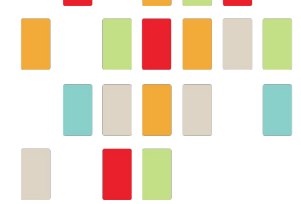


HSportal

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

Guillem Anaïs

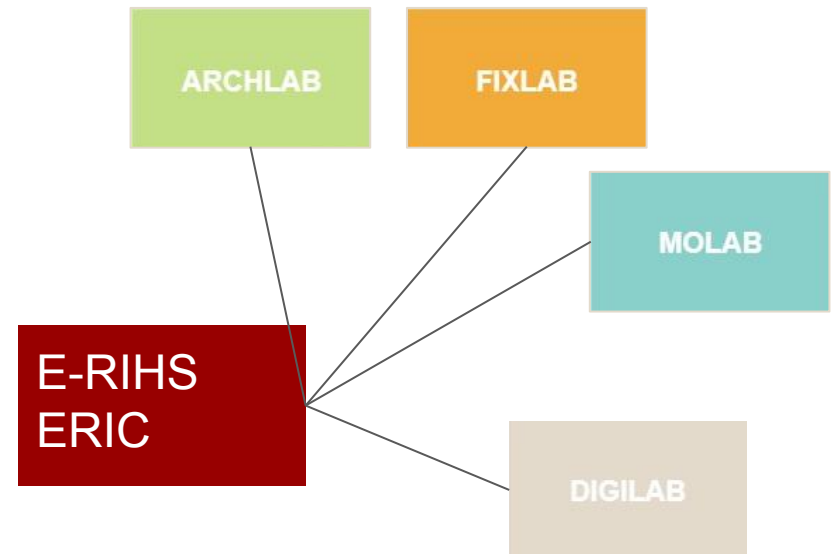




E-RIHS: European Research Infrastructure for Heritage Science

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

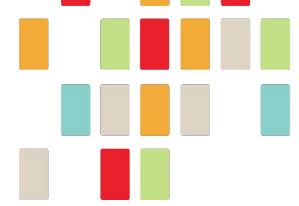
March 28, 2025, E-RIHS has officially been established as a **European Research Infrastructure Consortium (ERIC)**.



