

FAIR Implementation Workshops

The HUN-REN Research Data Repository Platform

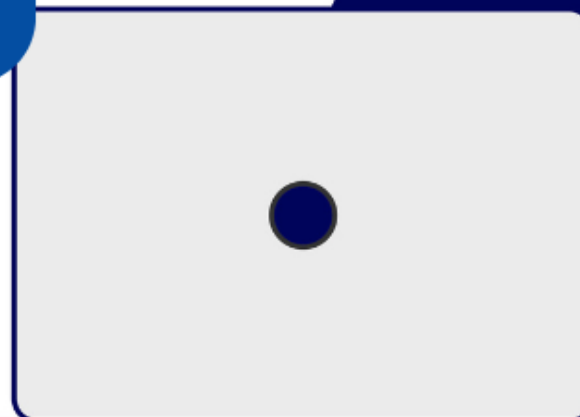
14:00 - 15:00 CET
2 April 2025

Online



AUDIENCE

Repositories & Data
Service Providers



Expanding FAIR Solutions across Europe



**Call HORIZON-INFRA-
2021-EOSC-01-05**

*Enabling discovery and
interoperability of federated
research objects across scientific
communities*

**Expanding FAIR
solutions in Europe**

**Partly following up on
FAIRsFAIR**

EU funded project

**Coordination and
Support Action**

10 million euro

**36 months, starting
1 June 2022**

**28 partners and
affiliate entities**

**From 10 EU
member states:
NL, FI, FR, DK,
IT, DE, ES, NO,
BE, RO**

and the UK

FAIR-IMPACT overall objective



WHAT:

to realise a FAIR EOSC by **supporting the implementation** of FAIR-enabling practices across scientific communities and research outputs at a European, national, and institutional level;

HOW:

- **identifying** current and emerging components for enabling FAIR (practices, policies, tools & technical specifications);
- **translating** viable solutions, guidelines and frameworks that have been developed for one domain or research output and **supporting** their application in others;
- taking the next step in implementation by **defining** the support, governance, and coordination mechanisms required to ensure the continuous function of FAIR-enabling practices in the EOSC.

Agenda

Introduction to the platform	László Kovács
Integration of the ARP Repository with the ARP Schema Registry and the RO-Crate Manager	Balázs Pataki
Crawling research metadata, building the Knowledge Graph and Federated Search components	András Micsik
Q&A + group discussion	All



HUN-REN ARP: The Hungarian Research Network's Research Data Repository Platform

László Kovács, Balázs E. Pataki, András Micsik
HUN-REN SZTAKI DSD
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About us



László Kovács, head of department
Balázs Pataki, senior software architect
András Micsik, senior software architect

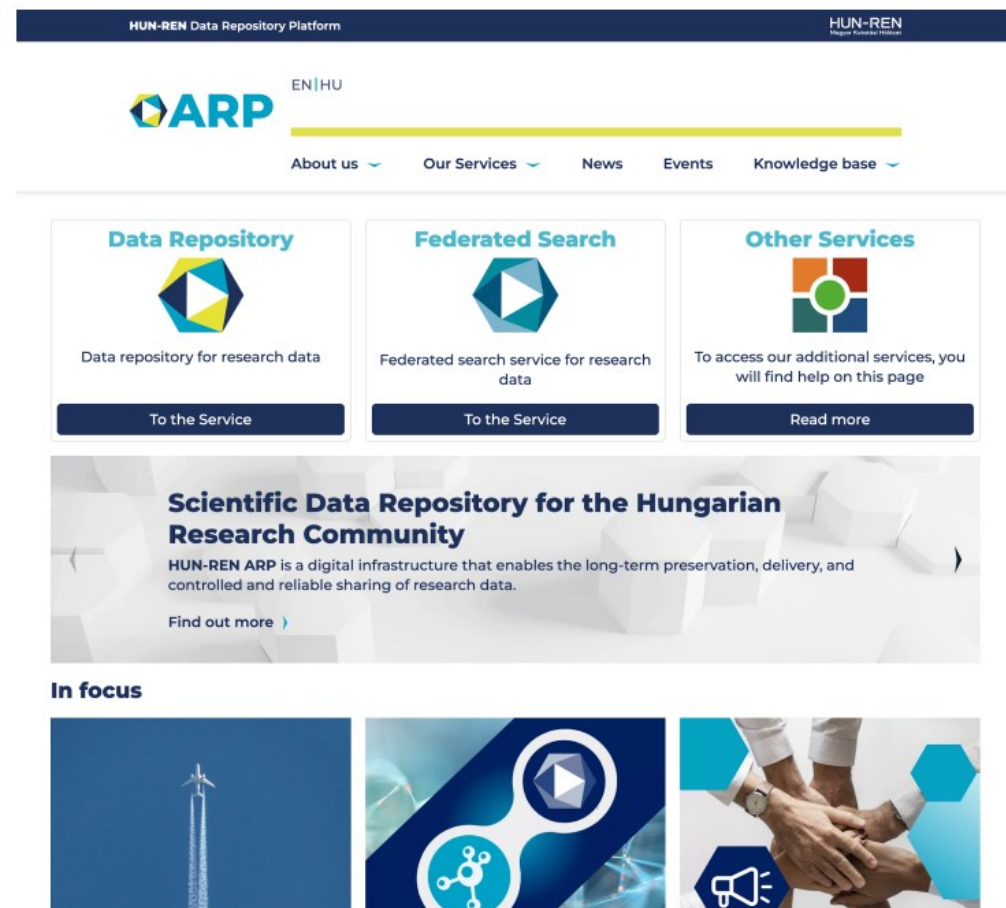
HUN-REN - Hungarian Research Network

SZTAKI - Research Institute for Computer Science and Control in Hungary, Budapest

