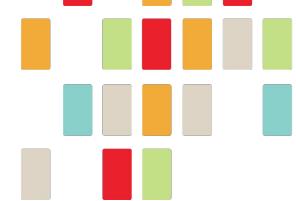


HSportal

instance of **Ontoportal**
for the Heritage Science community

Guillem Anaïs

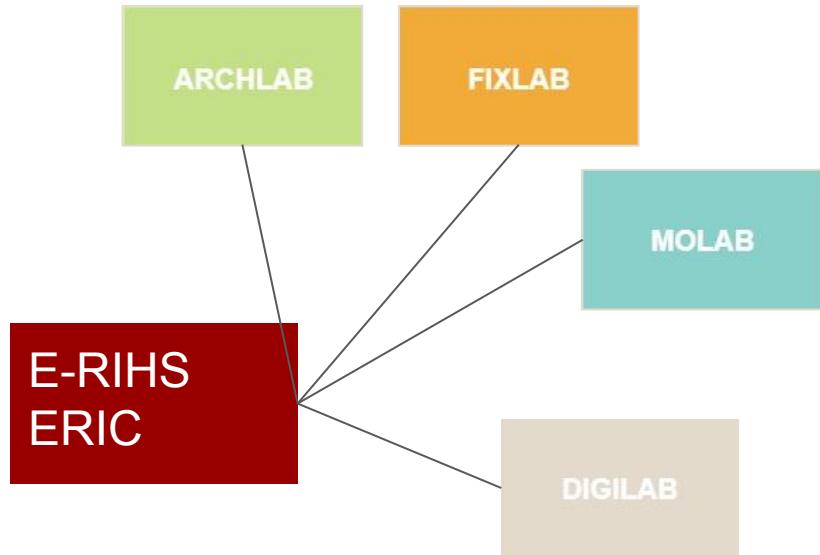
Ontoportal Annual Workshop and Meeting, Berlin, 2025/09/29-2025/10/03



E-RIHS: European Research Infrastructure for Heritage Science

<https://www.e-rihs.eu/>

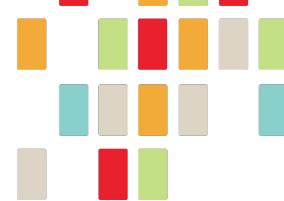
March 28, 2025, E-RIHS has officially been established as a European Research Infrastructure Consortium (**ERIC**).



E-RIHS Digilab

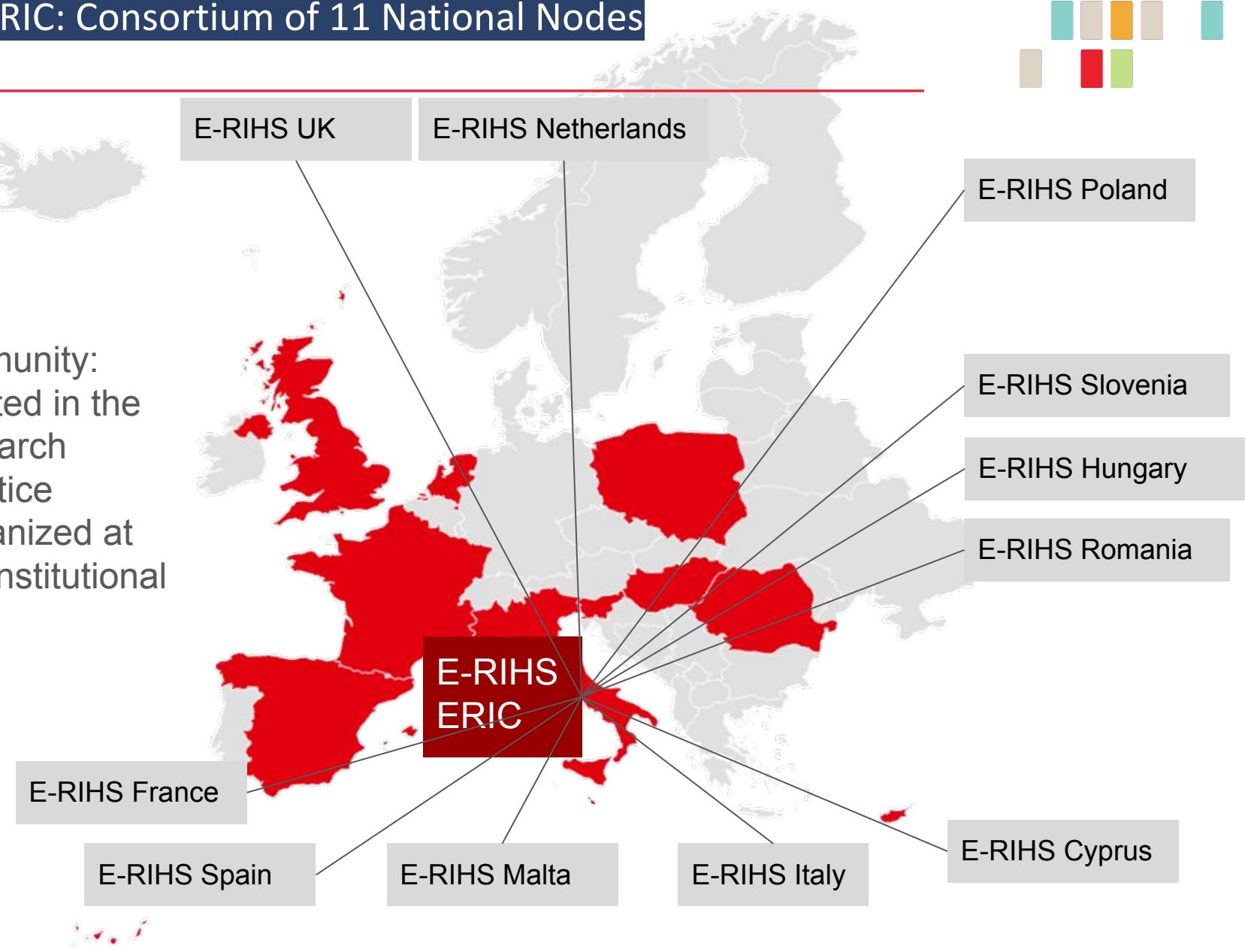
DIGILAB is the new platform of **digital tools and data for creating new heritage science knowledge**. In its initial launch, DIGILAB provides access to digital tools and services. These support **sharing, curating, processing, visualizing, and ensuring interoperability of heritage science data, fostering data-driven research**. The access to digital data resources is under development.