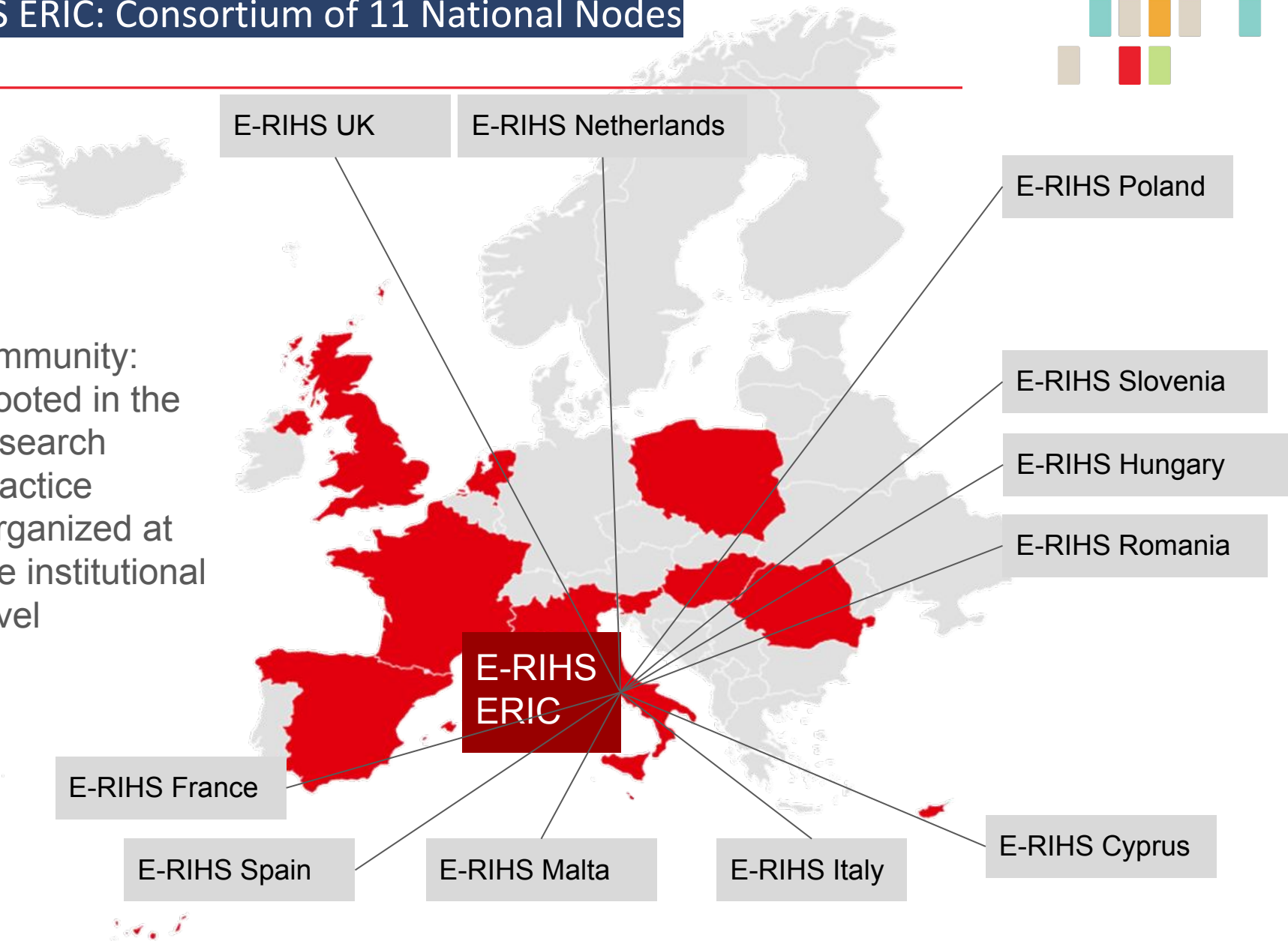
E-RIHS Digilab

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.

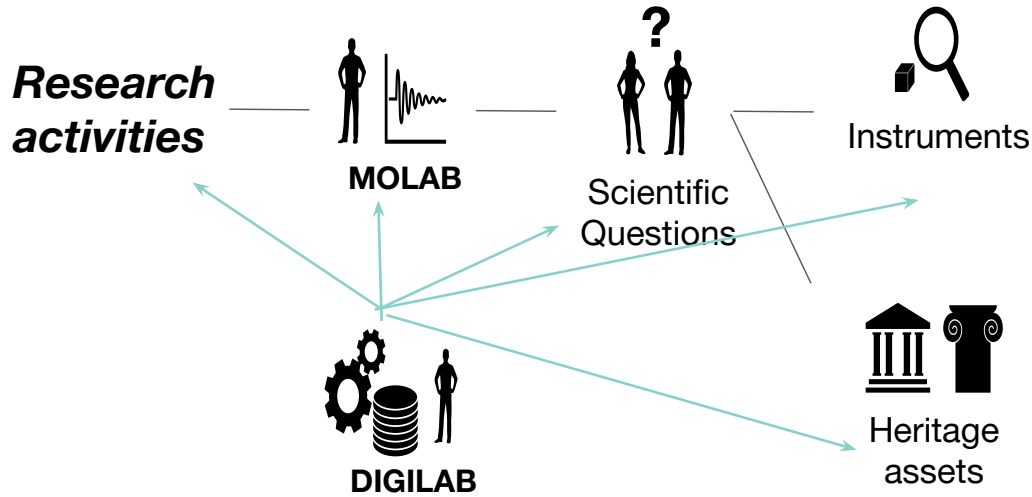
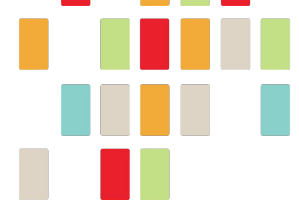
E-RIHS ERIC: Consortium of 11 National Nodes