DSD - Department of Distributed Systems, 30 years expertise in collaborative systems, digital libraries and repository systems

What is ARP?

- ARP (researchdata.hu) is a Hungarian national research data repository platform built by SZTAKI in partnership with the Center for Social Sciences (TK) and the Wigner Research Centre for Physics (Wigner)
- ARP has been created to provide comprehensive and adaptable data repository services, capable of accommodating all research disciplines practiced in Hungary
- Make it possible to publish any kind of research data with associated metadata.



The Hungarian Research Network – HUN-REN

- 11 Research Centres (42 Research Institutes)
- 8 Independent Research Institutes
- 116 Research Groups affiliated with universities
- conducting basic and applied research across all scientific disciplines, including SHAPE, STEM and life sciences



The Hungarian Research Network – HUN-REN



7 independent Research Institutes & 1 Office

HUN-REN Institute for Nuclear Research (HUN-REN ATOMKI)	Debrecen
HUN-REN Veterinary Medical Research Institute (HUN-REN VMRI)	Budapest
HUN-REN Balaton Limnological Research Institute (HUN-REN BLRI)	Tihany
HUN-REN Institute of Earth Physics and Space Science (HUN-REN EPSS)	Sopron
HUN-REN Institute of Experimental Medicine (HUN-REN IEM)	Budapest
HUN-REN Alfréd Rényi Institute of Mathematics (HUN-REN Rényi Institute)	Budapest
HUN-REN Institute for Computer Science and Control (HUN-REN SZTAKI)	Budapest
HUN-REN Office for Supported Research Groups (HUN-REN TKI)	Budapest

The Hungarian Research Network – HUN-REN

11 Research Centres, 42 Research Institutes

HUN-REN Centre for Agricultural Research (HUN-REN CAR) Martonvásár / Budapest	Agricultural Institute	HUN-REN Hungarian Research Centre for Linguistics (HUN-REN NYTK) Budapest	Institute for General and Hungarian Linguistics
	Plant Protection Institute		Institute for Lexicology
	Institute for Soil Sciences		Institute for Language Technologies and Applied Linguistics
HUN-REN Research Centre for the Humanities (HUN-REN RCH) Budapest	Institute of Archaeogenomics	HUN-REN Centre for Ecological Research (HUN-REN CER) Budapest / Vácrátót	Institute for Historical and Uralic Linguistics
	Institute of Philosophy		Institute of Evolution
	Institute for Literary Studies		Institute of Ecology and Botany
	Gyula Moravcsik Institute	HUN-REN Biological Research Centre, Szeged (HUN-REN BRC Szeged) Szeged	Institute of Aquatic Ecology
	Institute of Art History		Institute of Biophysics
	Institute of Ethnology		Institute of Biochemistry
	Institute of Archaeology		Institute of Genetics
HUN-REN Research Centre for Astronomy and Earth Sciences (HUN-REN CSFK) Budapest	Institute of History	HUN-REN Centre for Social Sciences (HUN-REN CSS) Budapest	Institute of Plant Biology
	Institute for Musicology		Institute for Legal Studies
			Institute for Minority Studies
HUN-REN Centre for Energy Research (HUN-REN EK-CER) Budapest	Geographical Institute		Institute for Political Science
	Institute for Geological and Geochemical Research		Institute for Sociology
	Konkoly Thege Miklós Astronomical Institute	HUN-REN Research Centre for Natural Sciences (HUN-REN RCNS) Budapest	Institute of Materials and Environmental Chemistry
HUN-REN Centre for Economic and Regional Studies (HUN-REN CERS) Budapest / Pécs	Atomic Energy Research Institute		Institute of Molecular Life Sciences
	Institute for Energy Security and Environmental Safety		Institute of Cognitive Neuroscience and Psychology
	Institute of Technical Physics and Materials Science		Institute of Organic Chemistry
			<i>Brain Imaging Centre</i>
			<i>Centre for Structural Sciences</i>
	Institute of Economics	HUN-REN Wigner Research Centre for Physics (HUN-REN Wigner RCP) Budapest	Institute for Particle and Nuclear Physics
	Institute for Regional Studies		Institute for Solid State Physics and Optics
	Institute of World Economics		

Hungarian Research - Basic National Services

MTMT, the Hungarian Science Bibliography (National CRIS)		SZTAKI DSD
HUN-REN Cloud	SZTAKI	HUN-REN ARP Federated Data Repositories SZTAKI DSD
Supercomputers		TuDOKK Federated Full Text Repositories SZTAKI DSD