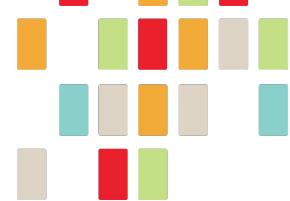
E-RIHS ERIC: Consortium of 11 National Nodes



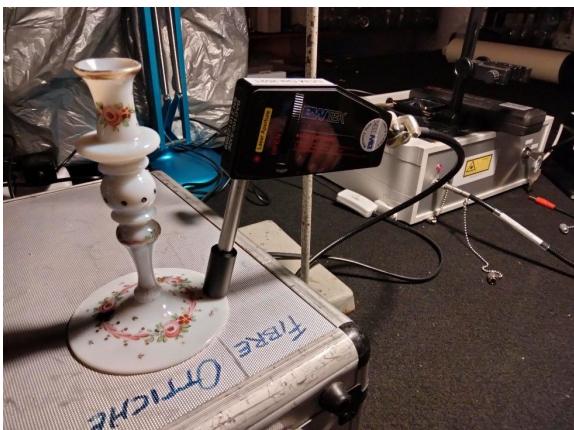
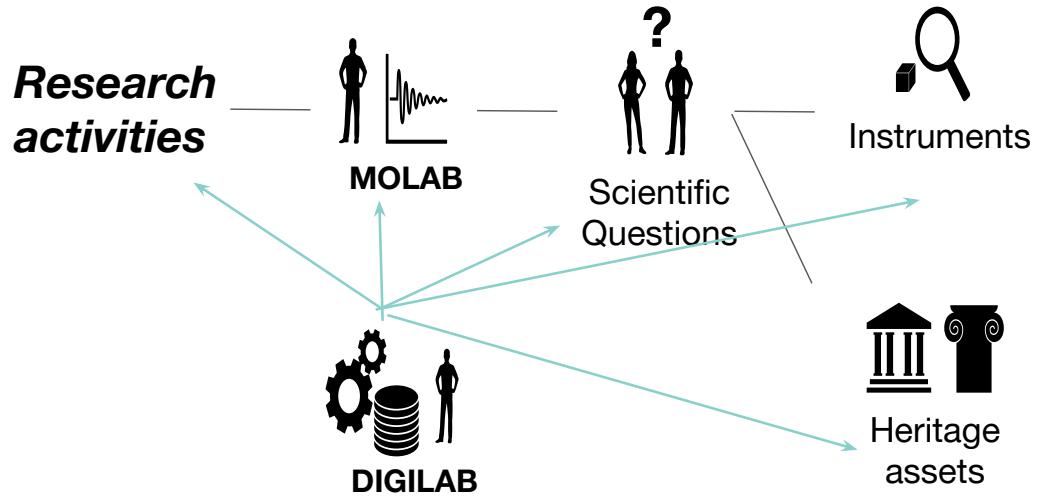
HS community:

- Rooted in the research practice
- Organized at the institutional level





HSportal service for and with the HS community



- Cultural Heritage Object and Materiality
- Instrumentation and Scientific Observation
- Quantitative/qualitative Data
- Research Objectives and Processes
- Challenges and Data Sharing
- Impact on Research

GRANJA– Teresa Palomar
(Institute of Ceramic and Glass (ICV-CSIC)): _
Historical evolution of high-quality glass pieces from the Spanish Royal Glass Factory “La Granja” (IperionHS website)



ARCHLA

Physical and local archives and
museum institutions
for heritage science

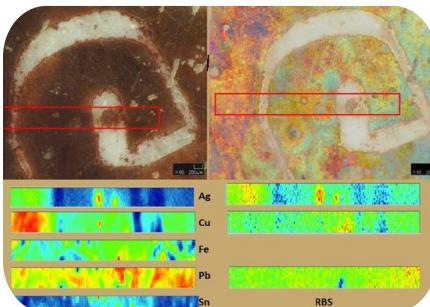
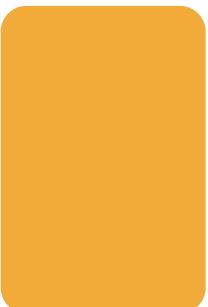
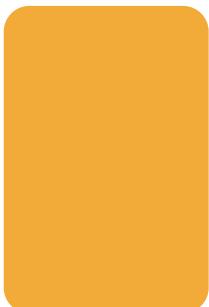
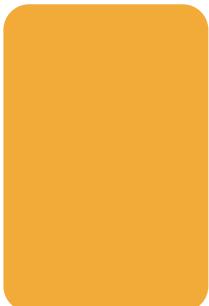
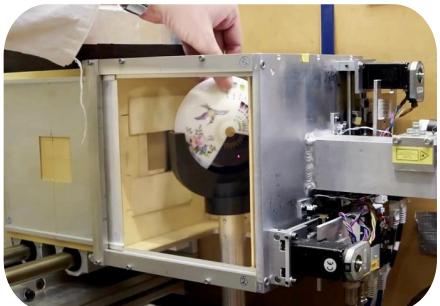


Virgili, Vania. 2025. "Advancing Heritage Science: European Breakthrough Initiatives Driving Digital Innovation in Cultural Heritage." Archiving 2025 (Granada, Spain), June.

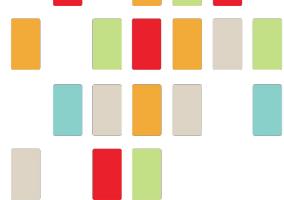


FIXLAB

large-scale and advanced
laboratory facilities established in
a fixed location

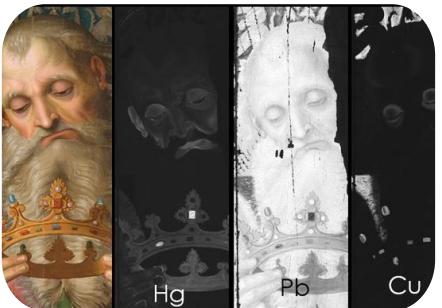
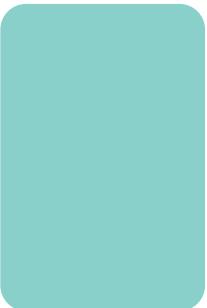
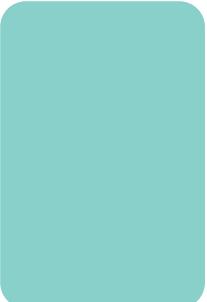


Virgili, Vania. 2025. "Advancing Heritage Science: European Breakthrough Initiatives Driving Digital Innovation in Cultural Heritage." Archiving 2025 (Granada, Spain), June.