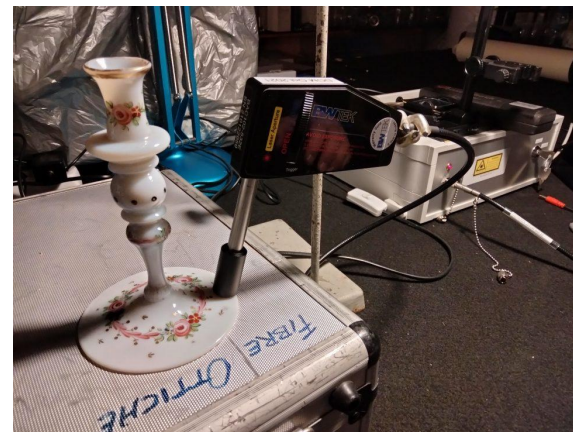
- HS community:
- Rooted in the research practice
 - Organized at the institutional level



HSportal service *for* and *with* the HS community



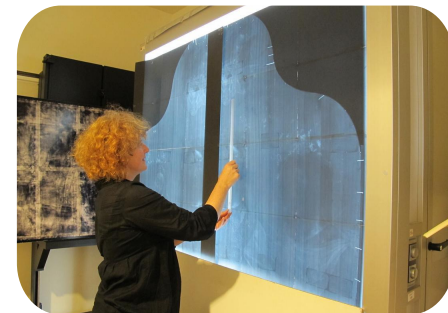
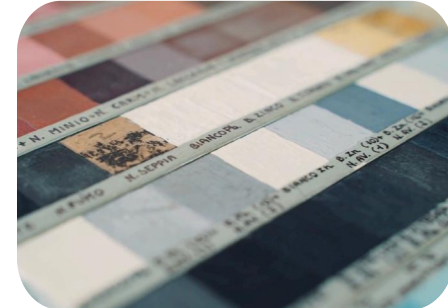
- Cultural Heritage Object and Materiality
- Instrumentation and Scientific Observation
- Quantitative/qualitative Data
- Research Objectives and Processes
- Challenges and Data Sharing
- Impact on Research



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

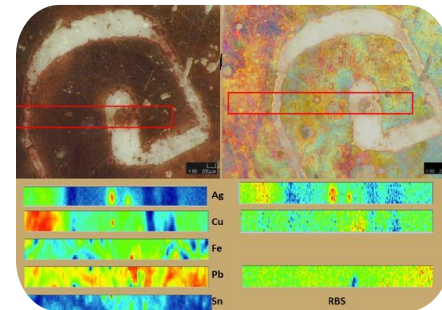
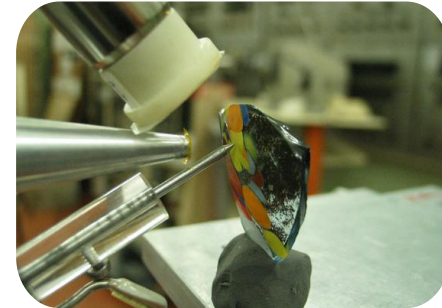
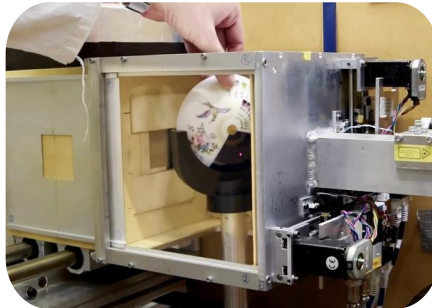
Physical and local archives and
museum institutions
for heritage science