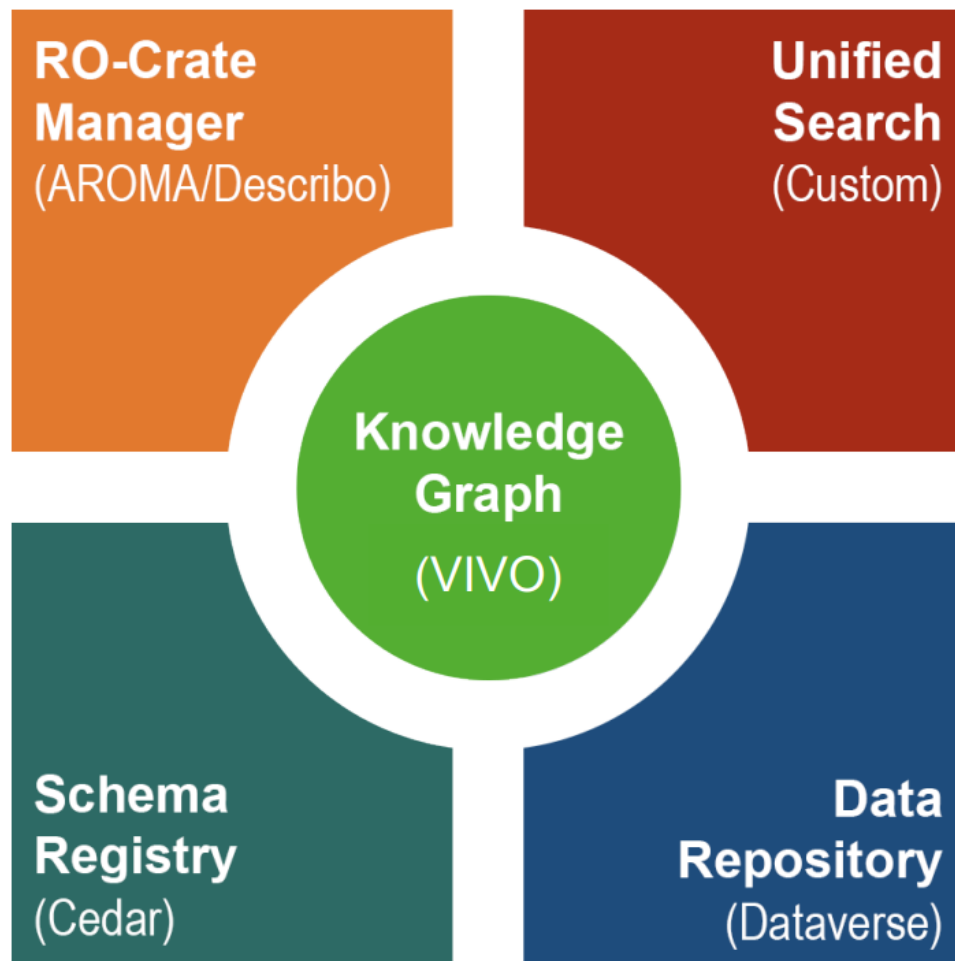
HUN-REN ARP

- A central repository platform (set of services) capable of serving all research institutes, universities (and industry research in a longer run) with diverse data and metadata needs
- A federation of existing and future data repositories (network)
- Central data store
- Single metadata schema registry service for the whole country (towards the semantic interoperability)
- Medium-term preservation of research data (5-10 years)
- Guided by Open Science and FAIR principles
- Development of services with EOSC compatibility in our mind
- Integration and extension of existing production level tools (high TRL levels)
- Other services:
 - Teaching, training programs (ARP services and UIs, Open Science, FAIR, policies, ...)
 - ARP ambassador, HUN-REN data steward programs
 - Policy crafting (data management, AUP,...)

HUN-REN ARP Development

..., 2020, 2021	Project proposal(s)
2022-23	Software development
2023	Hardware procurement (1.3 petabyte, 2 independent locations, triple redundancy + magnetic tape)
2024 March 10	ARP beta
2024 November 24	Official opening

