



**FAIRCORE4EOSC**  
Core Components Supporting a FAIR EOSC

## Benefits for research communities from FAIRCORE4EOSC components

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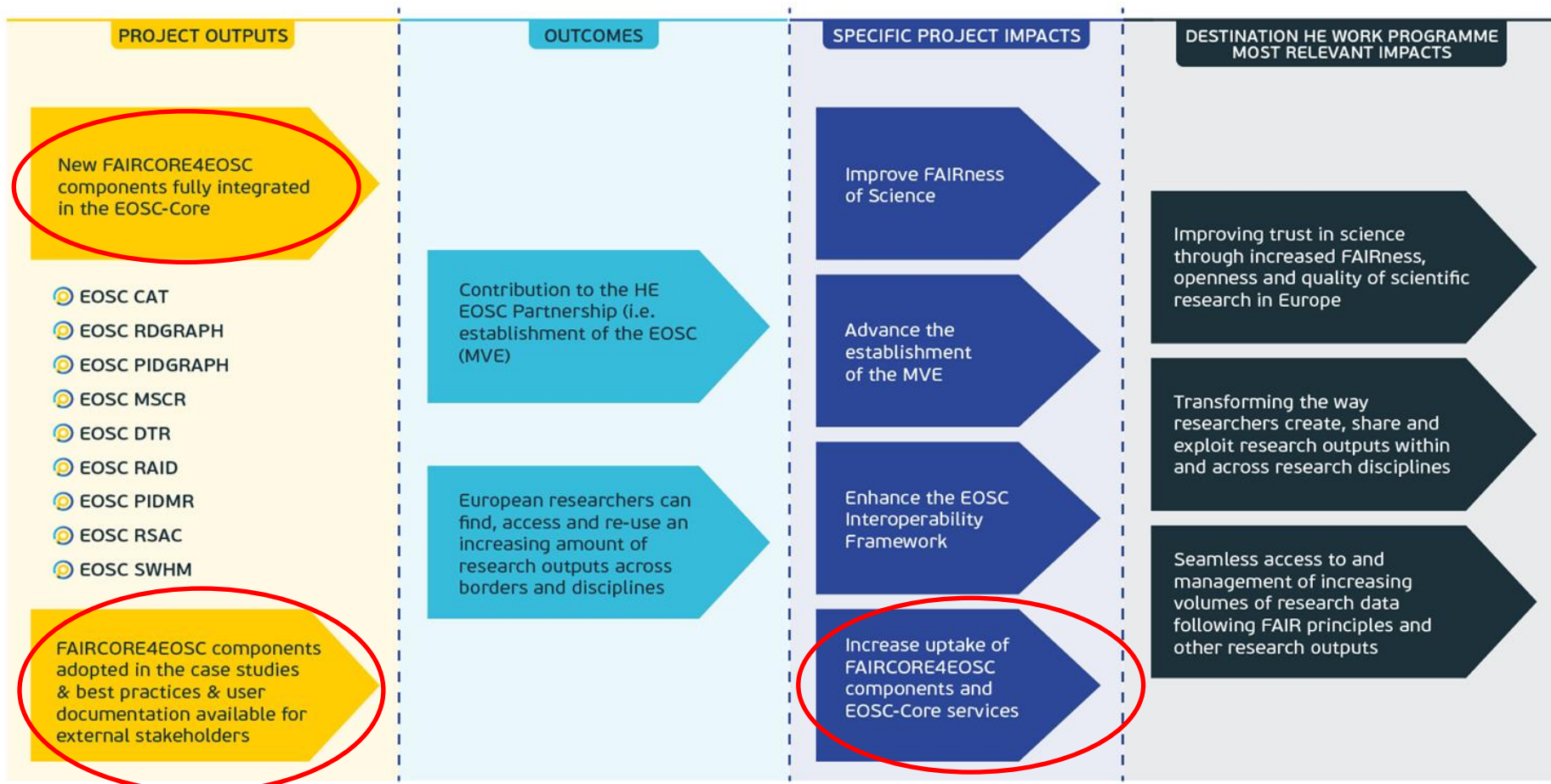
**Funded by  
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- FAIRCORE4EOSC project overview
- The benefits: perspective from 5 case studies
- Fostering uptake in other communities

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# The FAIRCORE4EOSC Components



**EOSC Research Discovery Graph (RDGraph)** to deliver advanced discovery tools across EOSC resources and communities.



**EOSC PID Graph (PIDGraph)** to improve the way of interlinking research entities across domains and data sources on the basis of PIDs.



