

Terminology Services 4 NFDI

Integrating terminology services to domain specific applications

Roman Baum, Syphax Bouazouni, Naouel Karam, Oliver Koepler, Pooya Oladazimi, Julia Sasse

PUNCH4NFDI Annual Meeting - 27.11. - 29.11.2024



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Connections between PUNCH4NFDI and TS4NFDI

Terminologies - Why are they important?

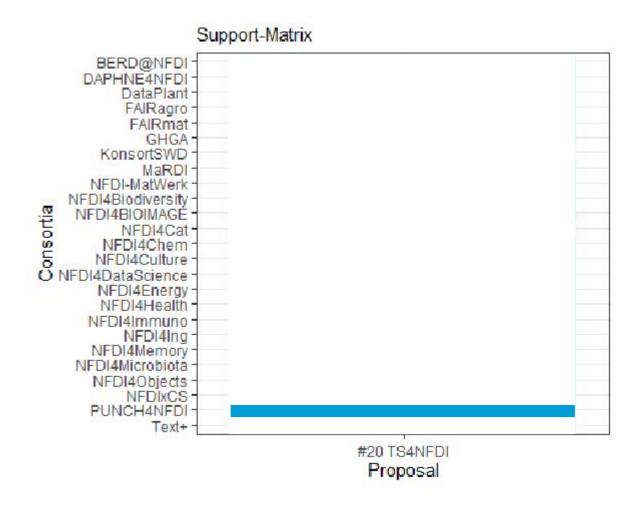
Basic Service: TS4NFDI

Usage of TS4NFDI



** TS4nfdi

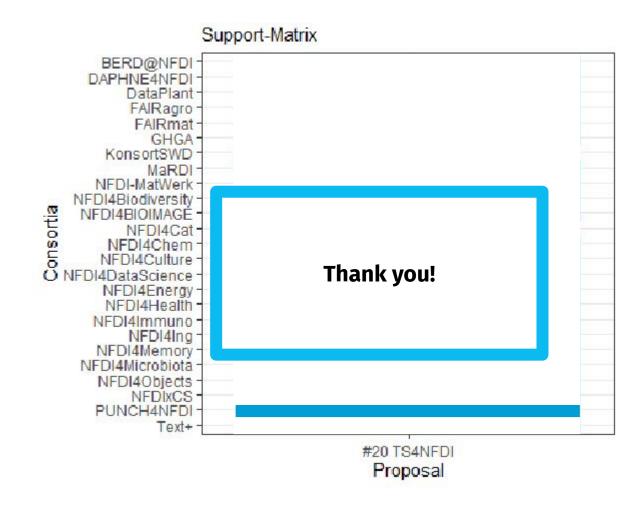
Support for transition to Integration Phase as a Basic Service





** TS4nfdi

Support for transition to Integration Phase as a Basic Service





Commitment to Integrating the Service

Integrating terminology services to domain specific applications



Commitment to Integrating the Service

A total of 21 consortia responded to plan integration of the Basic Service, which equals to a share of 81%.

Consortium	Plan to Integrate Basic Service?	Comment (optional)
PUNCH4NFDI	No	It is not part of our current project plan and therefore we have not allocated any resources to this task. We are, however, in discussion how it could be done in the future.

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		possible approach: later in this talk



Integrating terminology services to domain specific applications

Connections







First Results of the Requirements Analysis

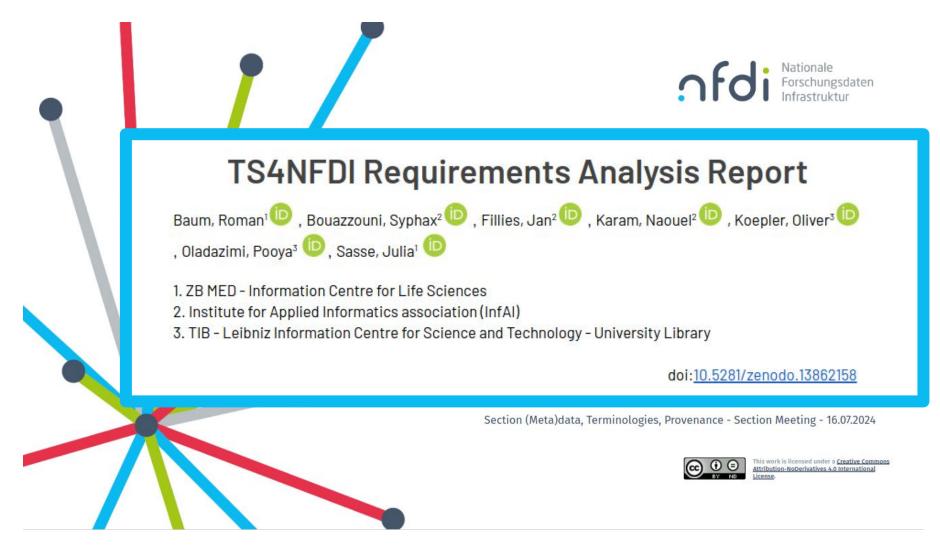
Roman Baum, Jan Fillies, Naouel Karam, Oliver Koepler, Pooya Oladazimi, Julia Sasse

Section (Meta)data, Terminologies, Provenance - Section Meeting - 16.07.2024



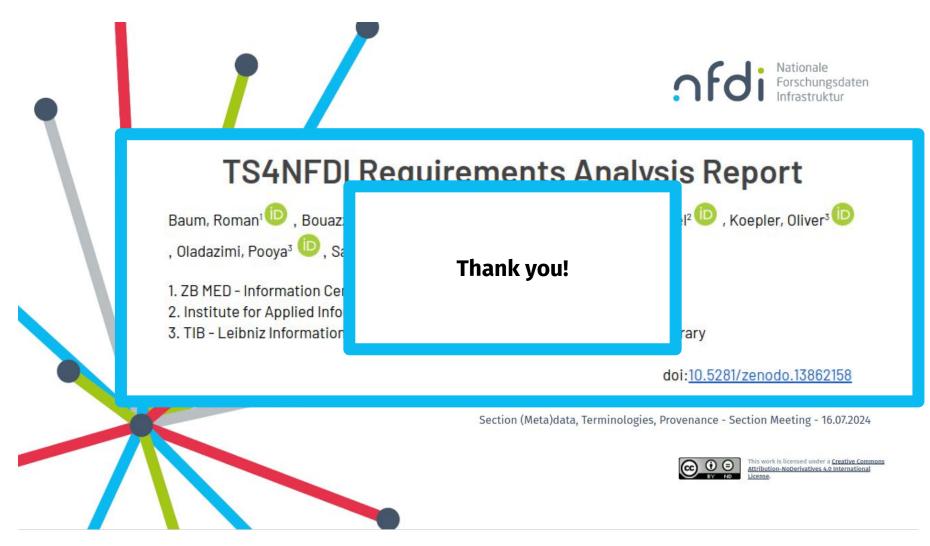














Connections



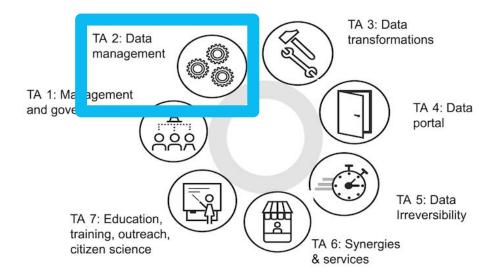
Particles, Universe, NuClei and Hadrons for the NFDI

A consortium in the NFDI.

Home About News & Events Services Use cases Internal

Task areas

The work of the PUNCH4NFDI consortium is organised in task areas that were defined in a thorough process of analysis of use cases and definition of deliverables, keeping the overall objectives of the consortium in mind (see figure below). This page briefly summarises the scientific task areas (TA 1 on "Management and Governance" is described here).





Connections



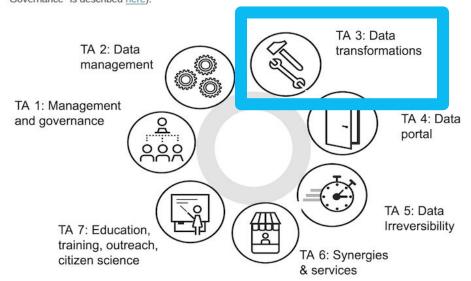
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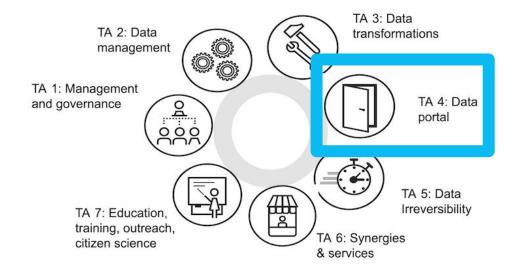
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TA 2 "Data management" provides solutions for standardised data access and inter-operable storage solutions; it addresses the integration of storage with federated compute resources, and it deals with dynamic and intelligent data handling for advanced workflows.

TA 3 deals with the "Data transformations" necessary for the maximum exploitation of scientific data, for the combination of different datasets, and for achieving higher levels of abstraction and thus new scientific insights.