ARP CORE Components



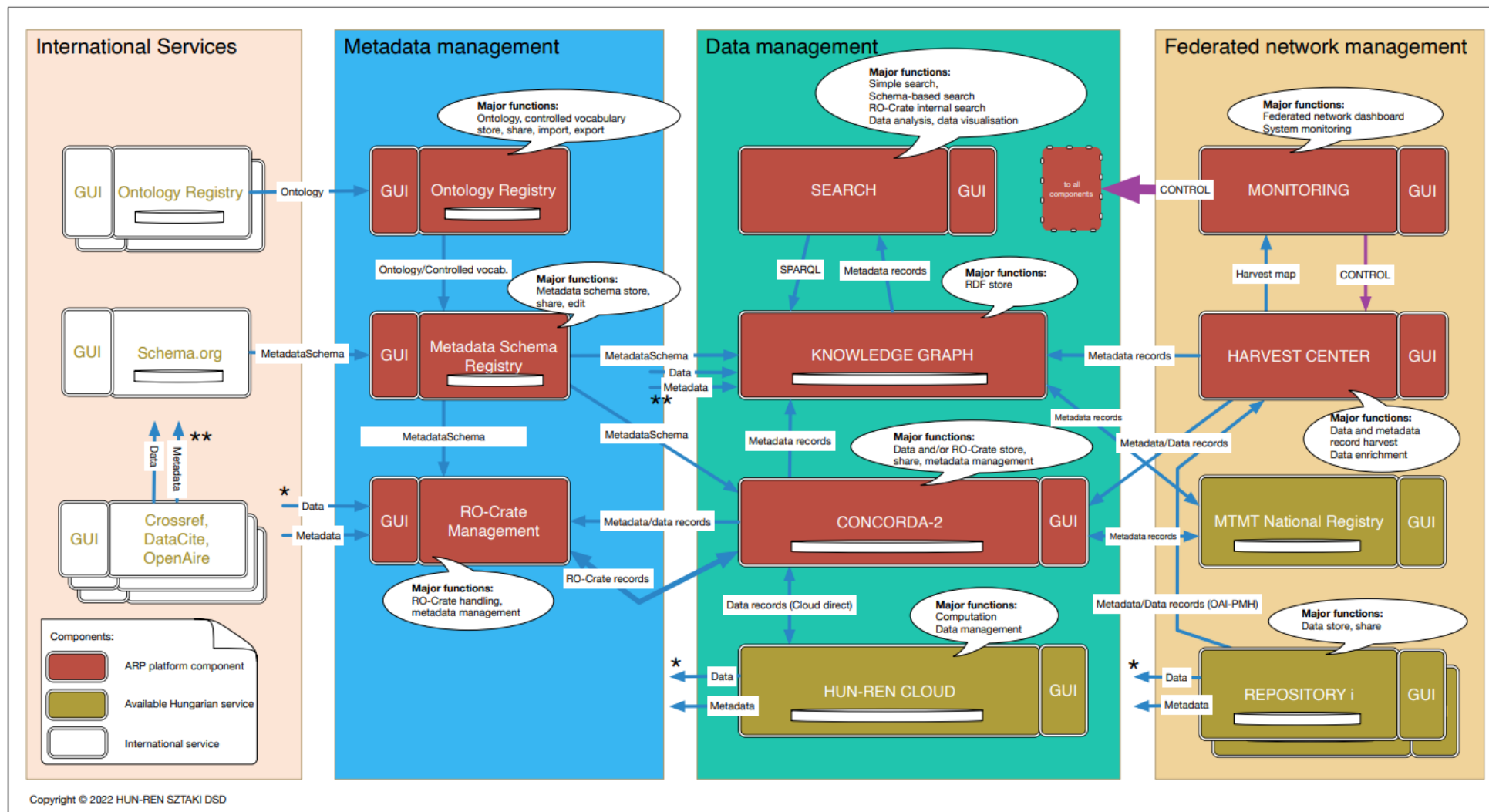
ARP CORE Components Integrated



- central data repository (Harvard: Dataverse)
- metadata schema registry (Stanford: CEDAR)
- ontology registry (Stanford: OntoPortal)
- knowledge graph (Cornell: VIVO)
- harvesting and unified search (SZTAKI)
- RO-Crate manager (SZTAKI: AROMA/Descrigo)