**EOSC Metadata Schema and Crosswalk Registry (MSCR)** to support publishing, discovery and access of metadata schemas and provide functions to operationalise metadata conversions by combining crosswalks.



**EOSC Data Type Registry (DTR)** to provide user friendly APIs for metadata imports and access to different data types and metadata mappings.



**EOSC PID Meta Resolver (PIDMR)** to offer users a single PID resolving API in which any kind of PID can be resolved through a single, scalable PID resolving infrastructure.



**EOSC Compliance Assessment Toolkit (CAT)** to support the EOSC PID policy compliance and implementation.



**EOSC Research Activity Identifier Service (RAiD)** to mint PIDs for research projects, allowing to manage and track project related activities.



**EOSC Research Software APIs and Connectors (RSAC)** to ensure the long-term preservation of research software in different disciplines.



**EOSC Software Heritage Mirror (SWHM)** to equip EOSC with a mirror of the Software Heritage universal source code archive.

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## Case studies

How do the components benefit communities?

Components are co-developed and tested within domain-specific communities:

- Climate Change (DKRZ)
- Mathematics (FIZ)
- Social Sciences and Humanities (CLARIN)
- European Integration of National-level Services (CSC)
- Service Providers and Research Data Management Communities (EUDAT)

## Components to be integrated:



Research Discovery  
Graph



Metadata Schema and  
Crosswalk Registry



PID Graph



Data Type Registry



Research Activity  
Identifier Service

## Benefits:

- Improve the discovery and access to climate data for other communities.
- Ensure an accurate and reliable description of data and simplify their use by other communities.
- Foster and ease cross-disciplinary and cross-border research.

## Example of potential user story:

*A region affected by extreme forest dieback. Forest managers are now faced with the challenge of which tree species are well suited for reforestation in the region. On top of climate parameters such as temperature and precipitation, other factors also play an important role, e.g. vegetation duration, radiation, soil moisture and extreme events. Indirect effects such as the occurrence of pests like bark beetles must also be taken into account.*



[https://commons.wikimedia.org/wiki/File:Waldschaeden\\_Erzgebirge\\_3.jpg](https://commons.wikimedia.org/wiki/File:Waldschaeden_Erzgebirge_3.jpg)

## General advantages from the project's planned development for the ENES community (European Network for Earth System Modelling):

- Save time and money to ENES community developers (no duplication)
- Enhance the re-use of the ENES data by other communities
- Path the way to a potential cross-community interoperable data platform
- Foster synergies and interdisciplinary collaboration

## Better linking Mathematics and Climatology domains

- Simplify the access to specific functions and data that could be a cutting edge for climate modellers.
- DRKZ as the service provider for climate science and FIZ operating zbMATH Open (<http://zbmath.org> ), a database of articles, software and data in the mathematics research domain, will
  - consider how such a case study could have impact for future climate change projects and
  - show how zbMATH Open can be more exploited by scholars coming from other domains
- FIZ Karlsruhe and DRKZ are still in discussion on the details of this use case.



## Components to be integrated:

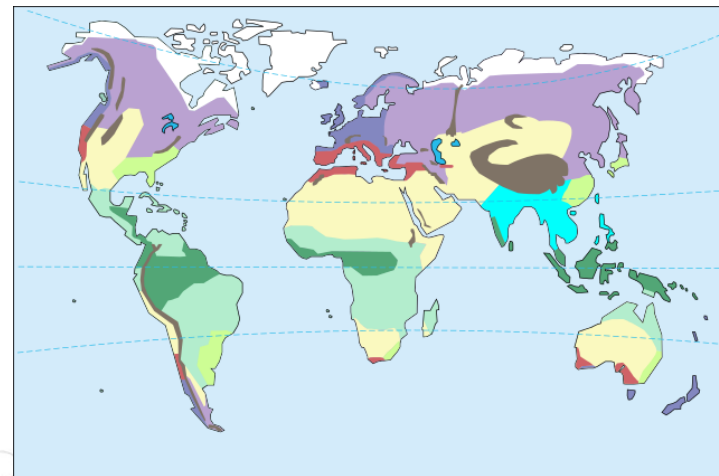


PID Graph



PID Meta Resolver

- We will demonstrate how PIDGraph improves “*the way of interlinking research entities across domains and data sources on the basis of PIDs*” as reported in the Grant Agreement for FAIR4EOSC components.
- We will design a specific use case of climate change study where mathematics issues in a paper could have been studied better with proper interlinking domain approach between mathematics and climatology.