TA 4 will provide the "Data portal" which gives access to the underlying knowledge structure. Using the appropriate metadata, it connects the elements of interlinked digital research products that are central elements of the PUNCH knowledge fabric.



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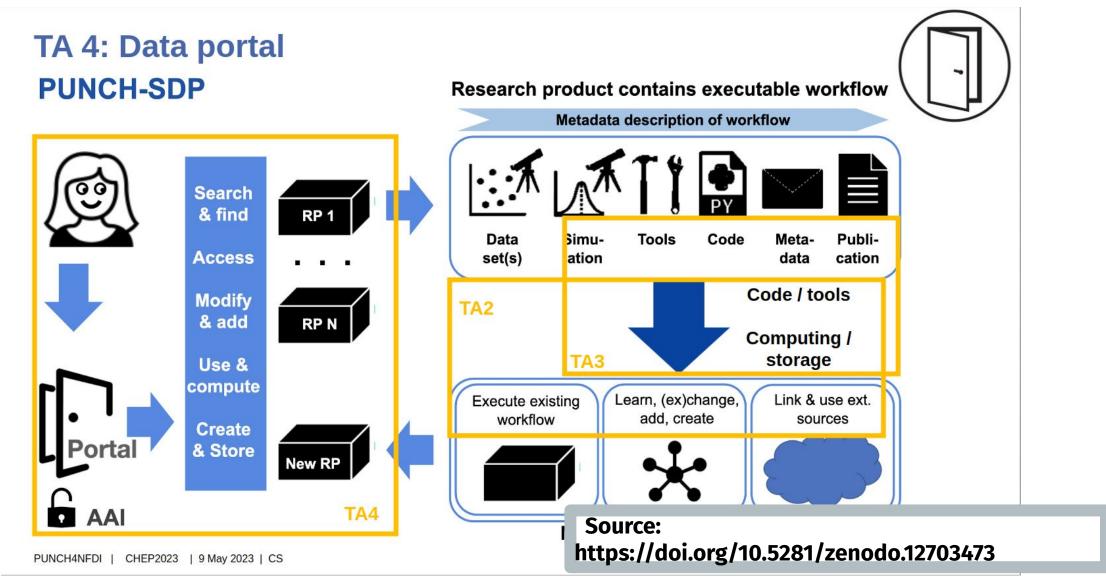
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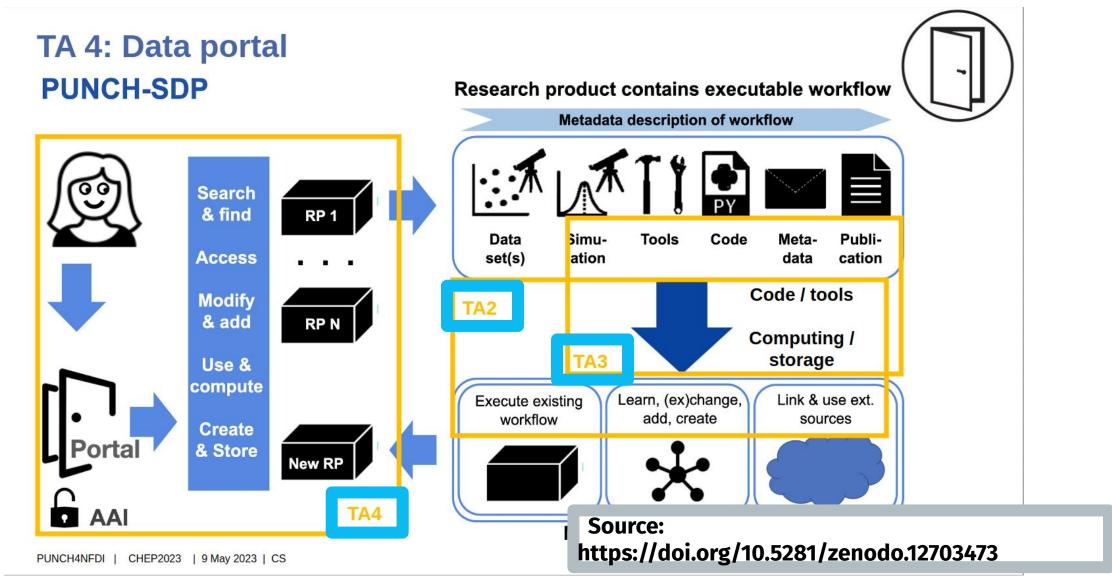
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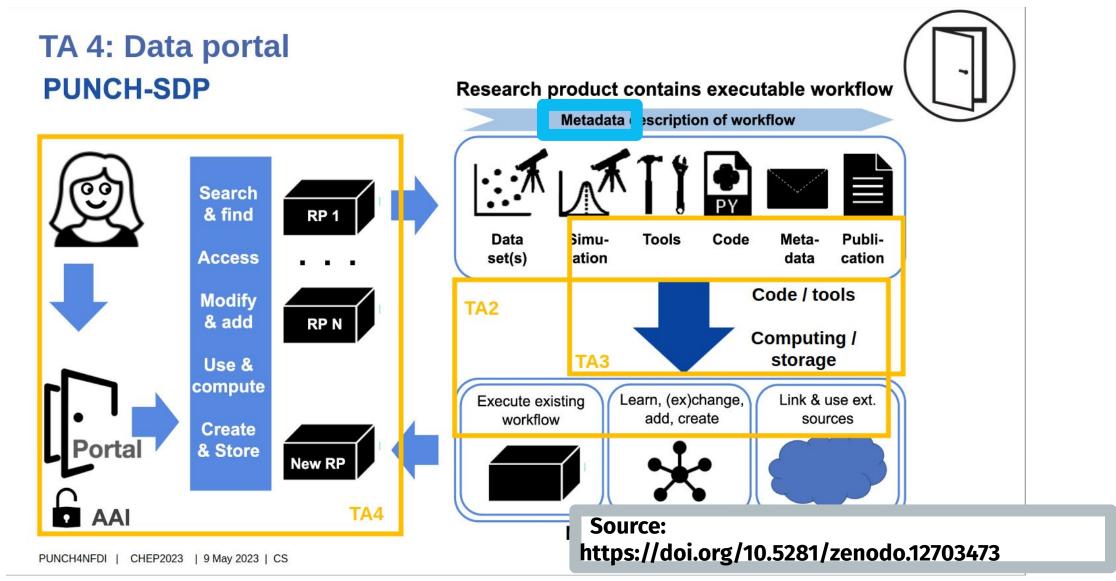














Connections between PUNCH4NFDI and TS4NFDI

Terminologies - Why are they important?

Basic Service: TS4NFDI

Usage of TS4NFDI



















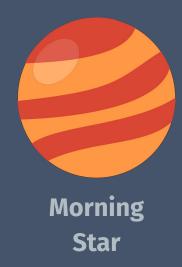












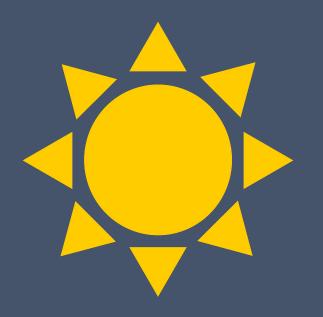














Evening Star



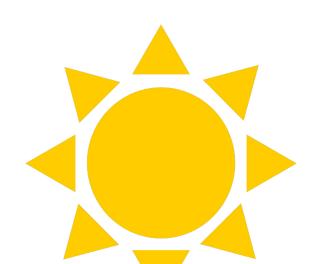




Morning Star



Why are they important?



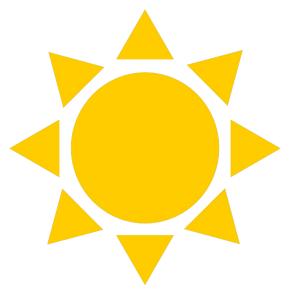
* TS4nfdi

sun



Why are they important?



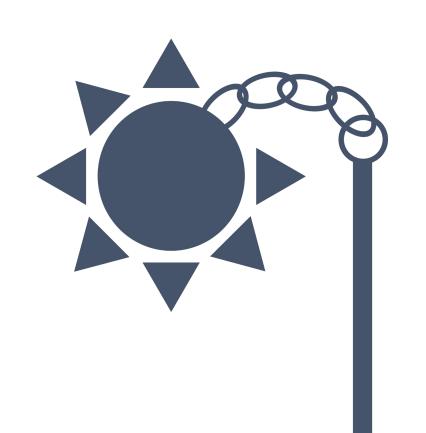


Sonne



Why are they important?

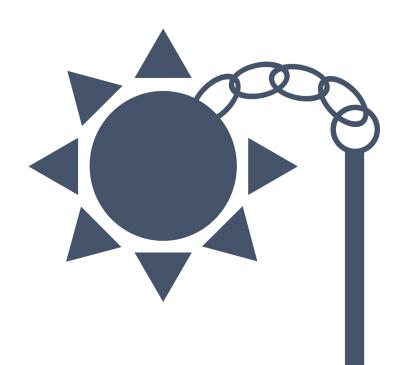




Morning Star

















Why are they important?





terra sigillata

bowl





terra sigillata bowl



without name

Why are they important?





terra sigillata bowl



without name



Integrating terminology services to domain specific applications



Why are they important?