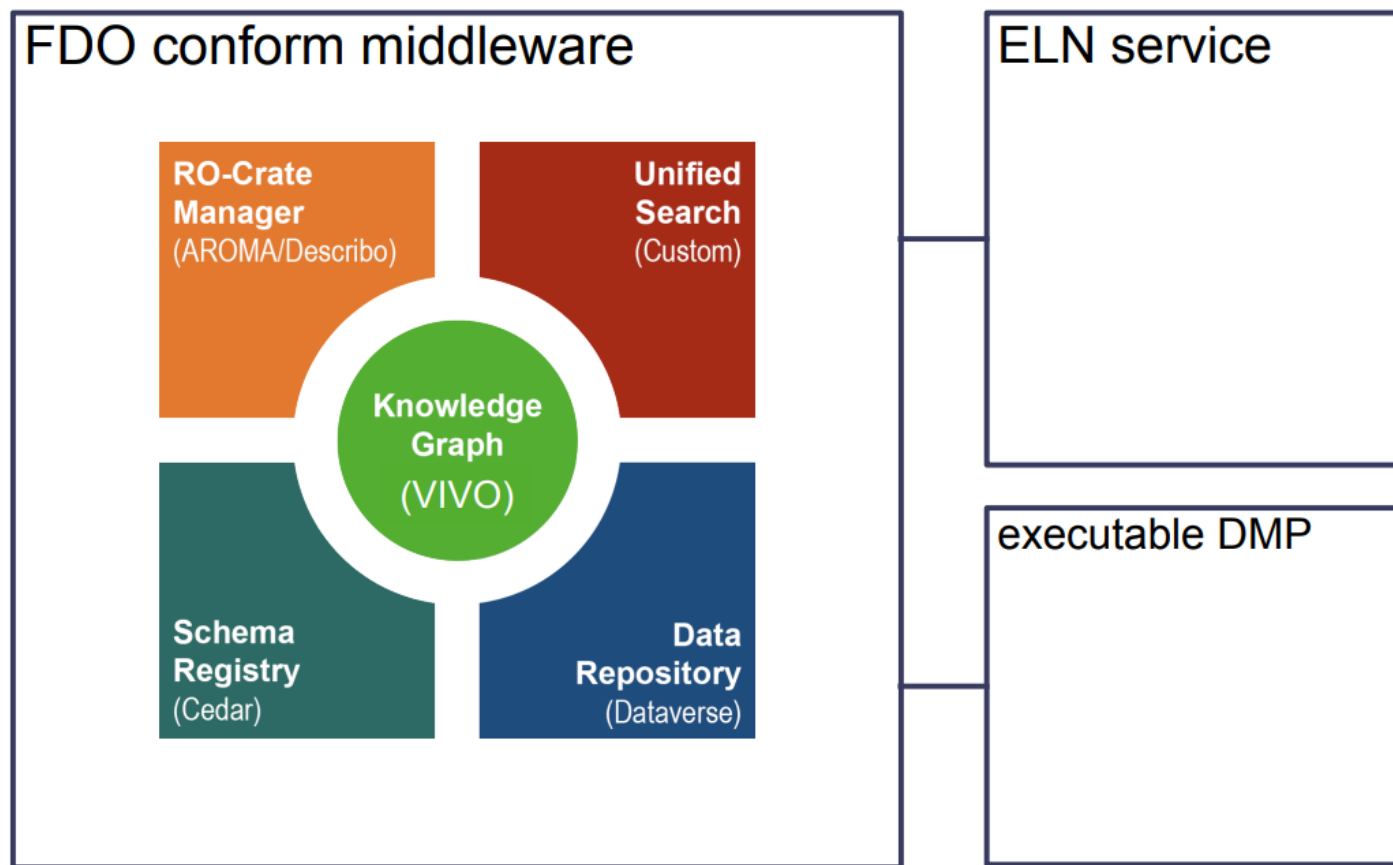


ARP CORE Architecture

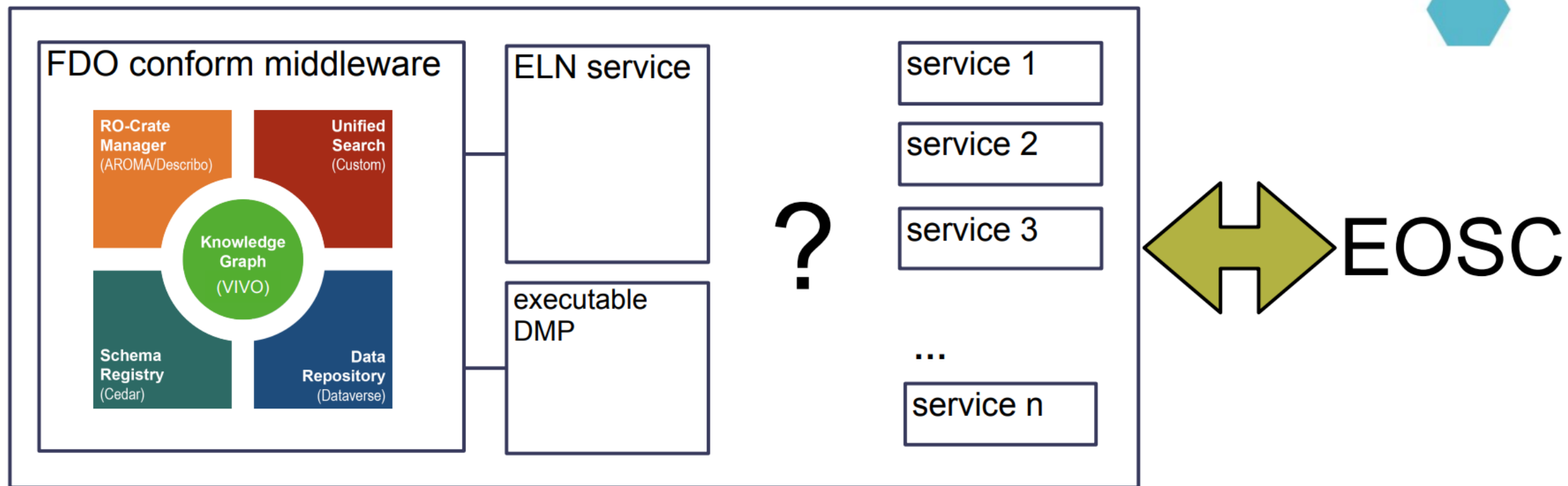


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