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

FIXLAB

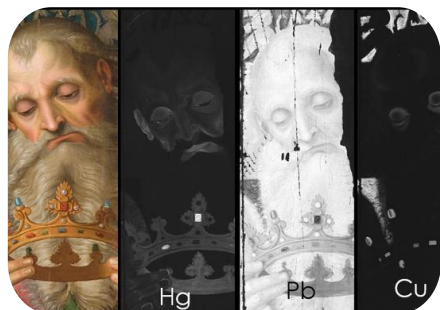
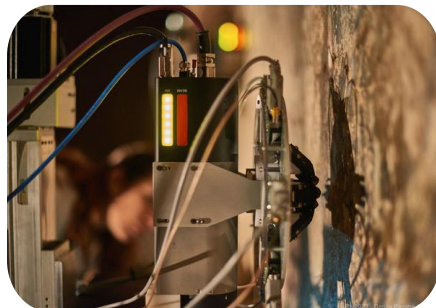
large-scale and advanced
laboratory facilities established in
a fixed location



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

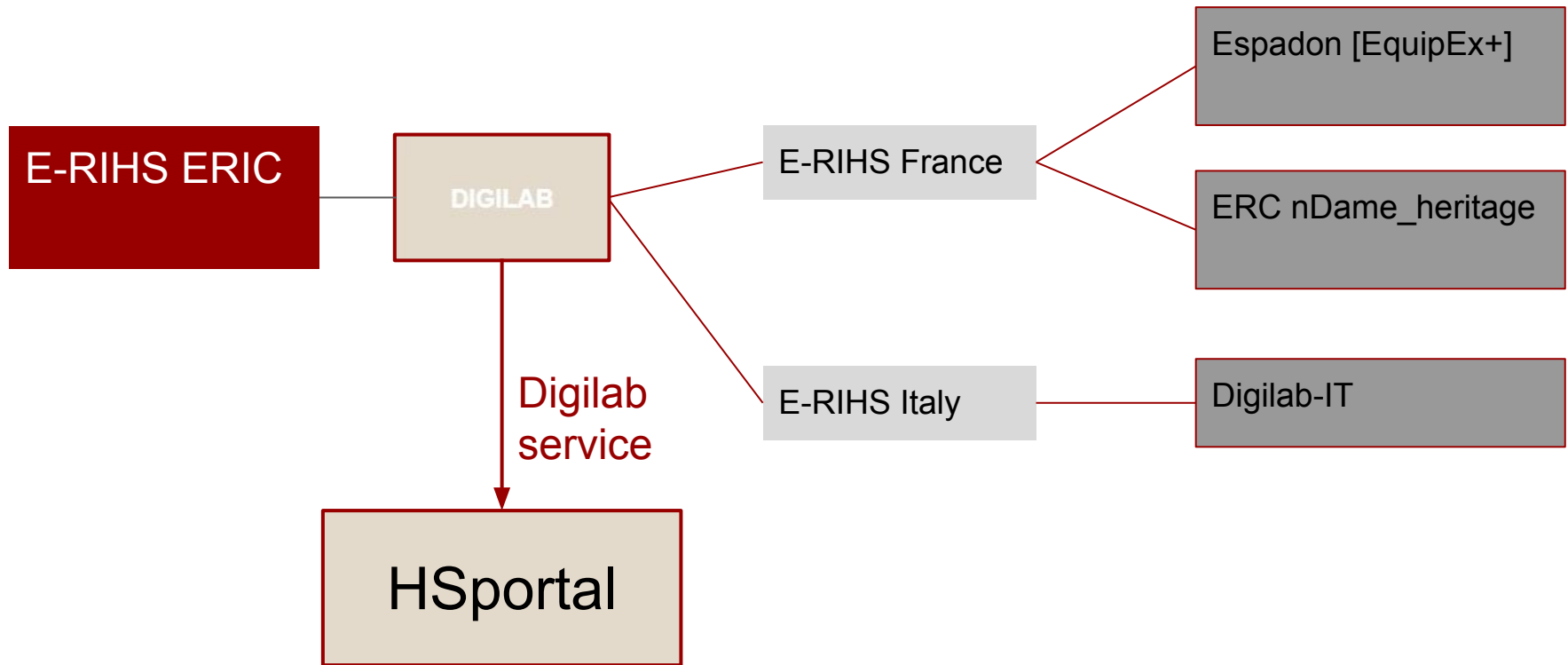
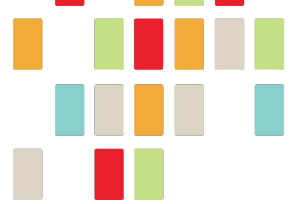
MOLAB