Perspective

same objects/items could have different labels

different objects/items could have the same label



without name



bowl

MUSEUM







Why are they important?



Perspective

same objects/items could have different labels

different objects/items could have the same label

Solution





terra sigillata bowl







MUSEUM

Why are they important?



Perspective

same objects/items could have different labels

different objects/items could have the same label

Solution

ISBN



without name



MUSEUM

terra sigillata

bowl





Why are they important?



Perspective

same objects/items could have different labels

different objects/items could have the same label



Solution

standardised identifier



without name



MUSEUM

terra sigillata

bowl





Connections between PUNCH4NFDI and TS4NFDI

Terminologies - Why are they important?

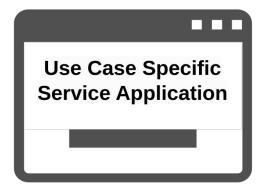
Basic Service: TS4NFDI

Usage of TS4NFDI



What does TS4NFDI want to solve?





- web services with data
 - annotation service
 - search engine
 - data repository



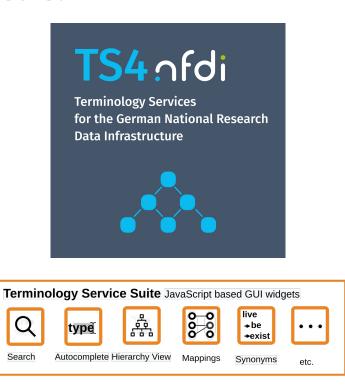
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Integrating terminology services to domain specific applications





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direct integration of terminologies to web services through widgets

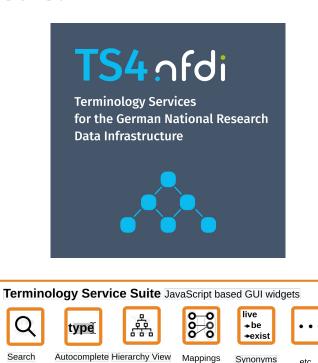


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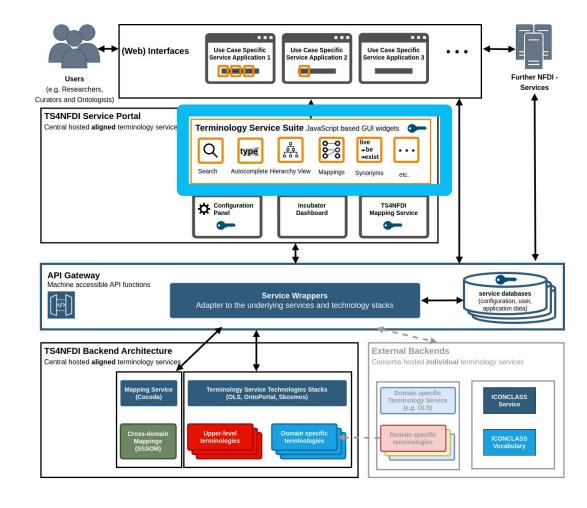
- FAIR web services with semantic data
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Architecture

- Terminology Service Suite (TSS)
 - Javascript based widgets

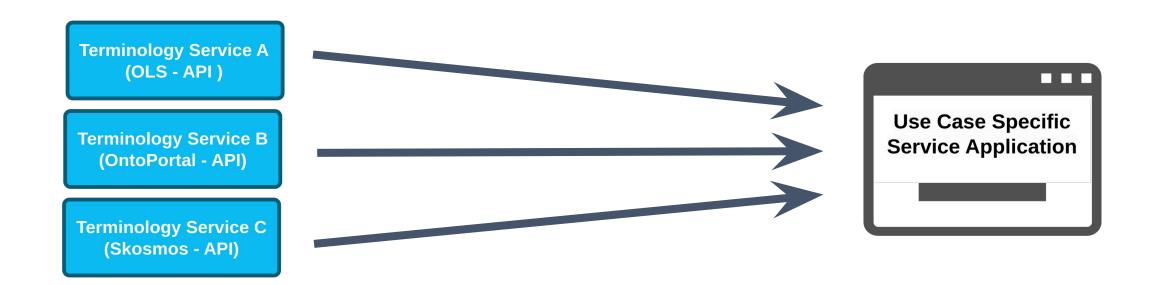






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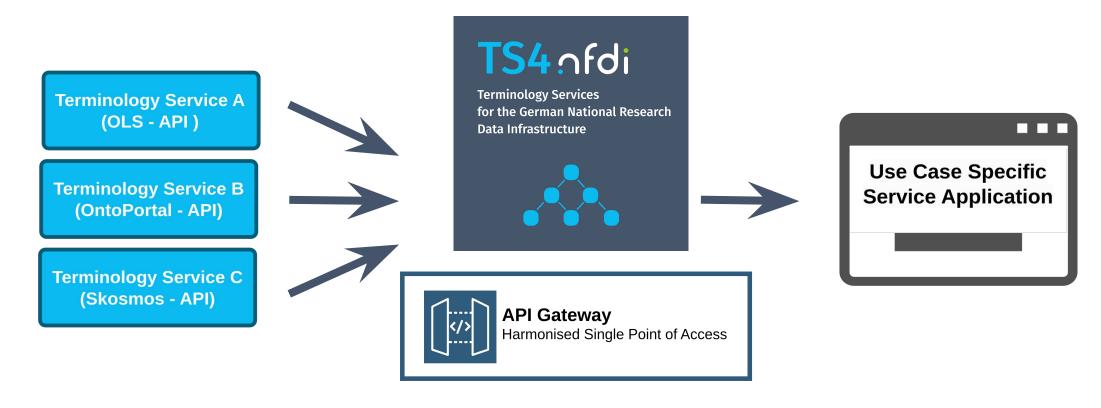


multiple different APIs for different Terminology Services



What does TS4NFDI want to solve?





• one single API for different Terminology Services

Architecture

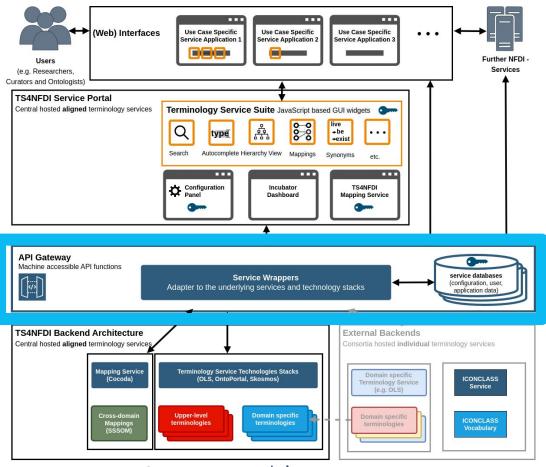


Terminology Service Suite (TSS)

Javascript based widgets

Central API Gateway

 Harmonised single point of access to other (NFDI) terminology services



TS4NFDI architecture



First Steps: Usage of TS4NFDI

API Gateway - Prototype





A user interface demonstrating the NFDI API Gateway page

TS4NFDI Federated Service

https://ts4nfdi-api-gateway.prod.km.k8s.zbmed.de/api-gateway ♂

The TS4NFDI Federated Service is an advanced, dynamic solution designed to perform federated calls across multiple Terminology Services (TS) within NFDI. It is particularly tailored for environments where integration and aggregation of diverse data sources are essential. The service offers search capabilities, enabling users to refine search results based on specific criteria, and supports responses in both JSON and JSON-LD formats.

A standout feature of this service is its dynamic nature, governed by a JSON configuration file. This design choice allows for easy extension and customization of the service to include new TS or modify existing configurations.

Find a concept

Gateway search endpoint

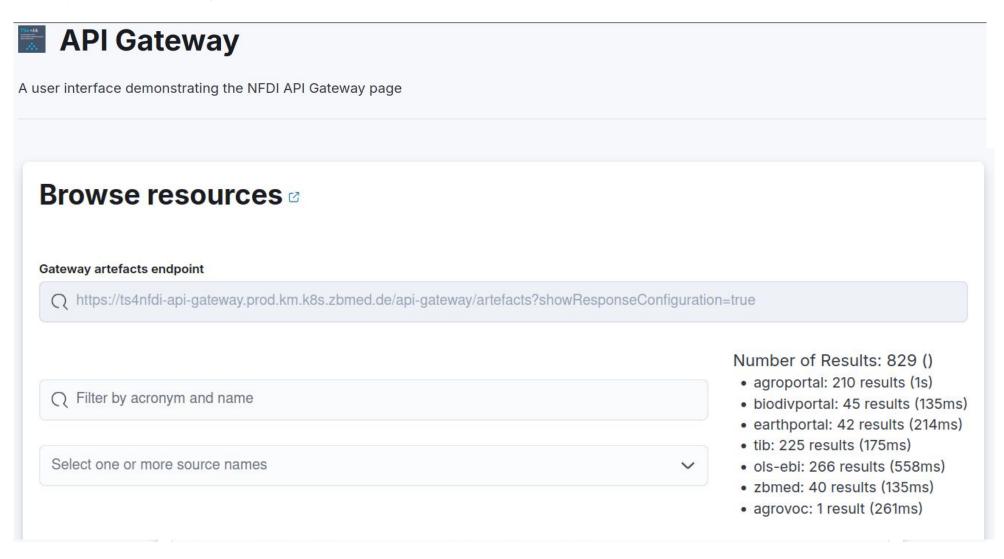
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First Steps: Usage of TS4NFDI