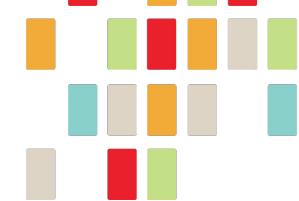


MOLAB

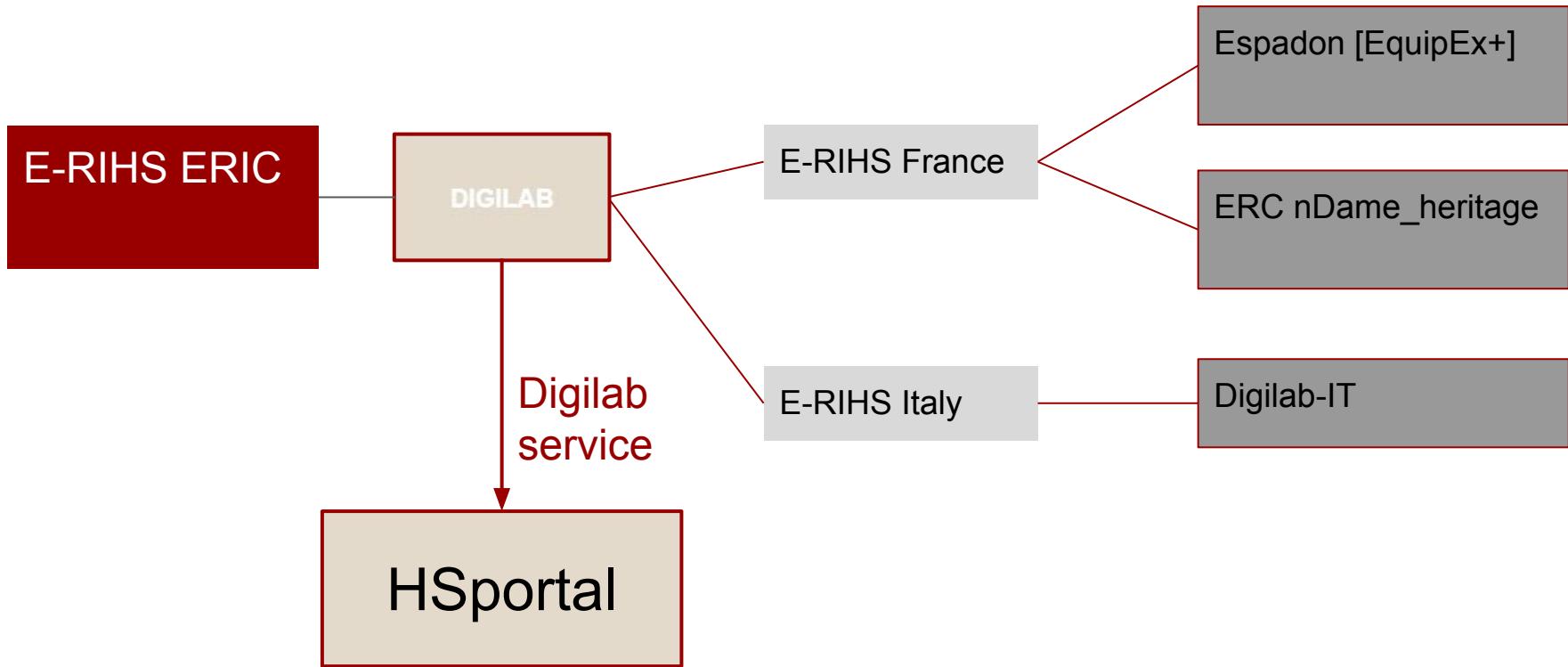
mobile instruments and a highly skilled dedicated team for in-situ multi-technique diagnostics



Virgili, Vania. 2025. "Advancing Heritage Science: European Breakthrough Initiatives Driving Digital Innovation in Cultural Heritage." *_Archiving 2025_* (Granada, Spain), June.



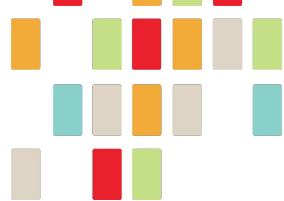
Instance of HS portal



URL: <https://hsportal.espadon.net/>

HSportal:

- Collaboration between E-RIHS-FR and E-RIHS-IT
- Digilab service of E-RIHS ERIC



Opentheso: open-source thesaurus management platform

The screenshot shows the Opentheso interface. On the left, there's a vertical sidebar with icons for projects, users, and help. The main area displays the 'nD-Opentheso' project page. It features a logo with a stylized 'J' inside a circle, the text 'nd-Opentheso', and a subtitle about managing controlled vocabularies for the Notre-Dame de Paris digital archive. Below this, there's a section for managing thesauri, with a search bar and various filters. At the bottom, there are links for help, license information (GNU GPL), and partners.

Aide et tutoriels : <https://opentheso.hypotheses.org>

Opentheso est distribué en licence libre de droit français compatible avec la licence [GNU GPL](#)

C'est un gestionnaire de thesaurus multilingue, développé par la plateforme Technologique [WST](#) (Web Sémantique & Thesauri) située à la [MOM](#) en partenariat avec le [GDS-FRANTIQ](#)

<https://github.com/miledrousset/Opentheso>

- interoperability of vocabularies ISO 25964-1:2011
- compatible with the SKOS format
- visualization options: hierarchical, list or graphical.
- alignment module
- multilingual multimodal concept documentation, use of images, based on IIIF functionalities
- fully functional API, following API and GrapheQLI recommendations

Example of the concept “ébène”

<https://ark.notre-dame.science/ark:/35572/ndpqm1mp9j1wsgdz6m6ht84>

Concept Index Collection

matériau > bois > ébène

Libellé	ébène (fr)
Variante du libellé
Collection
Facettes
Total de la branche

Concept générique	↑	bois
Concept spécifique	↓
Concept associé	↔

Traduction

Notes

Définition

Ressources externes

Image

Coordonnées GPS

Exemple : (48.922548 2.145240, 48.897888 2.242193, ...)

Equivalence exacte : <https://www.wikidata.org/entity/Q156005>

Notation



Alignment with Wikidata

The screenshot shows the Openthoso application interface. On the left, there is a vertical toolbar with icons for file operations, search, and navigation. The main window has a top bar with language selection (Français), a search bar, and filter options (Commence par, Mot exact, Note, Identifiant). Below this, there are tabs: Concept, Collection, and Alignement (which is highlighted with a red box and labeled '1'). There are also buttons for Recherche automatique, Comparaison automatique, and Gérer les sources.

The main content area displays a table for alignment:

Source	Source	Type d'alignement	Actions
ébène (76833)	https://www.wikidata.org/entity/Q156005	Wikidata_rest	exactMatch

A red box highlights the 'Alignement' button in the top bar, and another red box highlights the '+ Alignement' button in the table row for 'ébène'. A callout bubble above the '+ Alignement' button says 'Vérifier les URLs'.

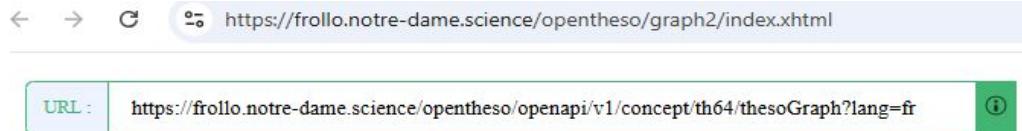
At the bottom, it says 'Total d'alignements pour (ébène) : 1' and shows navigation controls (1-2 de 2 Alignement, page numbers, and a dropdown for 10 items).

At the very bottom, it says 'Nombre total des alignements disponibles : 1'.