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

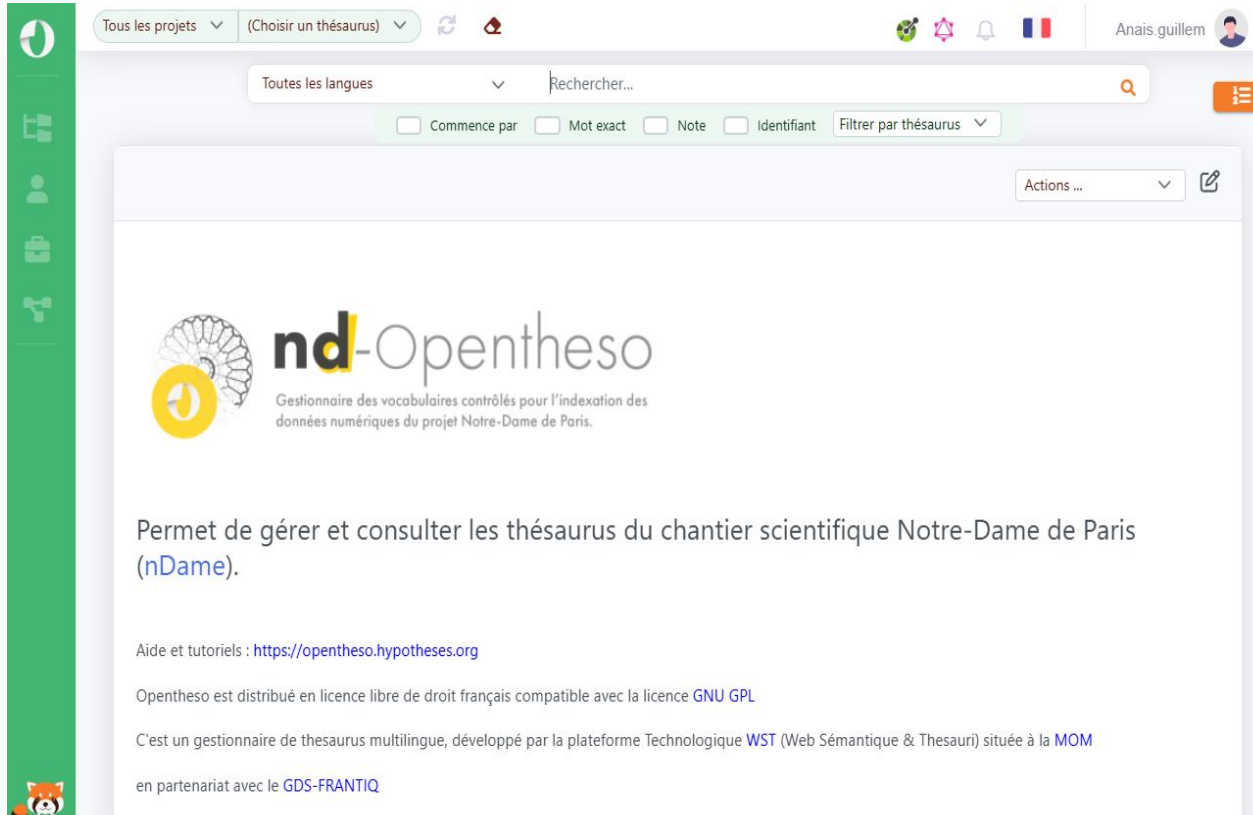
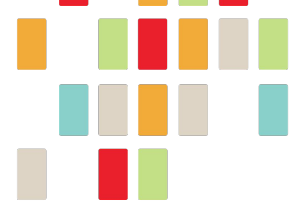