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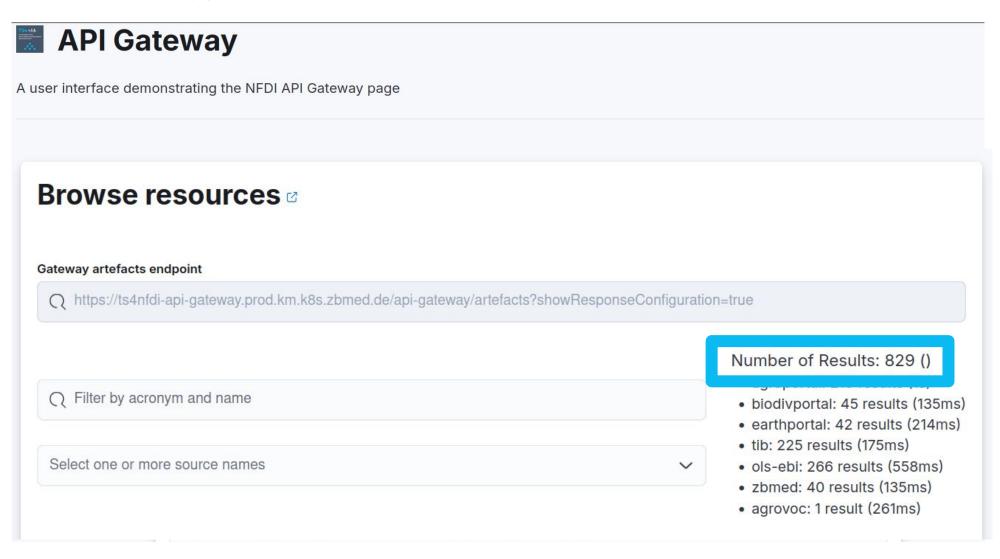




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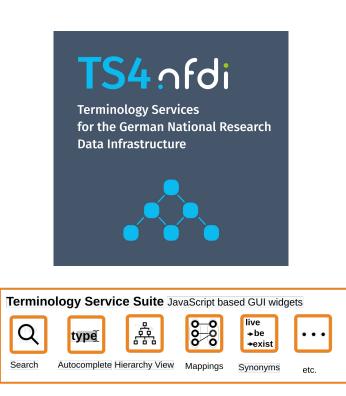


Terminology Service Suite





- web services with data
 - annotation service
 - search engine
 - data repository





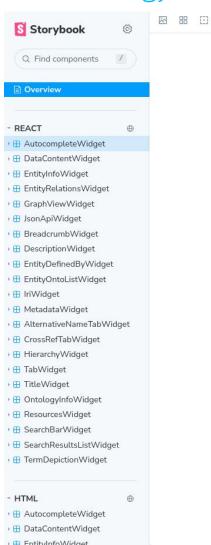
- FAIR web services with semantic data
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Integrating terminology services to domain specific applications



Terminology Service Suite





SemLookP Widgets

As part of the TS4NFDI Service Suite

The Terminology Service Suite project, derived from the SemLookP project and now hosted on GitHub under the TS4NFDI repository, is a collection of interactive widgets designed to ease the integration of terminology service functions into third-party applications.

In this Storybook, you will find an interactive documentation of the widget component library.

The widgets are built using React and TypeScript and can be used in both React and plain HTML applications. The functionality and arguments are the same for the React and plain HTML versions. Only the code snippet you get when you click "Show code" in the Storybook is different.

Click here for documentation on the different versions.

The widgets are currently under active development. Please forgive any errors that occur and report issues via GitHub Issue.

Documentation: All Versions

React package: Latest, All Versions

JavaScript modules: Latest, All Versions

Content

How to use this Storybook





Terminology Service Suite

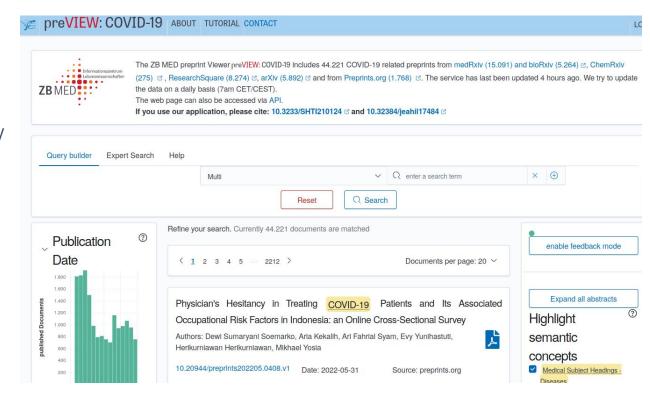
Semantic Search





- **pre**print **view**er for COVID-19 related articles
- contains automated annotations
- provide semantic concept search functionality
- a comprehensive API to retrieve all data and information and embed it into other services and applications

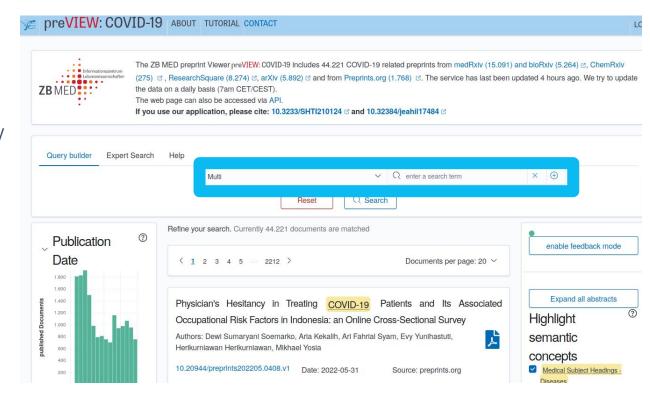






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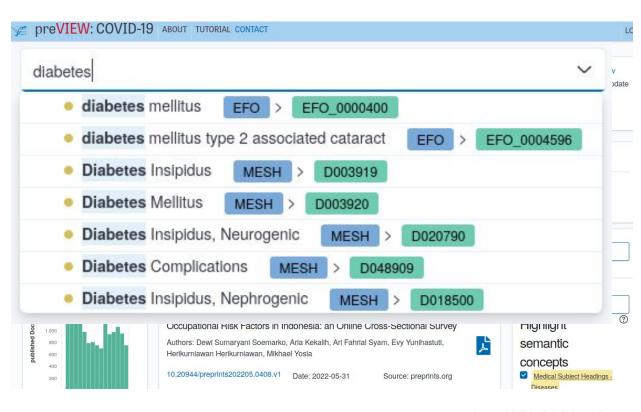




Terminology Service Suite - preVIEW

- **pre**print **view**er for COVID-19 related articles
- contains automated annotations
- provide **semantic** concept **search** functionality
- a comprehensive API to retrieve all data and information and embed it into other services and applications
- the autocomplete functionality of Terminology Service Suite is directly integrated into preVIEW