- Choice of the entity to be aligned with
- Choice of alignment type (close/exactMatch)

Visualization of the thesaurus in graph (1)

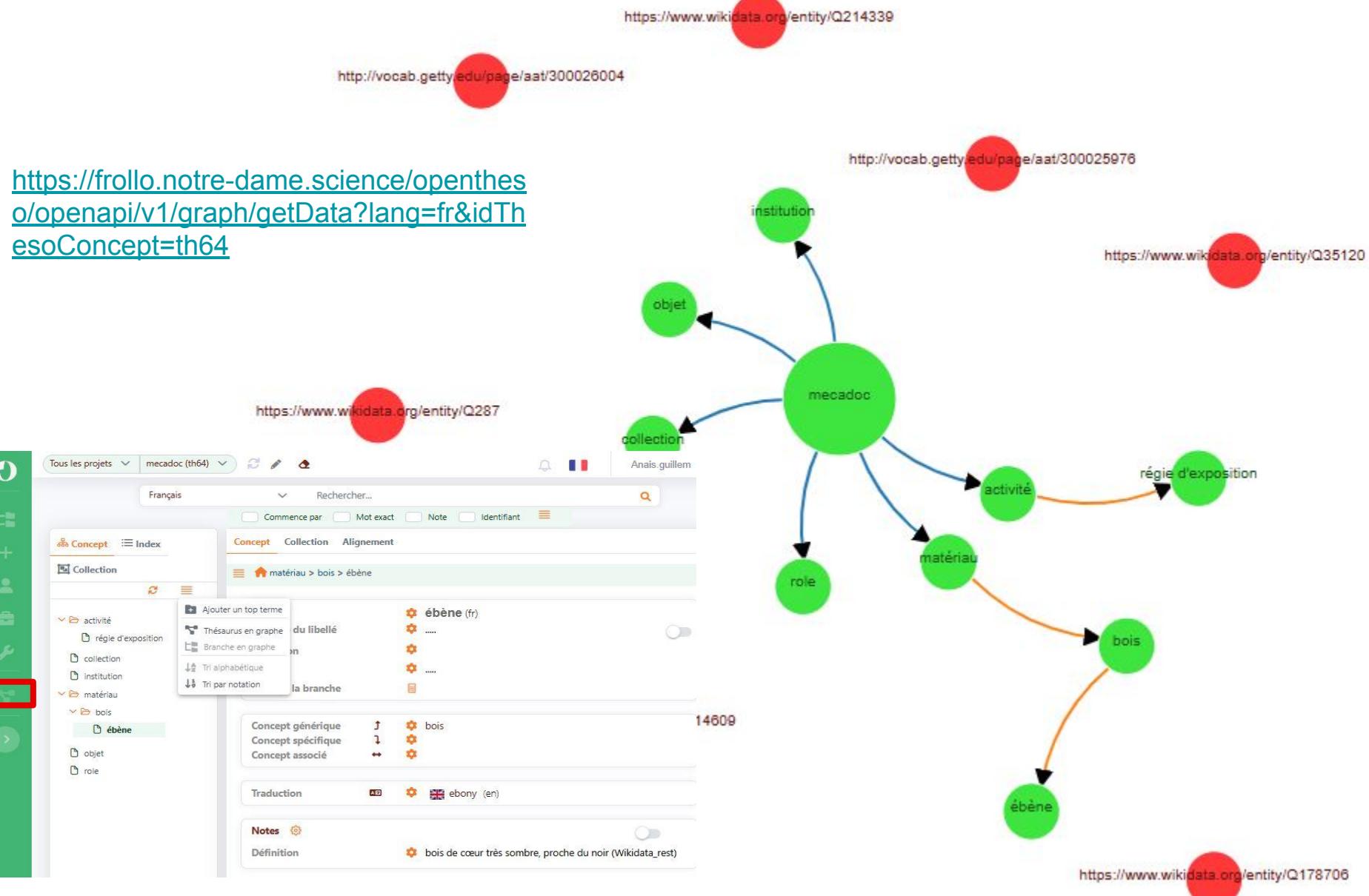


<https://frollo.notre-dame.science/opentheso/openapi/v1/concept/th64/thesoGraph?lang=fr>

The screenshot shows the mecadoc software interface with the following details:

- Top Bar:** Tous les projets (dropdown), mecadoc (th64) (dropdown), search bar, and user profile (Anais guillemin).
- Left Sidebar:** A vertical sidebar with various icons representing project categories.
- Main Area:**
 - Concept Index:** Shows a tree view of concepts: activité, régie d'exposition, collection, institution, matériau, bois, objet, and rôle.
 - Collection View:** Shows a tree view of collections: matière > bois > ébène.
 - Thesaurus Feature:** A modal window titled "Ajouter un top terme" (Add a top term). It contains:
 - A dropdown menu with options: Ajouter un top terme, Thésaurus en graphe (selected), et Libellé.
 - Buttons for Branchement en graphe, Tri alphabétique, and Tri par notation.
 - A list of terms:
 - ébène (fr)
 -
 -
 - la branche
 - Concept Details:** Shows three types of concepts:
 - Concept générique (generic concept): bois
 - Concept spécifique (specific concept): bois
 - Concept associé (associated concept): bois
 - Translation:** Shows the word "ebène" in French and its English translation "ebony" (en).
 - Notes:** Shows a note about ebony being a very dark heartwood, similar to black (Wikidata_rest).

Visualization of the thesaurus in graph (2)



bois

ébène

objet

role

Total de la branche



- Concept général ↗ ⚙ bois
- Concept spécifique ↘ ⚙
- Concept associé ↔ ⚙

Export ttl/RDF of a concept

Traduction



ebony (en)

Notes ⚙

Définition



bois de cœur très sombre, proche du noir (Wikidata_rest)



Ressources externes



Image



Coordonnées GPS

Exemple : (48.922548 2.145240, 48.897888 2.242193, ...)