URL: <https://hsportal.espadon.net/>

HSportal:

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

Opentheso: open-source thesaurus management platform



- 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 IIF functionalities
- fully functional API, following API and GrapheQLI recommendations

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

Example of the concept “ébène”

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

Concept

Index

Collection

activité

régle d'exposition

collection

institution

matériau

bois

ébène

objet

role

Concept

Collection

Alignement

matériau > bois > ébène

Libellé

Variante du libellé

Collection

Facettes

Total de la branche

Concept générique

Concept spécifique

Concept associé

Traduction

Notes

Définition

Ressources externes

Image

Coordonnées GPS

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

Notation

76835

76835

Libellé

ébène (fr)

Variante du libellé

....

Collection

....

Facettes

....

Total de la branche

....

Concept générique

↑

bois

Concept spécifique

↓

....

Concept associé

↔

....

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, ...)

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

Notation

....

76835

76835

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.



Alignment with Wikidata

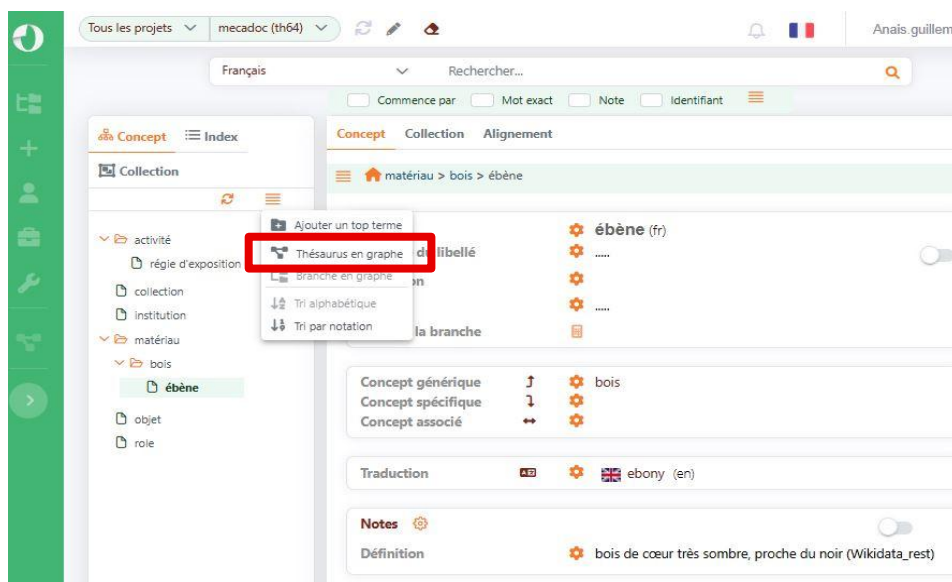
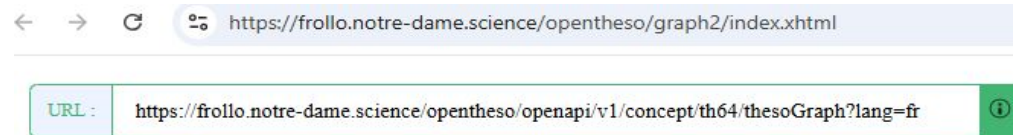
The screenshot shows the OpenTheso interface. On the left is a green sidebar with navigation icons. The main area has a top bar with 'Français' and a search bar 'Rechercher...'. Below this are tabs for 'Concept', 'Collection', and 'Alignement' (highlighted with a red box and a red '1'). Under the 'Alignement' tab are three buttons: 'Recherche automatique', 'Comparaison automatique', and 'Gérer les sources'. Below these is a table with columns 'Source', 'Source', 'Type d'alignement', and 'Actions'. The table has one row for 'ébène (76833)' with the source 'https://www.wikidata.org/entity/Q156005' (checked), 'Wikidata_rest', and 'exactMatch'. A red box with a red '2' highlights the '+ Alignement' button in the 'Actions' column, with a 'Vérifier les URLs' link above it. Below the table, it says 'Total d'alignements pour (ébène) : 1'. At the bottom, it says '1-2 de 2 Alignement' and '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>