## Potential user stories

### Switchboard

*A researcher has a resource (or set of resources) and is interested in what tools are available within the CLARIN community to process this resource. By uploading the resource that switchboard will make an analysis and offer a list of tools and tool descriptions that can be used to process this resource. With a click of a button the user can then send the resource to the tool of interest.*

### Virtual Collection Registry:

*A teacher is preparing a course. For this course resources and tools from various repositories and other sources are to be used. Grouping these resources and tools allows the teacher to easily distribute and reference the required materials. With the support of versioned collections, changes over time of the resources and tools are supported as well.*



## Components to be integrated:



Metadata Schema and  
Crosswalk Registry



Data Type Registry

Improve the mapping from data to tools in the **switchboard** and **virtual collection registry (vcr)** by using a shared and standardized data type registry and offer mappings from various metadata input format to a standardized form improving the representation and tool capabilities for processing.

Offer a **uniform interface** from various **PID systems** to the metadata and/or resource in **the switchboard** and **vcr** input workflows.



PID Meta Resolver



Research Discovery  
Graph



PID Graph

Investigate how the research discovery graph and pid graph can **improve the discoverability** of resources within our community



## Benefits:

- Improving the quality of recommendations the switchboard can make for processing a given resource
- Improving the overall user experience in the virtual collection registry for collections spanning multiple repositories and domains
  - This includes improving the processability of the resources referenced from a collection by offering a coherent view of the different metadata schemas to automated tools
- Improving the discoverability of the data from the CLARIN community by distributing it in a broader context
- Improving the overall input workflow for both the switchboard and the virtual collection registry when using persistent identifiers

## Components to be integrated:



### Research Discovery Graph

Enriching the research metadata on outputs, exploring workflows and graphs and implementing them in national CRIS-systems and providing national information to OpenAIRE



### PID Graph

Providing MSCR with mapping of national services and utilizing them in CRIS context for metadata crosswalks between organizational/national/European systems for data exchange purposes



### Metadata Schema and Crosswalk Registry



### Data Type Registry



### Research Activity Identifier Service

Explore and implement workflows for assigning RAIDs via registry in national context for projects - providing PID envelopes for durable links between research entities

## Benefits:

- Realize the potential in combining CRIS-like information from national sources on European level, aggregating this information to RDGraph and OpenAIRE
  - Resolve issues with interoperability of CRIS-like metadata
  - Make it possible to utilize this well structured and high coverage metadata on research outputs and activities
- Showcase the CERIF data model as common for exchanging information between organizational and national CRIS systems & OpenAIRE
- Have a template for integration of further national research information systems with the EOSC Core

## Components to be integrated:



Data Type Registry



PID Graph



Metadata Schema and  
Crosswalk Registry



Research Discovery  
Graph

- B2SHARE registers and retrieves data types to/from Data Type registry
- B2SHARE utilise the PIDGraph to display connections, relations & interactions between PIDs
- B2SHARE and B2FIND populates and utilizes the MSCR
- B2FIND exposes enriched and homogenised metadata harvested from diverse communities to the Research Discovery Graph

## Benefits :

- B2SHARE will be able to provide better usage statistics (views, downloads,...)
- Data Typing in B2SHARE is enhanced and standardised
- MCSR get populated with (domain specific) MD schemas and mappings from B2SHARE and B2FIND
- Ingestion and mapping workflow of B2SHARE and B2FIND will be simplified and optimised by utilize MSCR
- Improved discoverability of data by export 'via' B2FIND into the RD Discovery Graph.

## Is your research community interested in using the components being developed in FAIRCORE4EOSC?

You can engage in the co-design and follow up the development progress by participating in our upcoming knowledge transfer events.

Contact point : ***support@faircore4eosc.eu***



# FAIRCORE4EOSC

Core Components Supporting a FAIR EOSC

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