Équivalence exacte : <https://www.wikidata.org/entity/Q156005>

Notation



ID Interne

76833



<https://ark.notre-dame.science/ark:/35572/ndpqm1mp9j1wsgdz6m6ht84>

Identifiant permanent

35572/ndpqm1mp9j1wsgdz6m6ht84



Exporter le concept en
SKOS



RDF/XML



Json



JsonLd



Turtle

Créé le: 2024-11-07 Dernière modification le: 2024-11-11

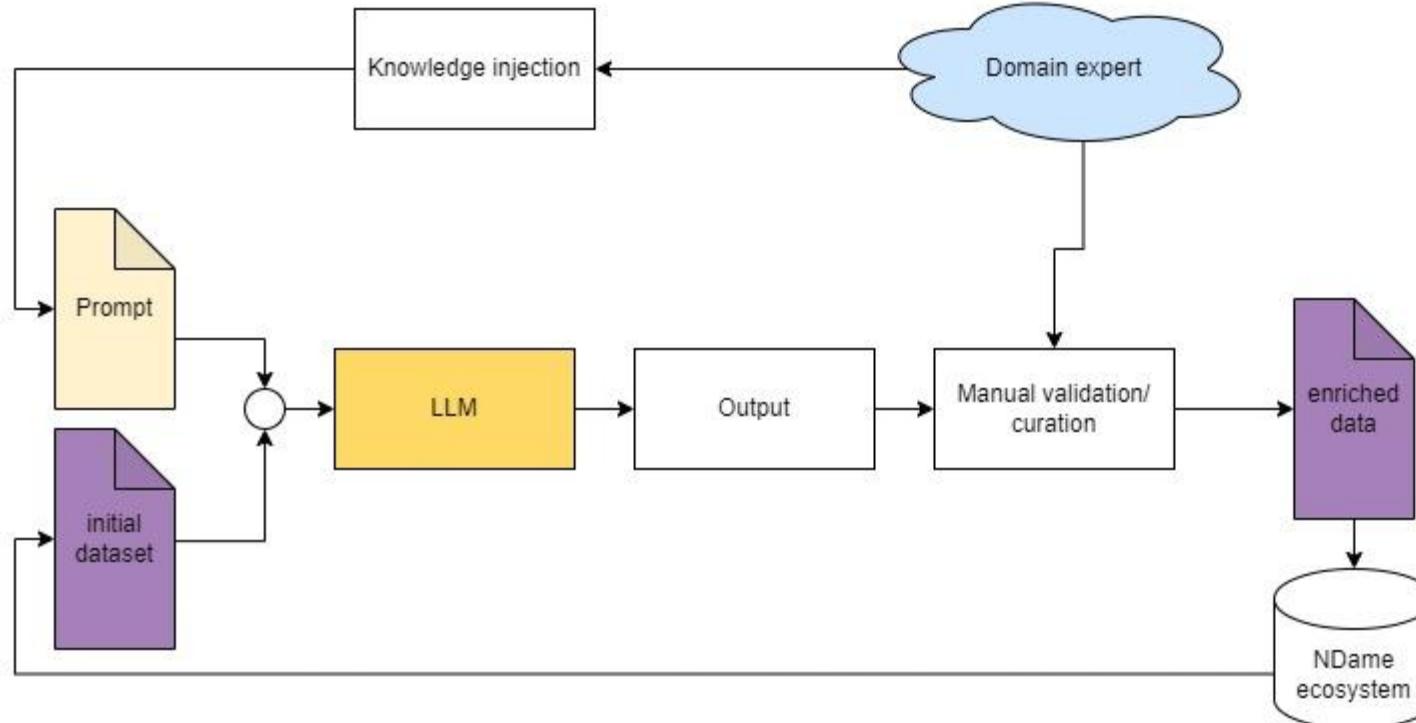
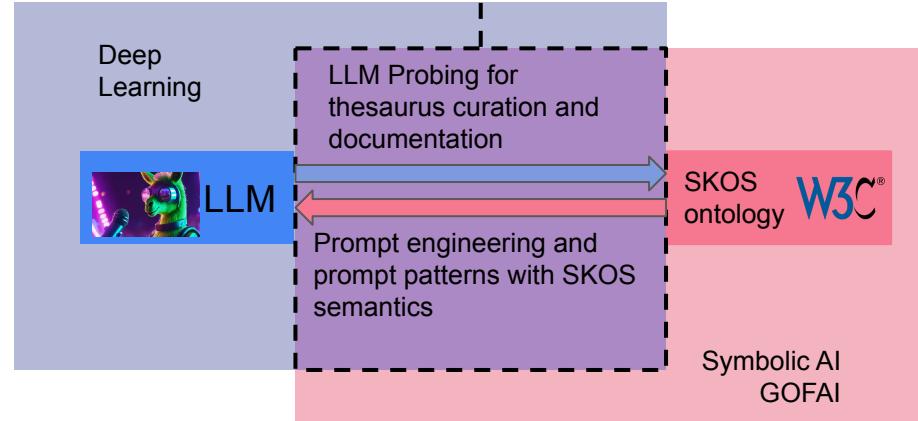
Guillem Anaïs. 2025. "Opentheso, thesaurus, concepts, and SKOS." Presented at the Master Seminar of Museology, UE1 Collections

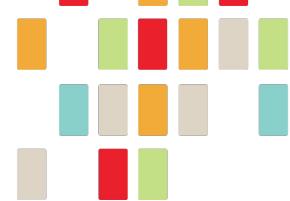
management, Course on Cultural Heritage Data Interoperability, University of Haute Alsace, Mulhouse, Mulhouse.



From data experiment to building a working API: TAC project (Thesaurus Automated Curation) 2025-2026

Neuro-symbolic (NeSy) methodology

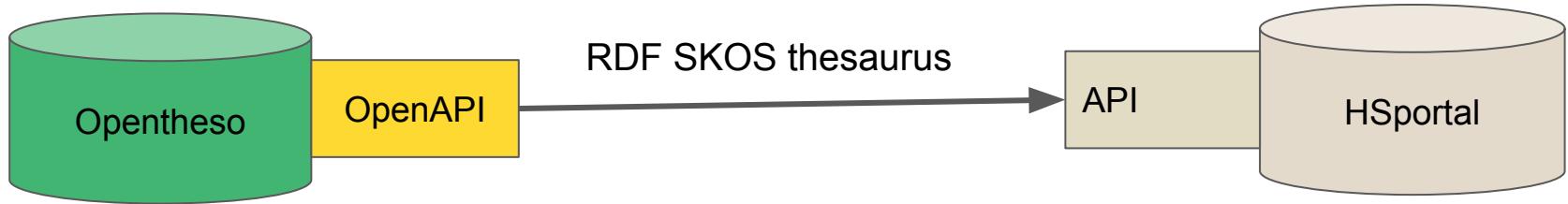
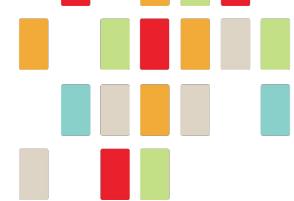




Frollo: instance of Opentheso for Notre-Dame de Paris' research: 15 thesauri/30.000 concepts

- Glossaire illustré sur les formes d'altération de la pierre (ICOMOS-ISCS) (84 concepts)
- Thésaurus de la désignation des œuvres architecturales et des espaces aménagés (1359 concepts)
- Thésaurus de la désignation des objets mobiliers (2654 concepts)
- Thésaurus nDame (4139 concepts)
- Glossaire du Charpentier (1531 concepts)
- Thesaurus des activités de conservation et de restauration (TACR) (53 concepts)
- Typologie spatiale Notre-Dame (1967 concepts)
- Techniques d'analyses et d'examens (TAPAC) (329 concepts)
- Types d'objets et d'artefacts (344 concepts)
- Éléments de description des couches stratigraphiques (2135 concepts)
- Type de matériaux (284 concepts)
- Architecture (Jean-Marie Pérouse de Montclos) (2159 concepts)
- Memoria (290 concepts)
- LRMH_thesaurus (13200 concepts)
- Digital Data Thesaurus (75 concepts)

Integration between Opentheso and Ontoportal



Frollo (instance of Opentheso)