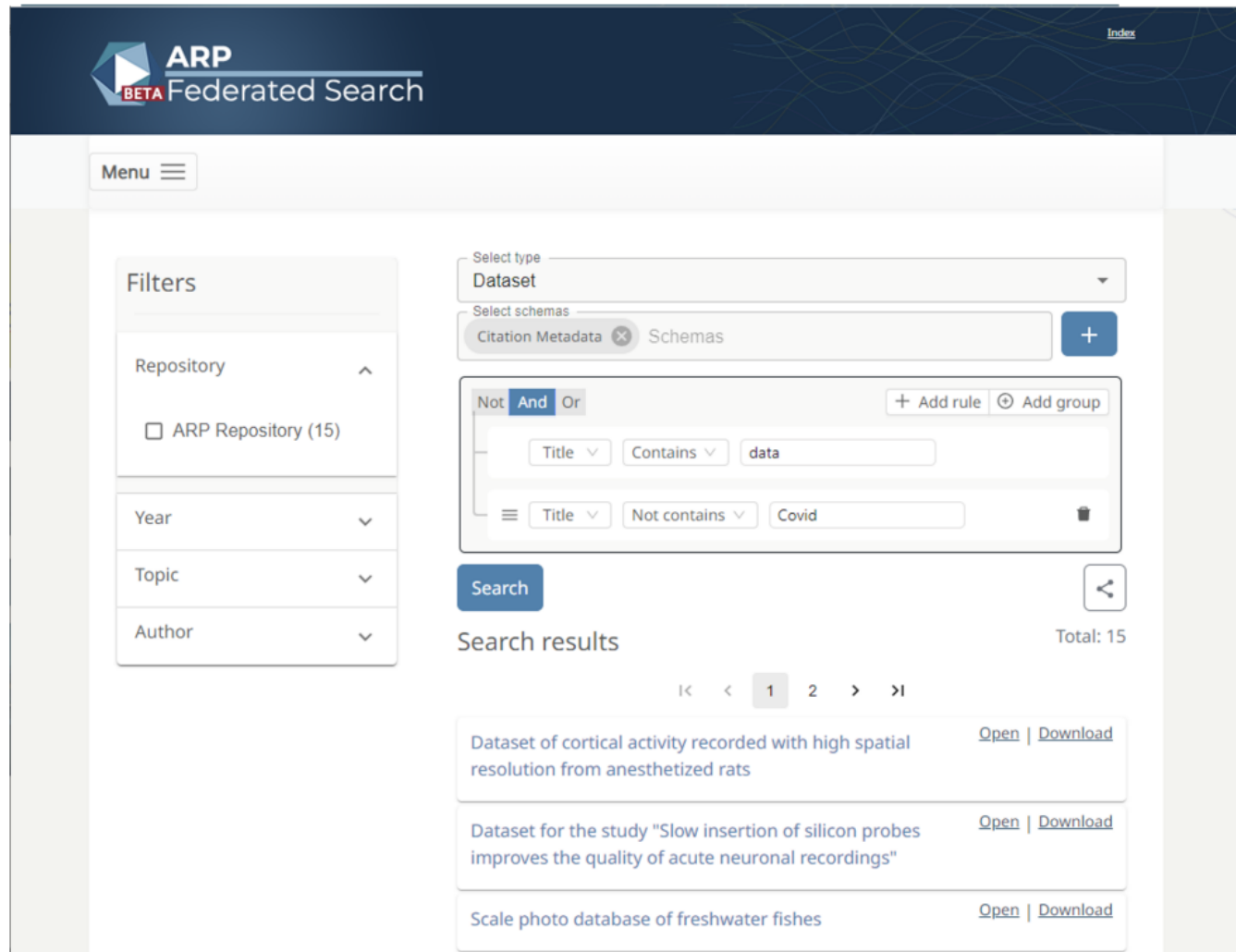
ARP Future (ARP 2. Phase development)



ARP Future (ARP as EOSC National Node)