access

https://preview.zbmed.de

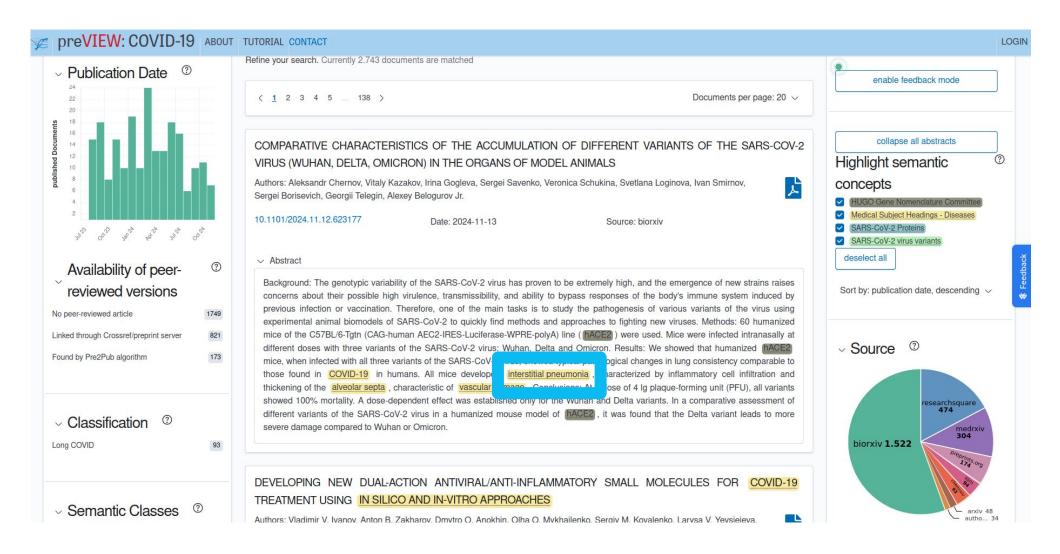






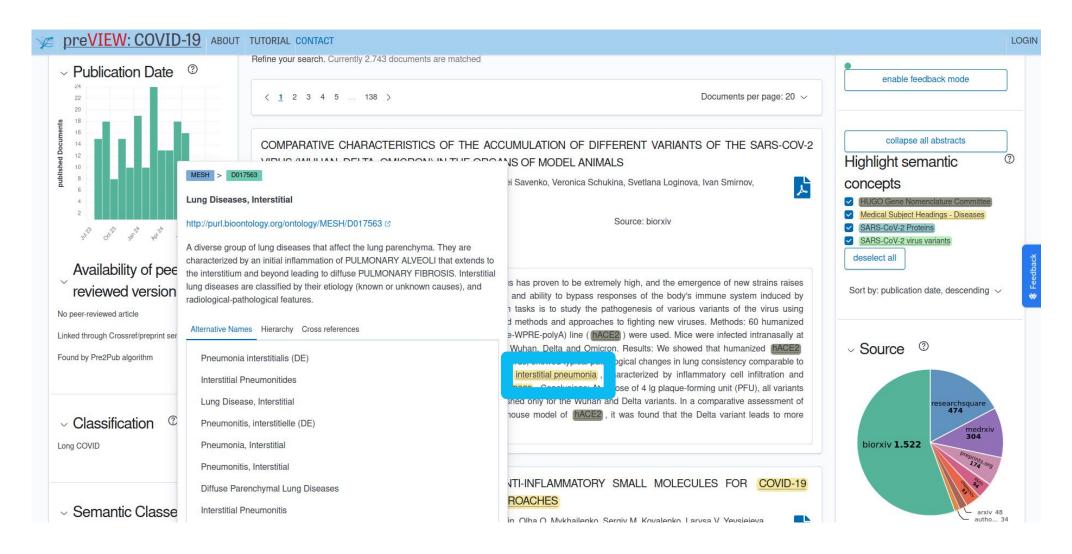








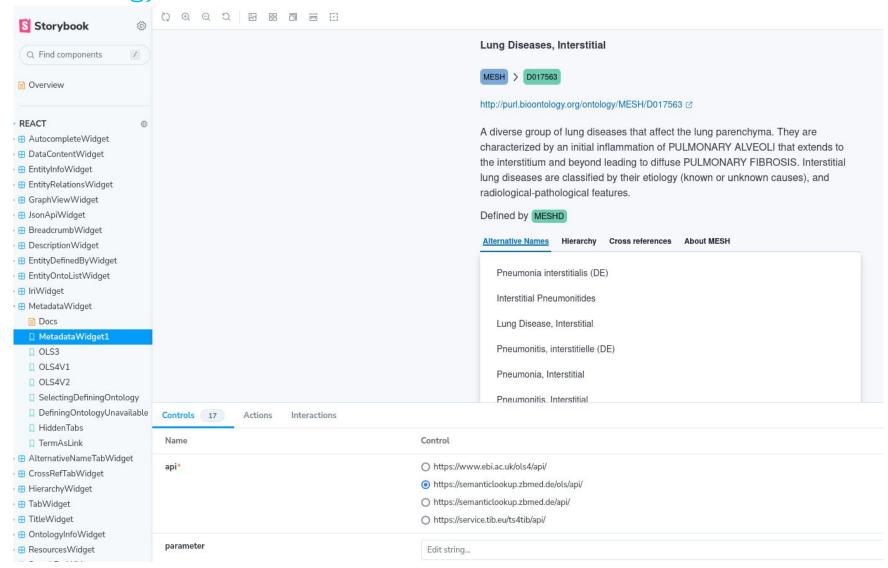






Terminology Service Suite

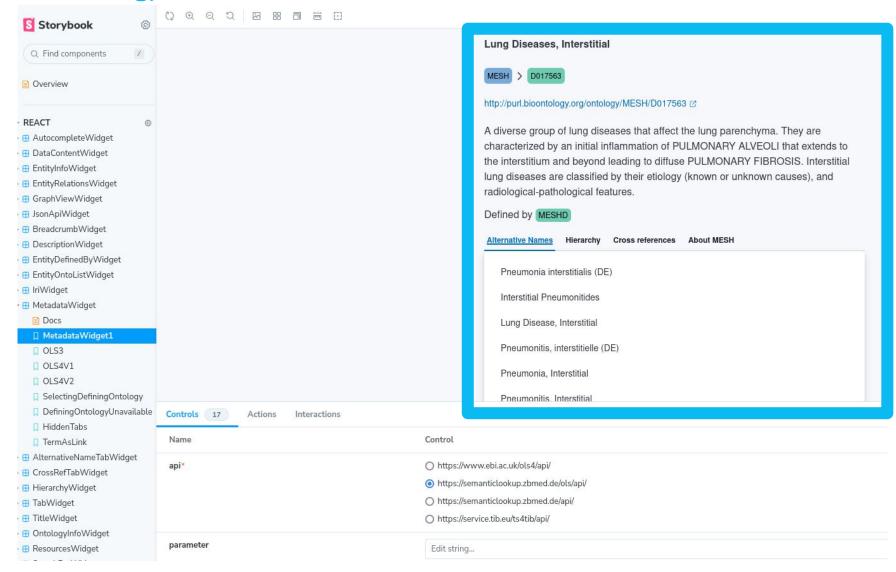






Terminology Service Suite







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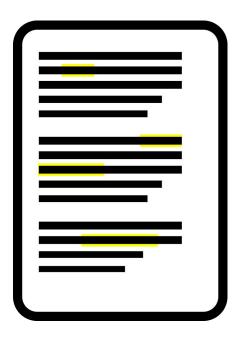
Integrating terminology services to domain specific applications



Semantic Search





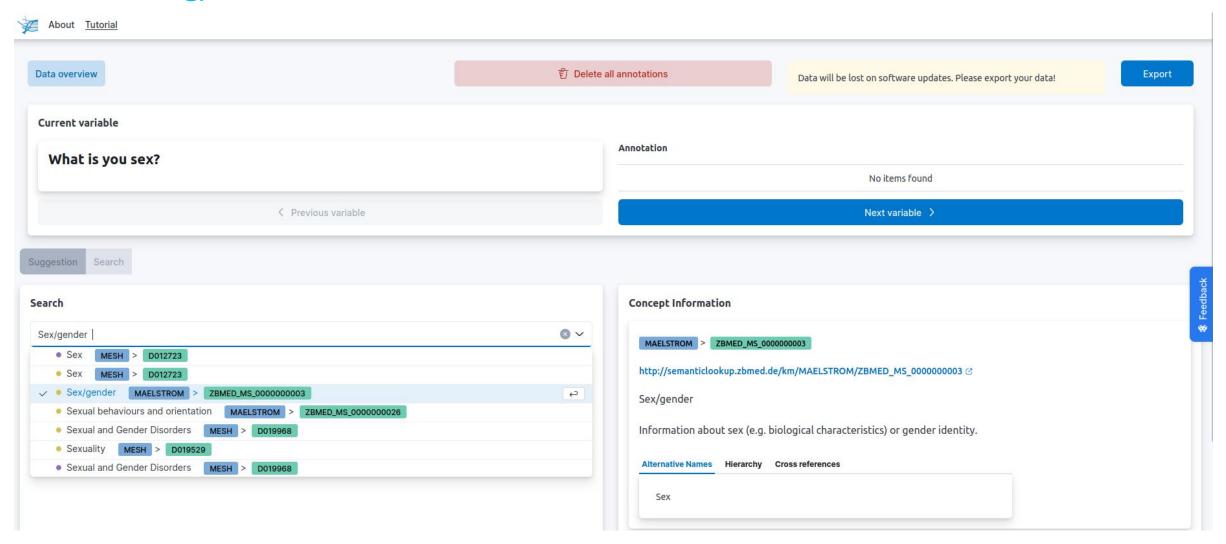




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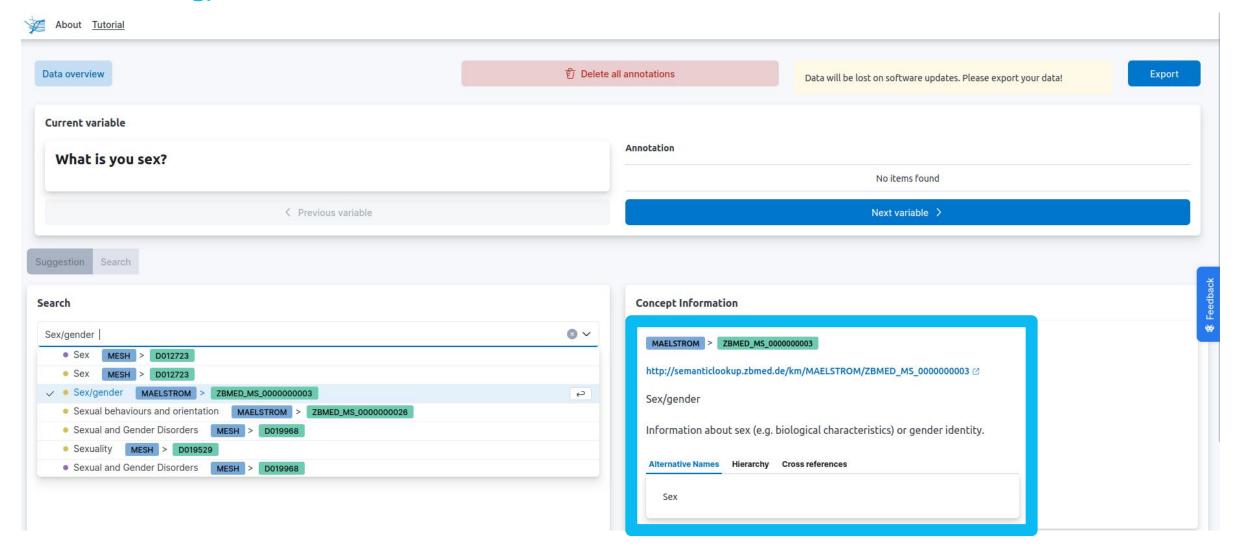
Terminology Service Suite - Metadata Annotation Workbench