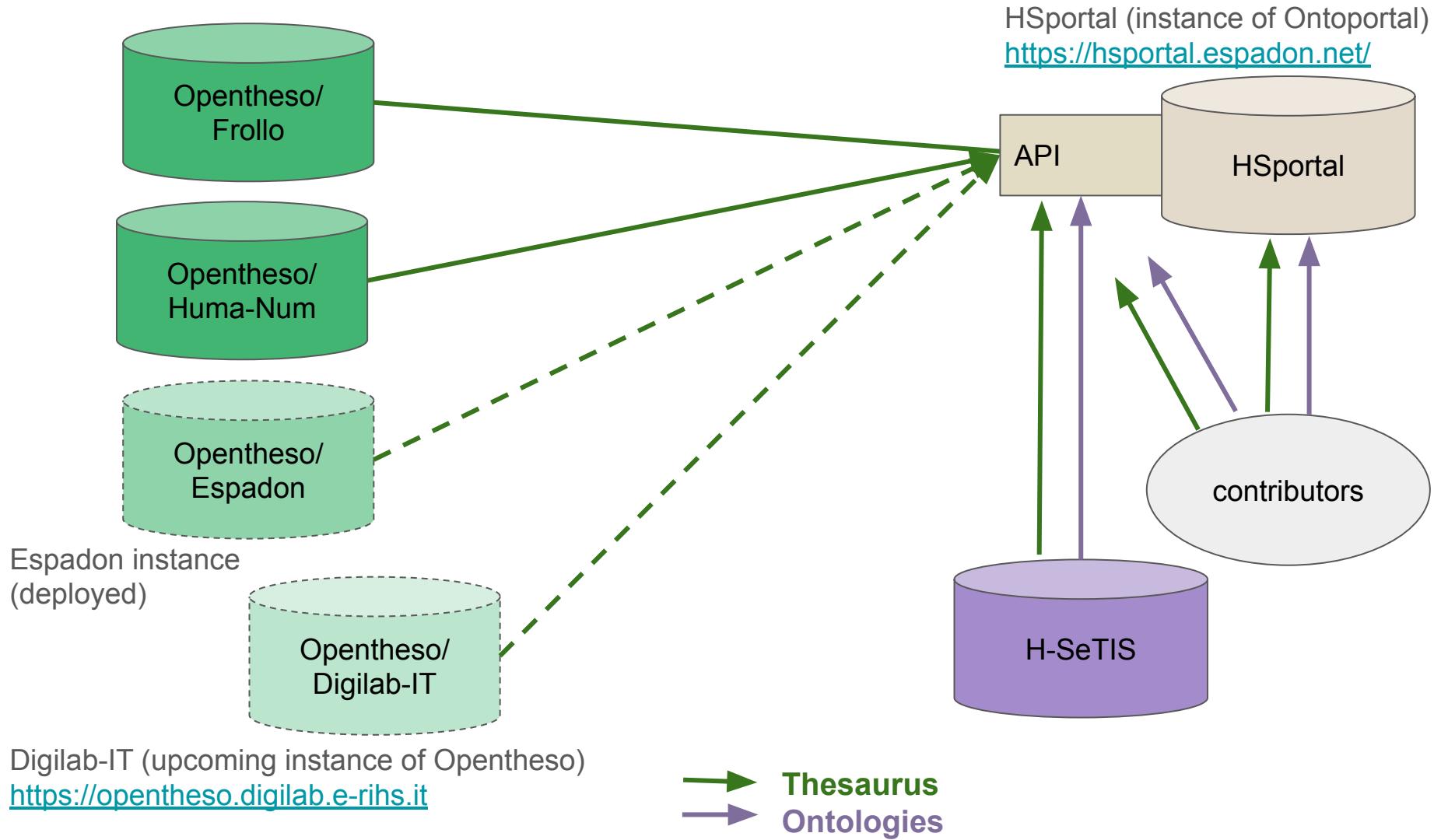
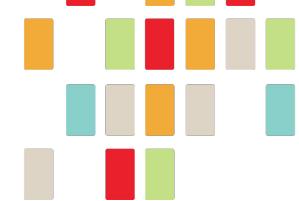
<https://frollo.notre-dame.science/>

HSportal (instance of Ontoportal)

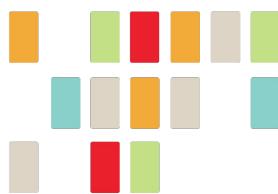
<https://hsportal.espadon.net/>

- Ontoportal doc: <https://www.bioontology.org/wiki/SKOSupport>
- Proposed contribution to the Ontoportal Alliance: Documentation of using Ontoportal with Opentheso

Aggregation overview of HSportal



API Opentheso: recuperating a thesaurus: <https://frollo.notre-dame.science/openapi/v1/thesaurus/th59>



Thesaurus Contient toutes les actions en liens avec les thesaurus.

GET /openapi/v1/thesaurus Permet de récupérer tous les thesaurus publics



GET /openapi/v1/thesaurus/{thesaurusId} Permet de récupérer un thesaurus entier



Ancienne version : </api/all/theso?id=<idTheso>&format=<format>> \n\nRécupère entièrement le thesaurus dont l'ID est spécifié.\nAttention : Si le thesaurus est gros, l'opération peut prendre beaucoup de temps

Parameters

[Cancel](#)

Name Description

thesaurusId * required Identifiant du thesaurus à récupérer

string
(path)

accept
string
(header)

[Execute](#)

[Clear](#)

Responses

Curl

```
curl -X 'GET' \
'https://frollo.notre-dame.science/openapi/v1/thesaurus/th59' \
-H 'accept: application/json; charset=utf-8'
```



Request URL

<https://frollo.notre-dame.science/openapi/v1/thesaurus/th59>

Server response

Code Details

200

Response body

```
[  
  {  
    "id": "https://ark.notre-dame.science/ark:/35572/th59",  
    "@type": [  
      "http://www.w3.org/2004/02/skos/core#ConceptScheme"  
    ],  
    "http://www.w3.org/2004/02/skos/core#prefLabel": [  
      {  
        "@language": "it",  
        "@value": "Tipo di materiali"  
      }  
    ]  
  }]
```



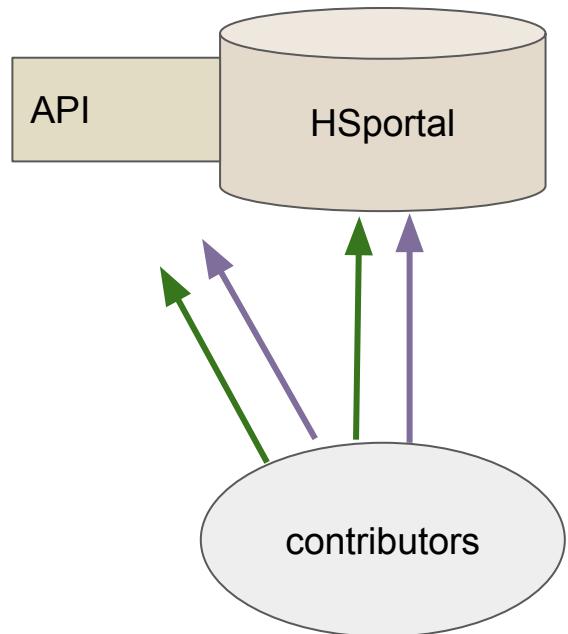
Example of early adopter: Raphaëlle Krummeich -> project thesaurus deposit

Raphaëlle Krummeich
(raphaelle.krummeich@univ-rouen.fr)

Resource :

1882-Historic Spatial Typology of
Cyprus Thesaurus

HSportal (instance of Ontoportal)
<https://hsportal.espadon.net/>



Kitchener's Survey of Cyprus, 1882 - Chypre -Kitchener's map (CYPRUS)

<https://opentheso2.mom.fr/opentheso2/?idc=c001&idt=th717>

2

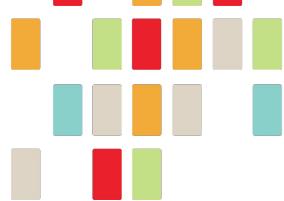
Classes

939

Individuals

0

Properties



User tutorial:

How to ... in Ontoportal?