Visualization of the thesaurus in graph (2)

<https://frollo.notre-dame.science/opentheso/openapi/v1/graph/getData?lang=fr&idThesoConcept=th64>

The screenshot shows the OpenTheso web application interface. The top navigation bar includes 'Tous les projets', 'mécadoc (th64)', and a search bar. The left sidebar shows a tree view of concepts: 'activité', 'régie d'exposition', 'collection', 'institution', 'matériau', 'bois', and 'ébène'. The main content area displays the 'Concept' details for 'ébène (fr)'. It includes a table with 'Concept générique', 'Concept spécifique', and 'Concept associé', all pointing to 'bois'. The 'Traduction' section shows 'ebony (en)'. The 'Notes' section includes a definition: 'bois de cœur très sombre, proche du noir (Wikidata_rest)'.

<https://www.wikidata.org/entity/Q214339>

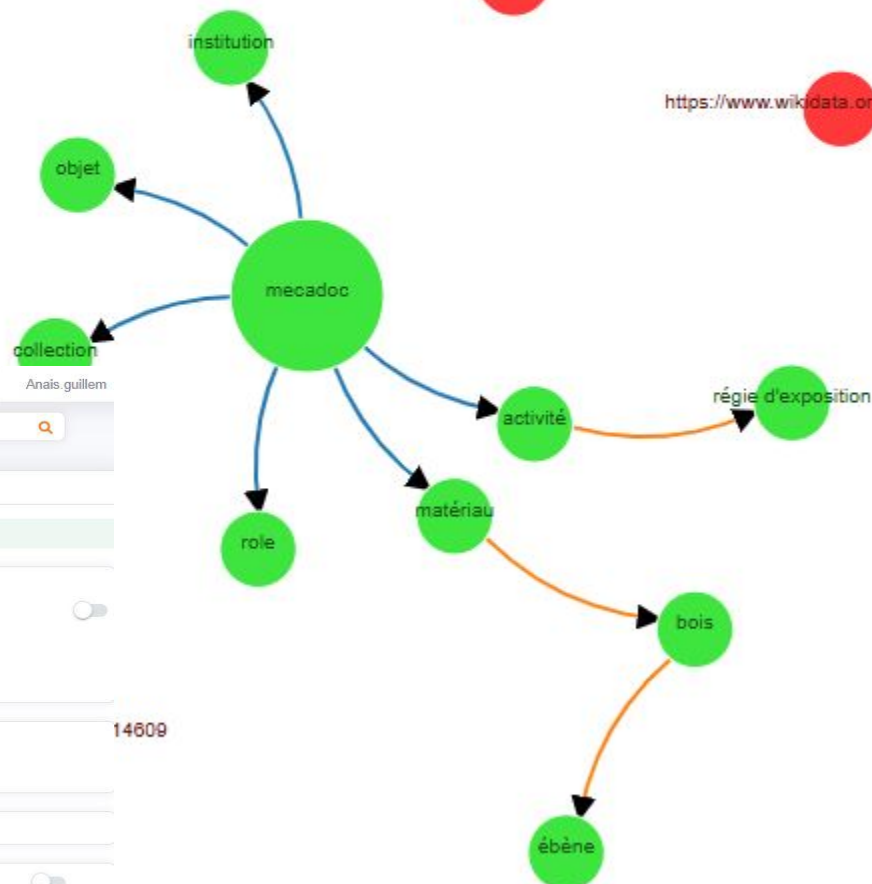
<http://vocab.getty.edu/page/aat/300026004>

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

<http://vocab.getty.edu/page/aat/300025976>

<https://www.wikidata.org/entity/Q35120>

<https://www.wikidata.org/entity/Q287>



<https://www.wikidata.org/entity/Q178706>

bois

ébène

objet

role

Total de la branche

Concept
générique ↕ ⚙️ bois
Concept
spécifique ↴ ⚙️
Concept associé ↔ ⚙️

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, ...)