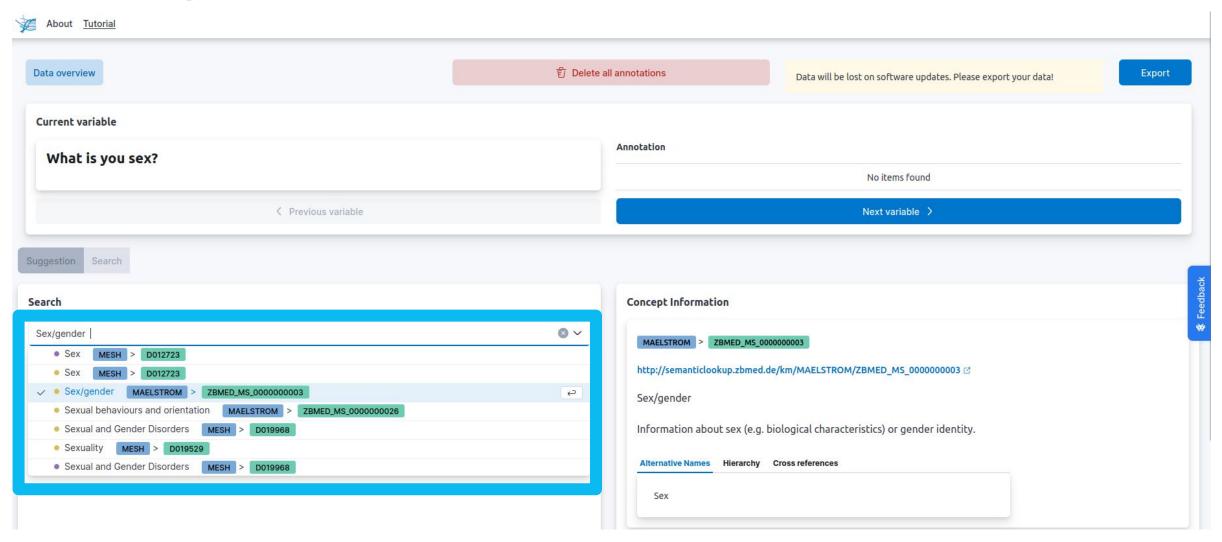
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Terminology Service Suite - Metadata Annotation Workbench