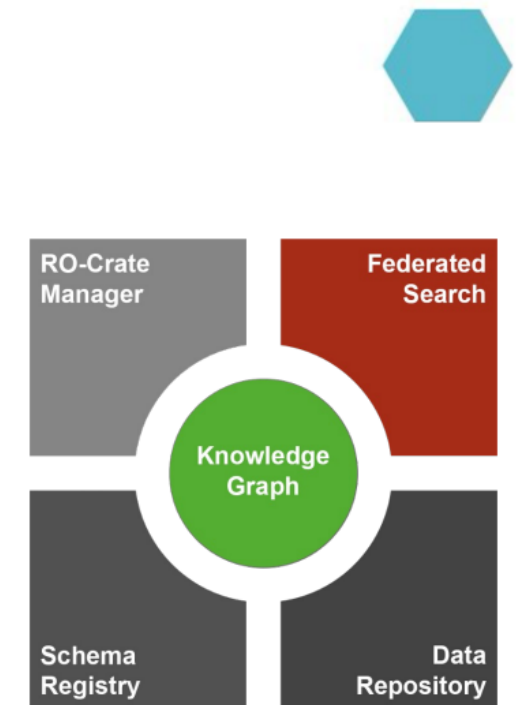


ARP – Unified Search, Knowledge Graph

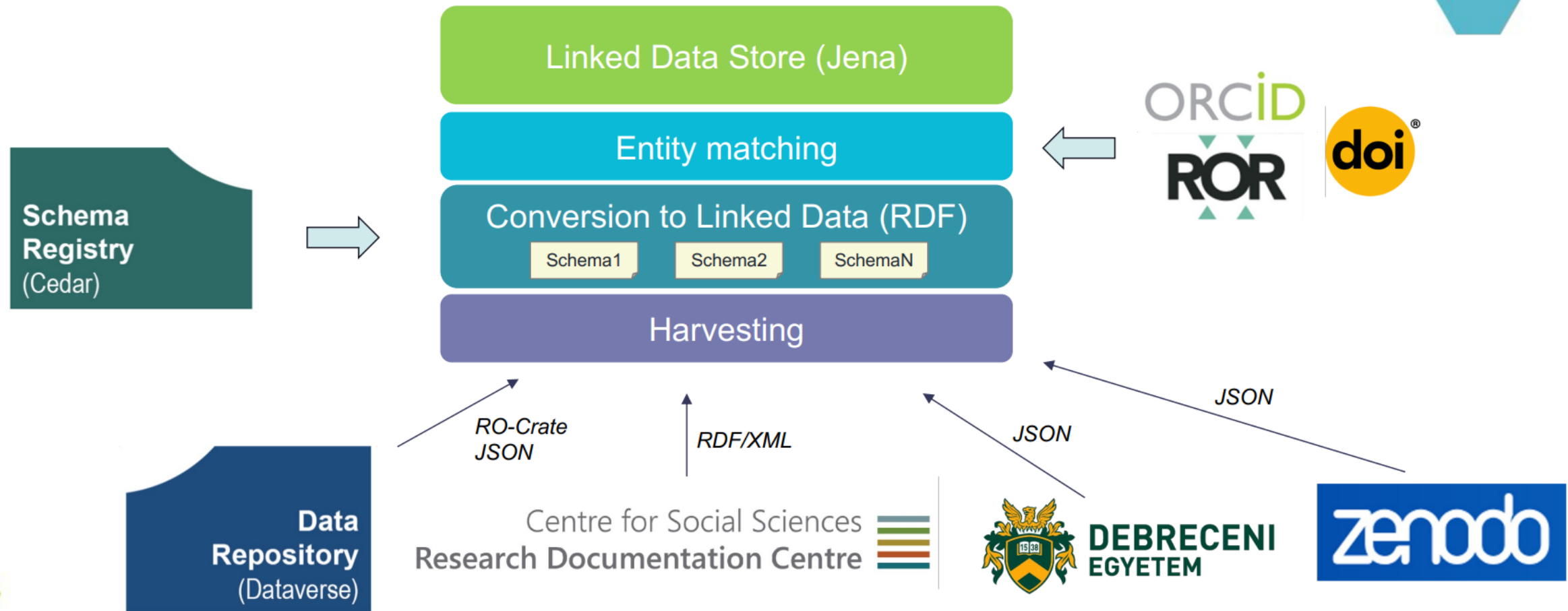


The screenshot displays the ARP Federated Search web application. The header features the ARP logo with a 'BETA' tag and the text 'ARP Federated Search'. A 'Menu' button is located on the left. The main interface is divided into several sections:

