected resource for data management throughout the whole research process



OSTrails
Funded by the European Union
Supporting
eosc

maDMP core idea in research ecosystem



Aim

Making DMPs the instrument of choice for assessing and improving quality of RDM

DMP – Double meaning in the graph, moving from *Data Management Plans* into alive DMPs or even towards *Data Management Process*

OSTrails
Funded by the European Union
Supporting eosc

Four layers of interoperability: European Interoperability Framework - EIF



Legal frameworks: GDPR or AI act etc., Licensing, permits, agreements, audit trails...

Technical: Exchange protocols, APIs, Data formats, serializations, AAI

Organisational: Data policies, roles and responsibilities, Agreements, process alignment

Semantic: Community standards, semantic artefacts (vocabularies and ontologies), and mappings

EOSC IF recommendations and EUDAT

Technical interoperability

Open specifications

Unified security and privacy framework (AAI)

A clear and flexible PID policy

Coarse- and fine-grained search

Understandable SLAs

DOIs for records and handles for objects; B2SHARE, B2INST, B2SAFE and B2HANDLE; B2SHARE/B2INST REST API and JSON data model; B2ACCESS for AAI

Semantic Interoperability

Publish & manage semantic artefacts in FAIR format

Provide a Minimum Metadata Model

Allow discipline-specific extensions

Set up harvesting federation protocols

EUDAT shared schema, B2SHARE/B2INST community schema extensions; B2FIND harvests any schema with minimal fields; B2SHARE alignment with RO-Crate & Signposting

Organisational interoperability

Align Rules of Participation with interoperability requirements

Rcommend standard formats and metadata for providers

Define permanent identifiers for organisations and functions

Create interoperability maturity certification

B2ACCESS ORCID integration; B2SHARE/B2INST RoR, community onboarding to EUDAT services

Legal Interoperability

Machine-readable licences (CC0 for metadata),

Clear marking of copyright and reuse restrictions,

Privacy by design for GDPR,

Harmonised terms of use, and support for licence updates and tracking

B2SHARE licenses and embargoes (existing deposit options), and access management workflows

Next Steps & Opportunities

Next steps:

- Establish a national maDMP service with a backend repository for storing, managing, and exchanging machine-actionable Data Management Plans.
- Deploy service interfaces that enable integration with institutional and infrastructure systems.
- Define governance, metadata, and interoperability requirements for national implementation.

Potential Extensions:

- Support for machine-actionable Software Management Plans (maSMPs), building on the existing minimum model.
- Management and publication of FAIR Enabling Resources (FERs) and FAIR Implementation Profiles (FIPs) as FAIR digital objects or FAIR micro-publications.
- Integration with other machine-actionable research management artefacts across the research lifecycle.

Future Opportunities:

- Position maDMPs as an orchestration layer for research data and services, linking researchers, infrastructures, repositories, and support services.
- Utilize AI-assisted tools for:
  - DMP review and quality assurance
  - Metadata mapping and harmonization
  - Compliance checking and recommendation services

- Explore integration pathways with relevant EUDAT services (e.g., B2SHARE, B2HANDLE, B2FIND, B2SAFE) and other European EOSC components.
- Enable automated workflows that trigger services and infrastructure actions directly from information contained in maDMPs.
- European maDMP service options and their interoperability.

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25-27 November 2026

Thank you!

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