Terminology Service Suite

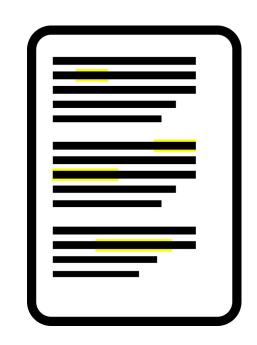


Semantic Search

Data Annotation Services •

User Experience Enhancement

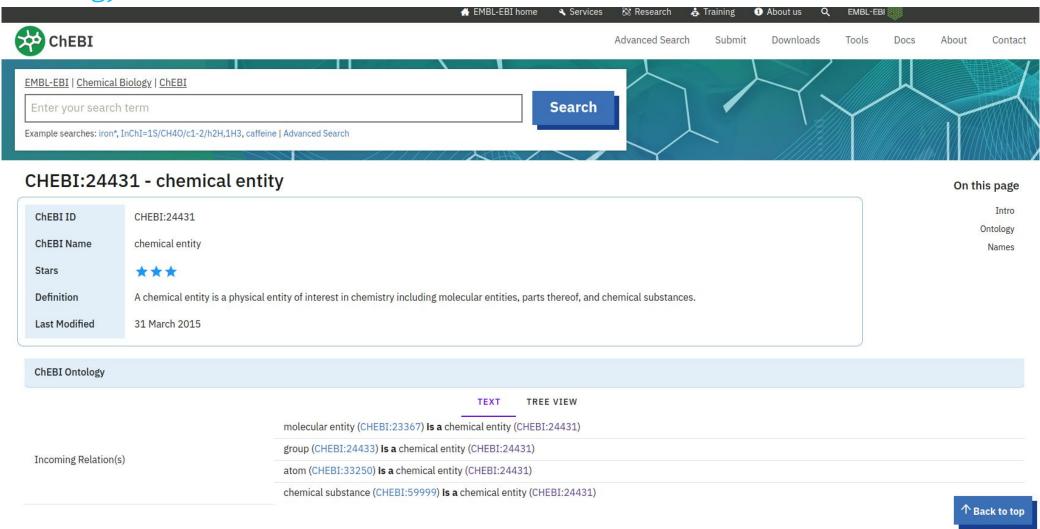






Terminology Service Suite - ChEBI

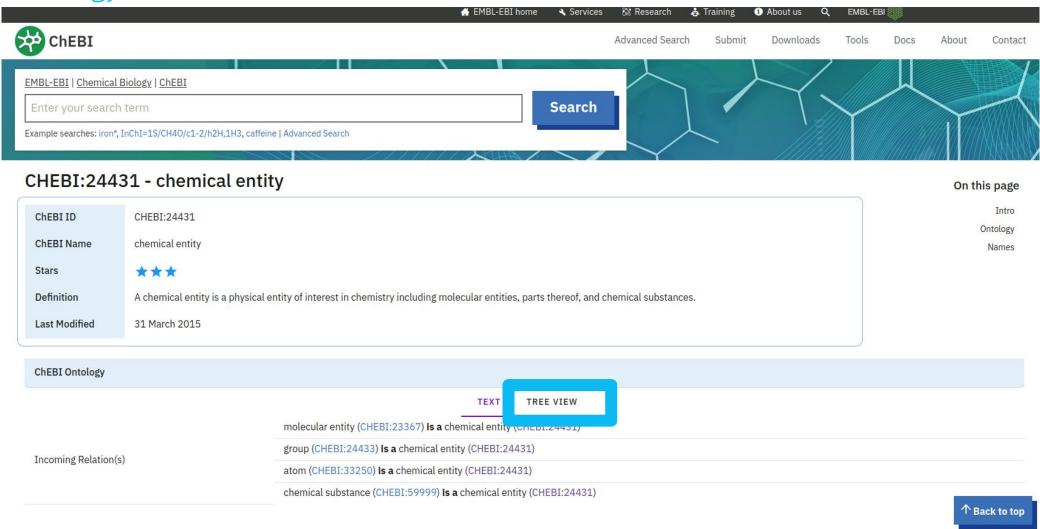






Terminology Service Suite - ChEBI

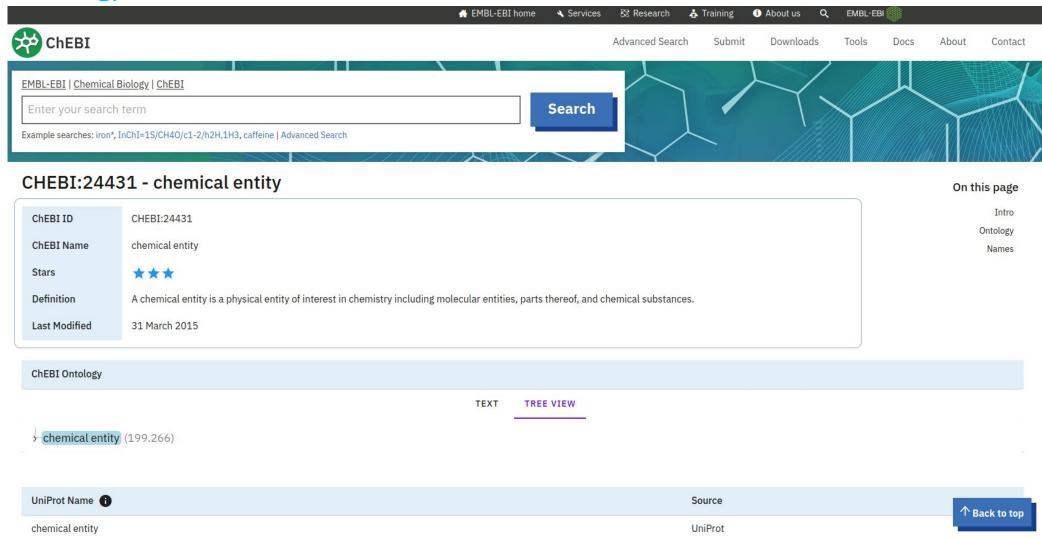






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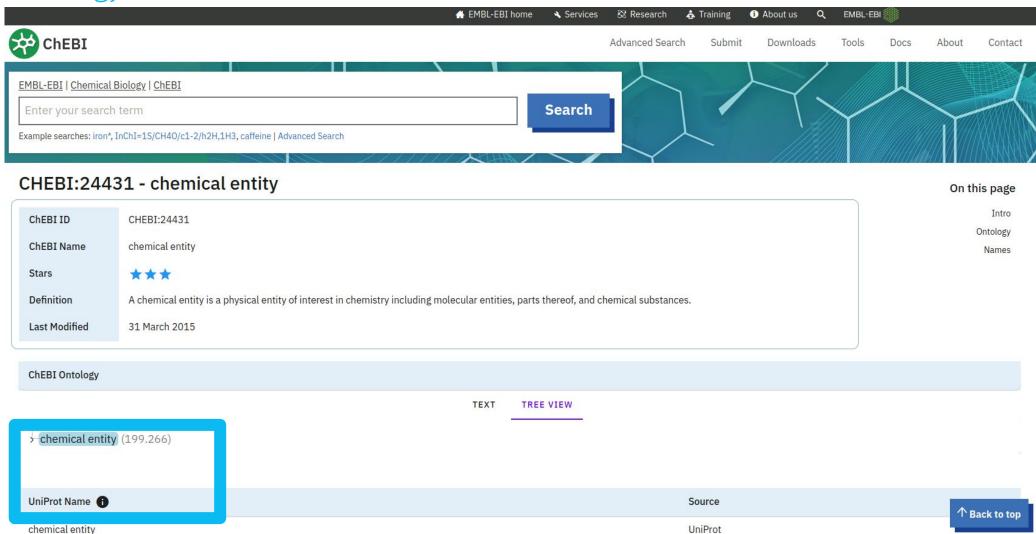






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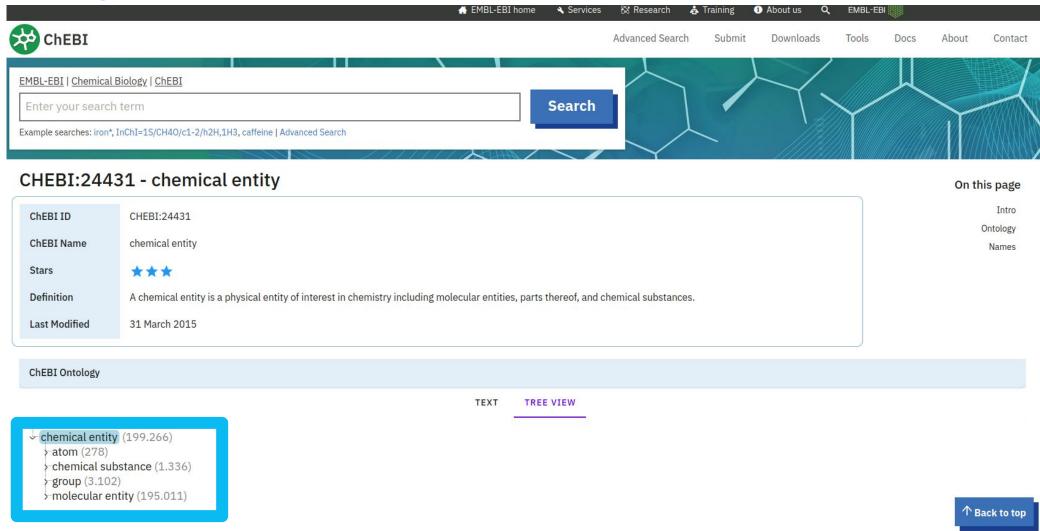




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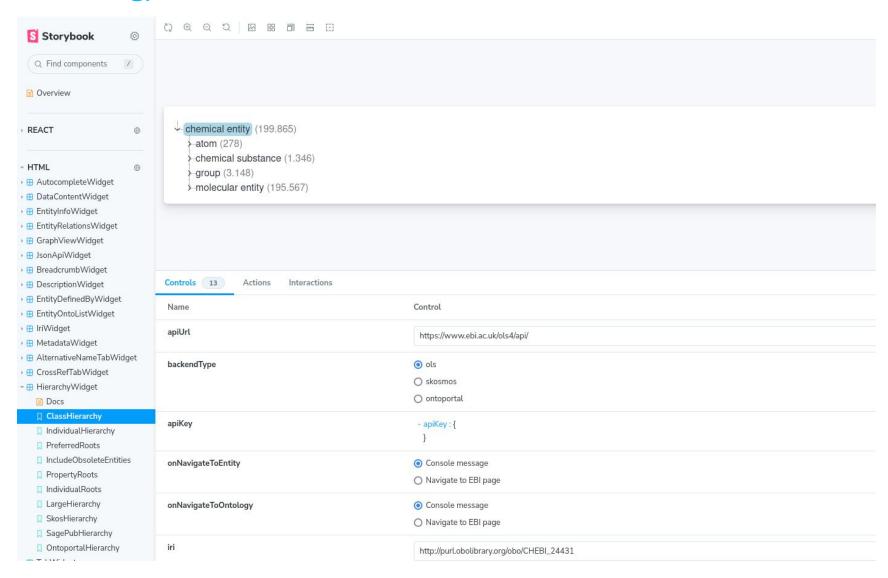






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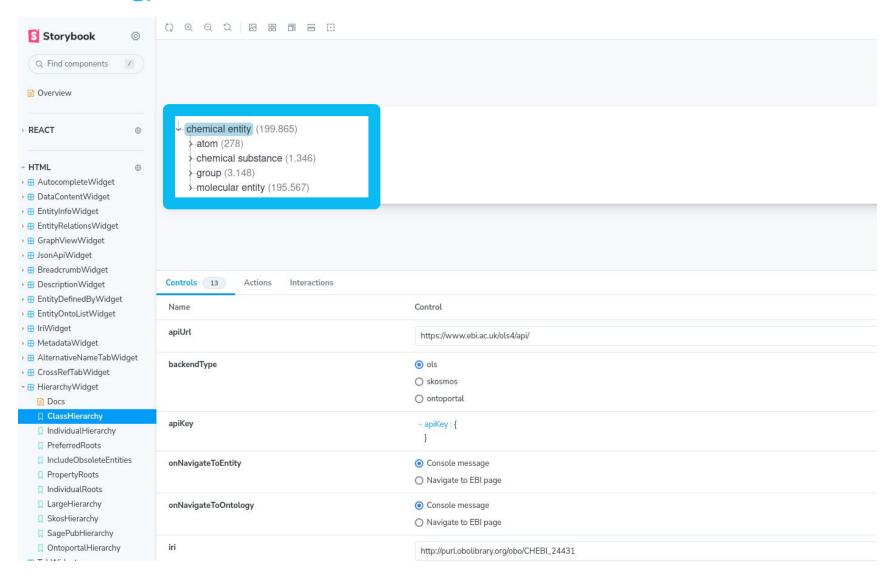






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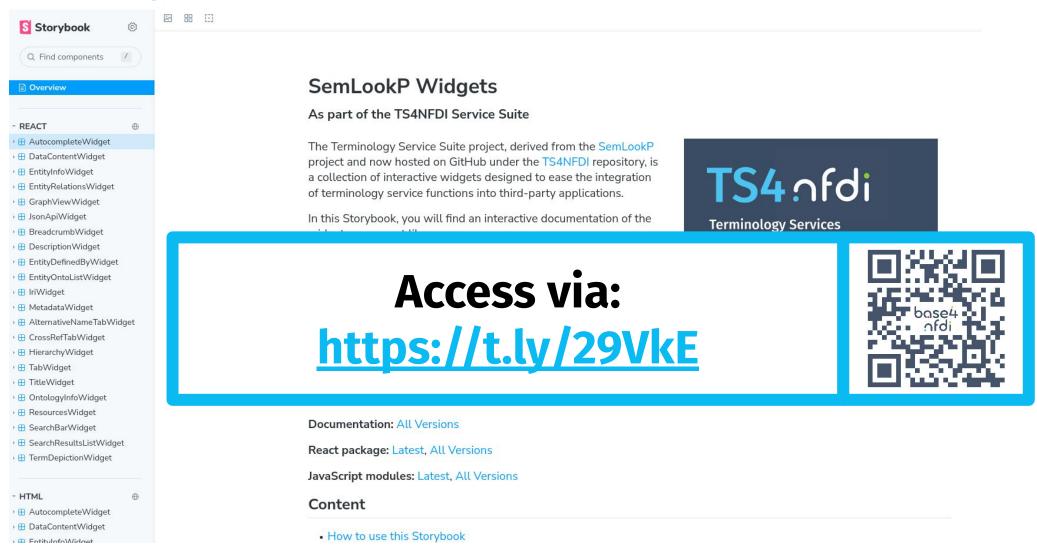






Terminology Service Suite









- Analyzing requirements of all consortia
- consortia landscape analysis (Inventory of existing solutions and services)
- Terminology Service Suite (TSS)
- API Gateway

- Mapping Service
- Terminology Curation
 Workflows
- API Gateway extension
- TSS extension
- IAM4NFDI integration
- Community Engagement and Training Material