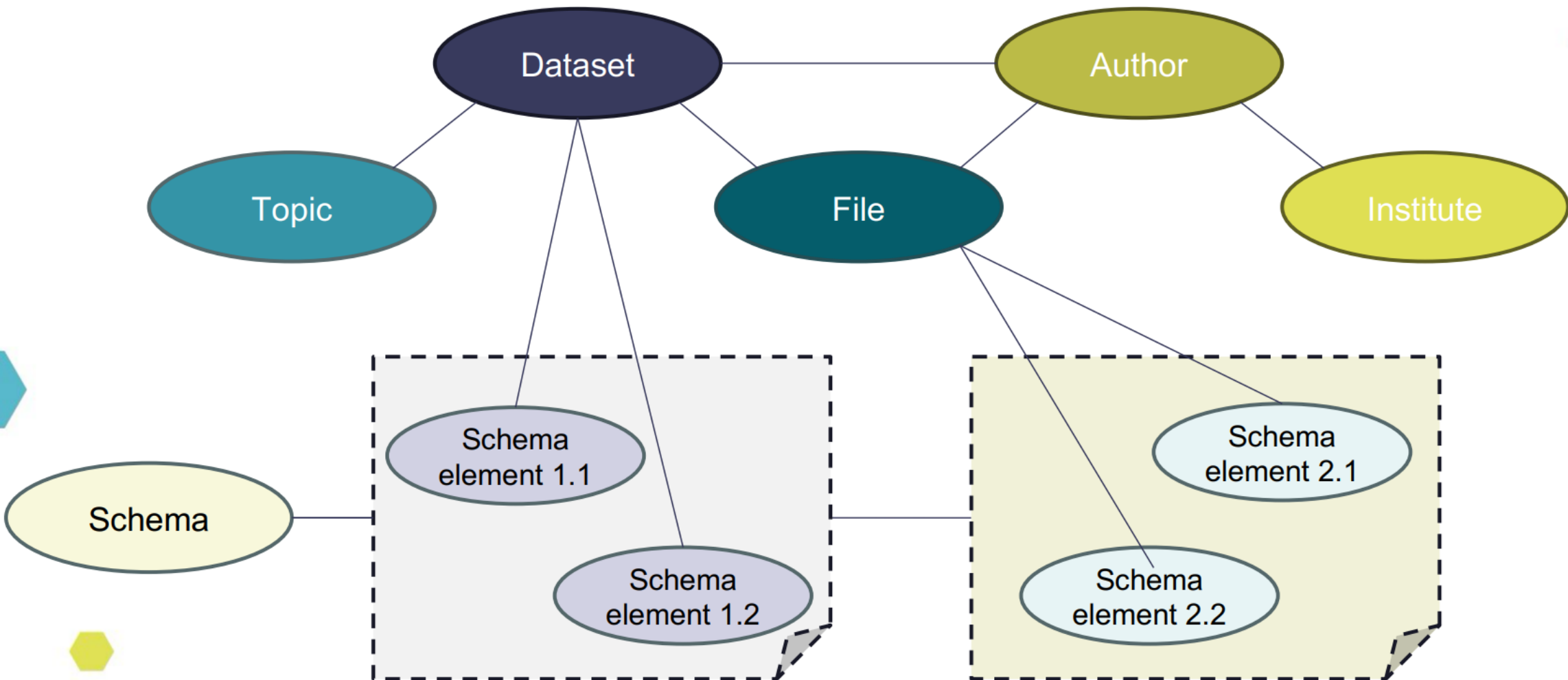
- Filters:** A sidebar on the left with expandable sections for 'Repository' (showing 'ARP Repository (15)'), 'Year', 'Topic', and 'Author'.
- Select type:** A dropdown menu set to 'Dataset'.
- Select schemas:** A section with 'Citation Metadata' and 'Schemas' tabs, and a '+' button to add more.
- Search Rules:** A central area with 'Not', 'And', and 'Or' operators. It contains two rules: 'Title Contains data' and 'Title Not contains Covid'. Buttons for '+ Add rule' and '+ Add group' are present.
- Search:** A blue button to execute the search.
- Search results:** A section showing 'Total: 15' results. It includes a pagination bar with '1' and '2' visible. Three results are listed, each with a description and 'Open' and 'Download' links:
 - Dataset of cortical activity recorded with high spatial resolution from anesthetized rats
 - Dataset for the study "Slow insertion of silicon probes improves the quality of acute neuronal recordings"
 - Scale photo database of freshwater fishes



The harvesting scenario



The unified model



The unified search

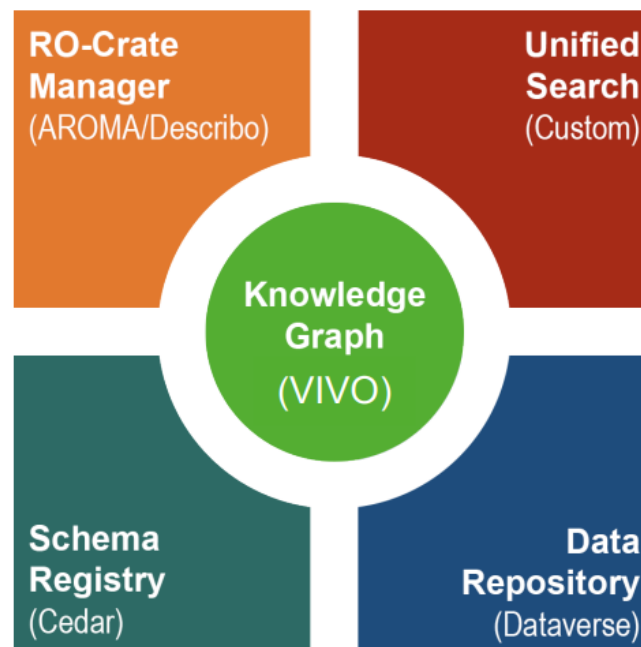




ARP - <https://researchdata.hu/en>

SZTAKI - <https://www.sztaki.hu/en>

DSD - <https://dsd.sztaki.hu>



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- **EOSC EDEN to Enhance Digital Preservation Strategies at EU and National Levels**

EDEN will create a framework to identify what data are candidates for digital preservation based on usage of data, data quality, and benefits to science and society. EDEN will develop a model for re-appraisal of data as well as tools and services to automate certain preservation actions.

- **FIDELIS to Establish a European Network of Trustworthy Digital Repositories**

FIDELIS will harmonise the definition of what makes a digital repository trustworthy in the context of the European Open Science Cloud (EOSC) and provide a framework for repositories to support each other in becoming and remaining trustworthy and FAIR-enabling over time.

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FAIR Implementation Workshops

What is a 'Data Champion' and how can they support good practice in data management and sharing

11.00 - 12.30 CET
16 April 2025

Online



AUDIENCES

Repositories and Data Service Providers



Research Performing Organisations



Join us for the next workshop in the series!

- ❑ What is a 'Data Champion' and how can they support good practice in data management and sharing Platform | 16 April | 11:00 CEST
- ❑ Free workshop open to all
- ❑ Register via our website

Thank you!

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Funded by
the European Union