EUROPEAN RESEARCH INFRASTRUCTURE
FOR HERITAGE SCIENCE

About

Services

Results Library

Get involved

Newsroom

E-RIHS IP

HS Academy

Opportunities

HS Academy

Catalogue of Services

HS Academy



HS Academy ↗

With the experience gained in previous EU projects and summer schools, such as CHARISMA, IPERION CH and IPERION HS, we organize and promote training activities: international, cutting-edge training opportunities and events in Heritage Science. Here you can explore all the opportunities offered.

Documentation:

https://ontoportal.github.io/documentation/administration/ontologies/submitting_ontologies

HS Academy:

HSportal tutorial, webinar,
lecture, workshop?

How to... in HSportal?

Opportunities

Search for opportunities

Search...

categories:

All HS-Categories

Lectures

Webinars

Training Camp

Meeting

Workshop

Lecture On: JUNE 19, 2020
Title: GC-MS IN HERITAGE SCIENCE:
AN IMPORTANT INVESTIGATIVE
TOOL FOR THE STUDY OF
ORGANIC MATERIALS

- Types of pyrolysis used for sample characterisation with respect to organic materials
- The use of GC-MS in multi-analytical investigations
- Mass spectrometric analyses for characterising organic materials

Moderated by emerging professionals

JENNIFER POULIN
ESTHER

HS Academy

Lecture On: MAY 22, 2020
Title: ANALYSIS OF INDIGENOUS
AMERICAN OBJECTS FROM THE V&A
COLLECTION

- Indigenous Study - The role it is playing in research on Indigenous American heritage and its impact on the way we understand and interpret our material culture
- Case studies from the V&A collections illustrating how different analytical techniques can be used to study these objects
- Recent Findings - Highlights include new research findings on the use of traditional and innovative conservation strategies

Moderated by emerging professionals

LUCIA BURGO
ESTHER

HS Academy

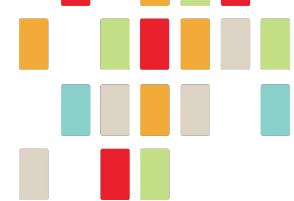
Lecture On: APRIL 24, 2020
Title: ACOUSTIC EMISSIONS TECHNIQUES
APPLIED TO HISTORICAL VEHICLE
ENGINES

- Acoustic Emission for the monitoring of cultural heritage structures
- Acoustic Emissions and the importance of the correct use of the instruments, materials and parameters
- Acoustic Emissions and the state of conservation of other types of objects of cultural heritage

Moderated by emerging professionals

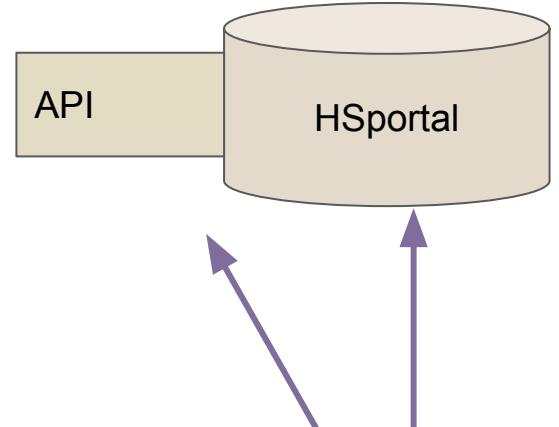
Laura Brambilla
Esther

HS Academy

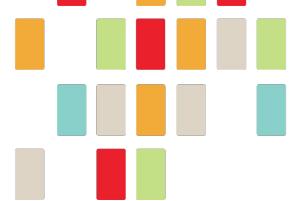


Ongoing tests with Elias Tzortzakakis (FORTH ICS)