- focus on the stability, scalability, sustainability, and expandability
- connect to related EOSC services such as EOSC Data Type Registry (DTR) & Metadata Schema and Crosswalk Registry (MSCR)



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Outlook: Integration Phase



Terminology Service Suite (TSS)

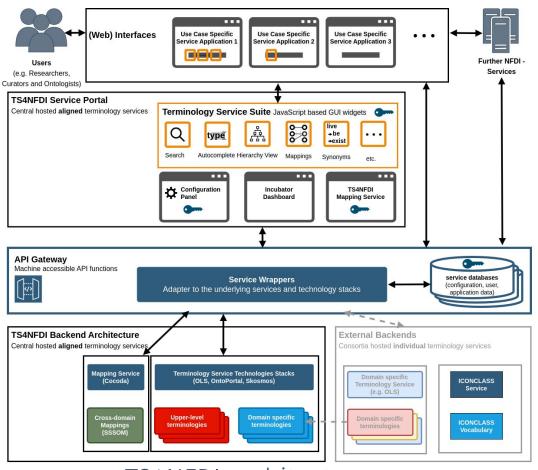
Javascript based widgets

Central API Gateway

 Harmonised single point of access to other (NFDI) terminology services

TS4NFDI Backend Architecture

 Supports Terminology Services which are based on OLS, OntoPortal, or Skosmos



TS4NFDI architecture



Outlook: Integration Phase



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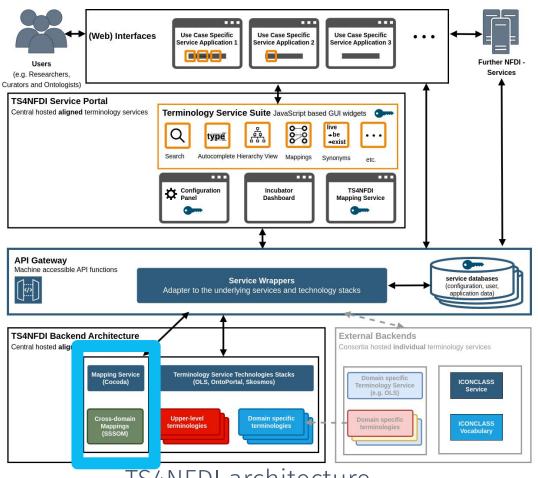
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TS4NFDI Backend Architecture

- Supports Terminology Services which are based on OLS, OntoPortal, or Skosmos
- will provide a NFDI-wide Mapping **Service with SSSOM support**









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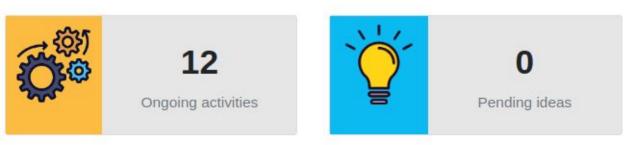
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		possible approach: later in this talk Now!

Outlook: Integration Phase - Incubators









The IAM4NFDI Incubator aims to develop, foster and mature new ideas in the field of identity and access management. The incubator will investigate new technologies that currently have no place (yet) in the services ecosystem of the IAM4NFDI project. This may include to test and experiment with potential new features for existing CAAI solutions. You can find more information about IAM4NFDI in our documentation.



Outlook: Integration Phase - Incubators



Fly-by scenarios

The movie on the left shows a face-on and edge-on view of the disk during an encounter (courtesy: Manuel Steinhausen). The movie on the right shows a face-on view of the disk, where the particles marked in blue are those that remain bound to the host star and the particles in red become unbound due to the encounter.

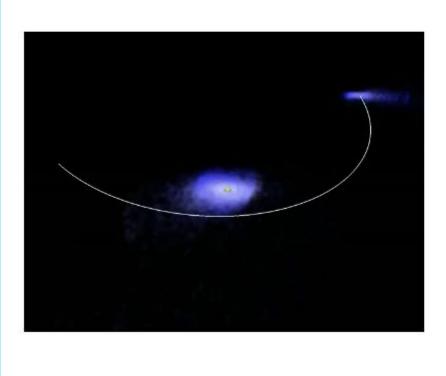


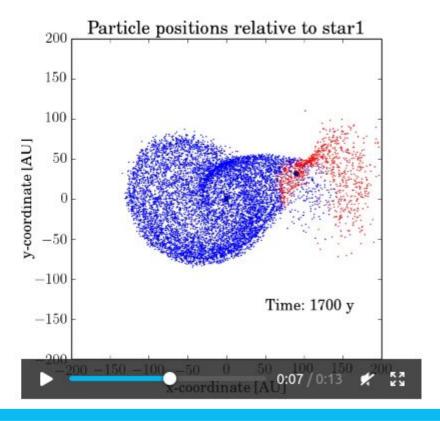
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Outlook: Integration Phase - Incubators



Fly-by scenarios

The movie on the left shows a face-on and edge-on view of the disk during an encounter (courtesy: Manuel Steinhausen). The movie on the right shows a face-on view of the disk, where the particles have a face-on view of the disk, where the particles have a face-on view of the disk, where the particles have a face-on view of the disk, where the particles have a face-on view of the disk during an encounter (courtesy: Manuel Steinhausen). The

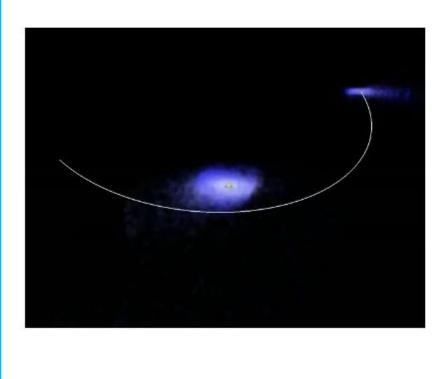


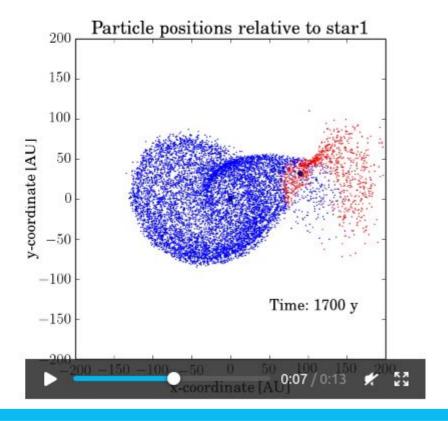
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Outlook: Integration Phase - Incubators



Fly-by scenarios

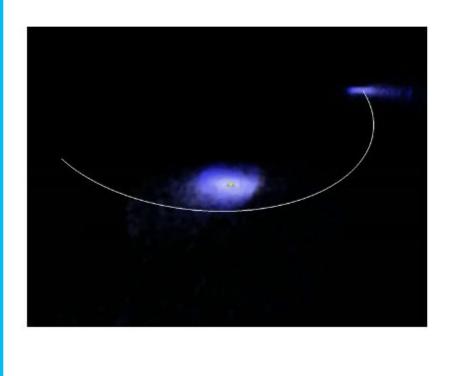
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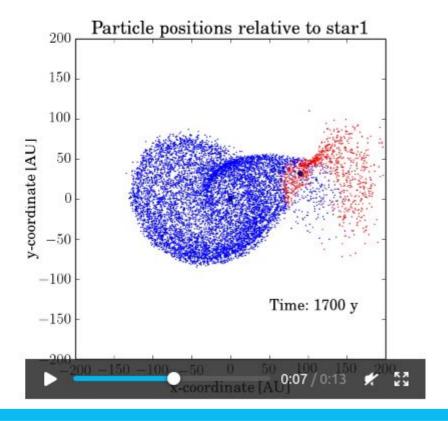


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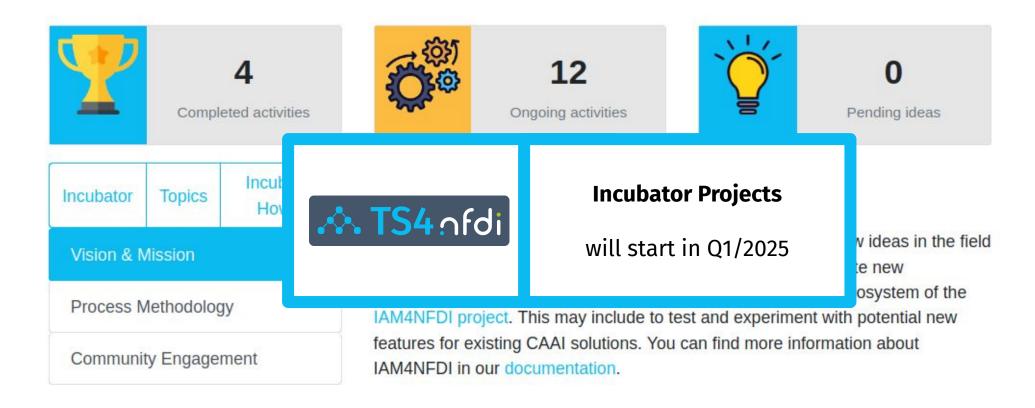




Outlook: Integration Phase - Incubators









Thank you! Let us discuss how we we could support you!





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