HSportal (instance of Ontoportal)
<https://hsportal.espadon.net/>

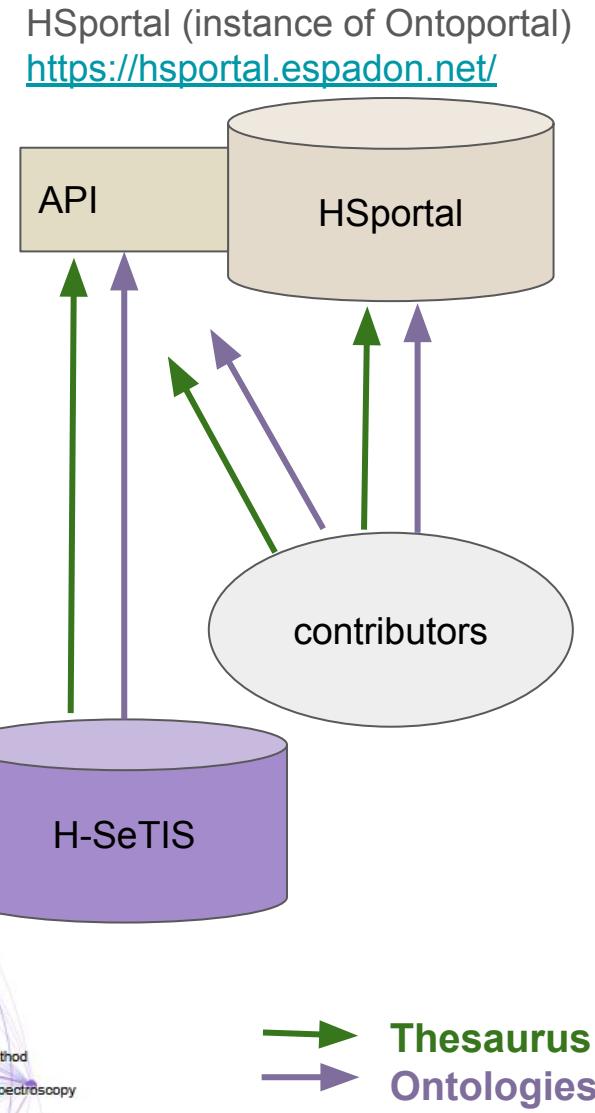
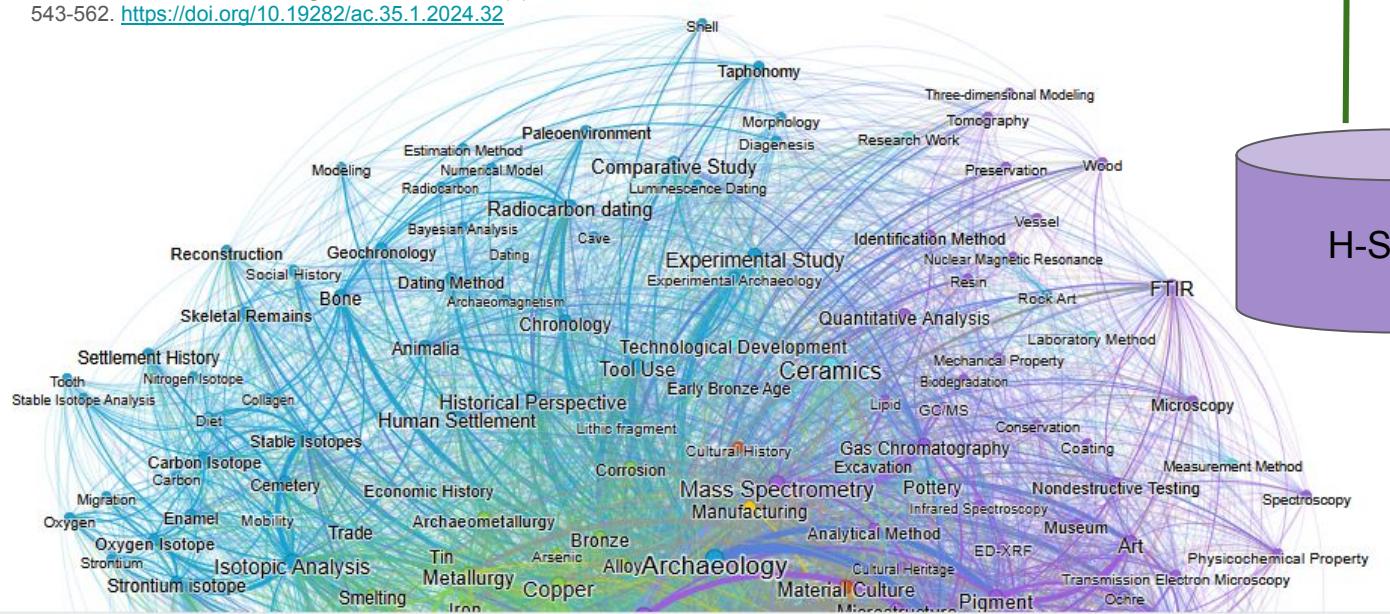


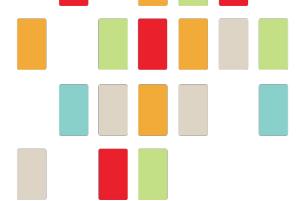
Possible contributor: H-Setis project and DB



H-SeTIS database (<https://doi.org/10.71795/8t2z-hh65>) serves as a comprehensive hub for systematically surveying and describing various semantic artefacts and tools relevant to the Heritage domain.

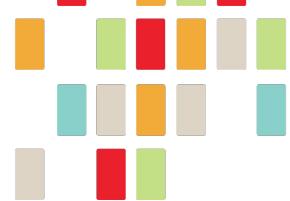
Scarpa, Erica, Riccardo Valente. 2024. "A resource hub for interoperability and data integration in Heritage research: the H-SeTIS database", Archeologia e Calcolatori, 35 (1): 543-562. <https://doi.org/10.19282/ac.35.1.2024.32>





HSportal objectives for 2025: tests, portal deployment and launch

Installation and initial tests	✓	Conclusive tests in Digilab group
Registration	ongoing	
Running instance of Ontoportal (HSportal) in production	✗	HSportal as Digilab service
Customization of the HSportal	ongoing	
Populating the HSportal with the 1st batch of thesauri, ontology, semantic artefacts	✓	...
User documentation tailored to HS community	ongoing	User tutorial Digilab/HS Academy
Find early contributors/ambassadors for HSportal	✓	
Get in touch with the Ontoportal community and start collaboration, knowledge exchange	✓	Github, mail, Ontoportal workshop

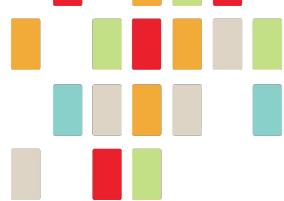


Main technical obstacle to having a running instance

Resetting configurations: Executing the ./ontoportal start command (or docker-compose up) appears to clone or rebuild the containers and their configurations each time they are launched, thereby undoing local changes.

Loss of data persistence: All data generated or modified inside the containers is lost (non-persistent) after each application or server restart.

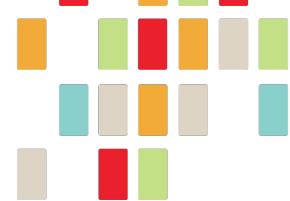
Main service malfunction (API/Web): The front-end container instance (the one exposed on port 3000 or 9393, depending on the configuration) systematically switches to “Exited” status after startup. The service therefore does not remain active.



HSportal next steps

2026-Objectives: Stabilization, usability, and sustainability

- Improvement: User documentation
- Improvement: HSportal content:
 - quantity (add ontologies and semantic artefacts)
 - quality (improve metadata documentation)
- Github documentation Ontoportal contribution
- Contribution: Opentheso/Ontoportal
 - MOD metadata in OT, tests, user documentation workflow OT/OP
- HSportal governance and contributors
- HS community outreach and access:
 - E-RIHS website, Espadon website
 - E-RIHS catalogue of services,
 - workshops, tutorials, tutoring, teaching in E-RIHS Digilab, HS Academy, and National Nodes
- Co-construction, collaboration and federation with CHportal and OntoPortal Federation
-



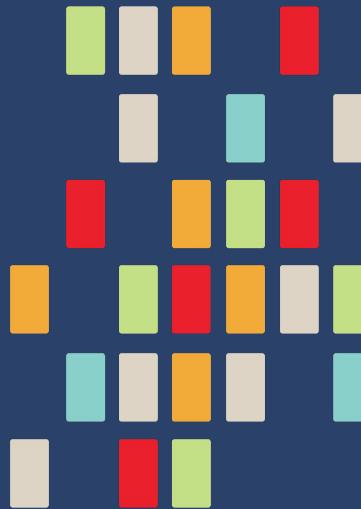
CRediT Taxonomy-Contributor Roles

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- Conceptualization: AG
- Data curation: AG
- Formal analysis: AG
- Funding acquisition: VV
- Investigation: AG, ND, RM, MG
- Methodology: AG
- Project administration:
- Resources: AG, RK, GB, MVR, ES
- Software: ND, MR, MG, YD
- Supervision: VV, LDL, VA
- Validation
- Visualization
- Writing – original draft: AG
- Writing – review & editing: AG

Thank you
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