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

Notation ⚙️

ID Interne

@ 76833

URI

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

Identifiant permanent

35572/ndpqm1mp9j1wsgdz6m6ht84



Exporter le concept en
SKOS

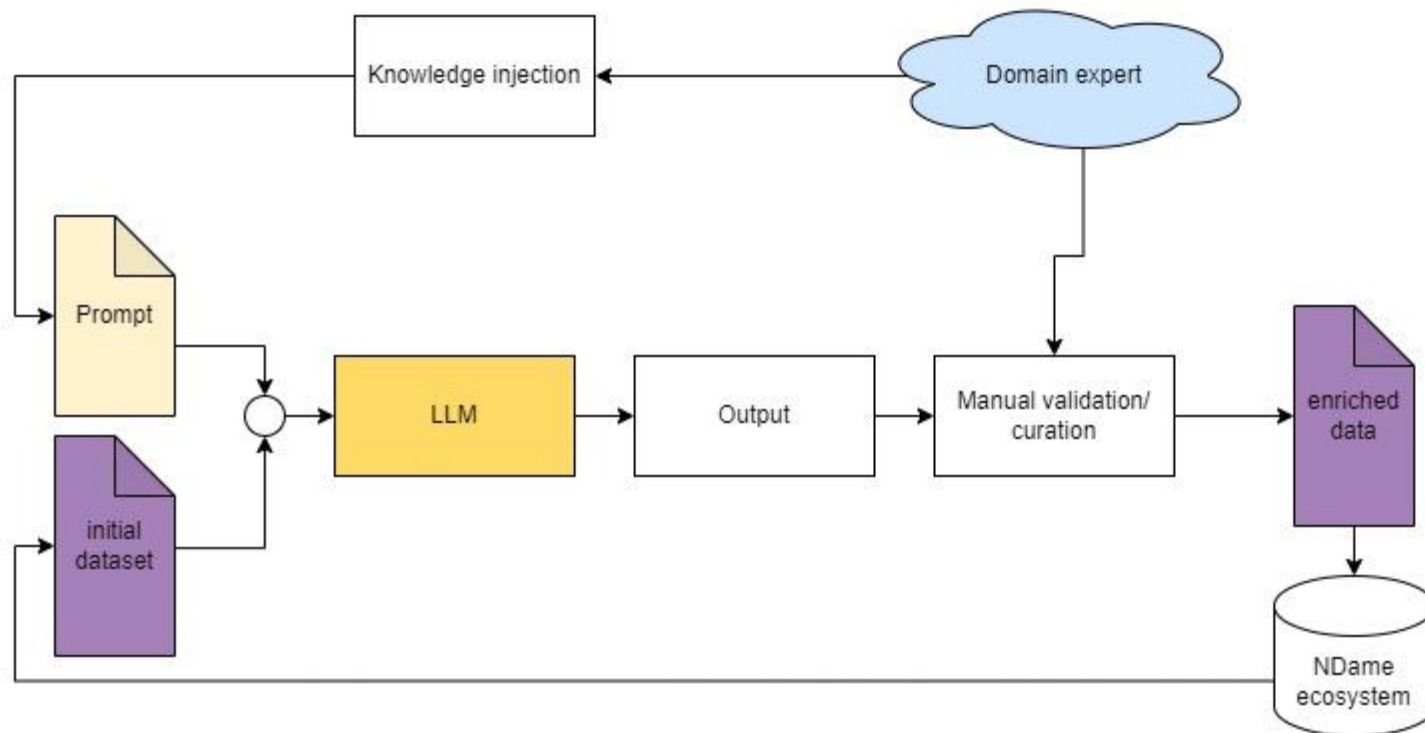
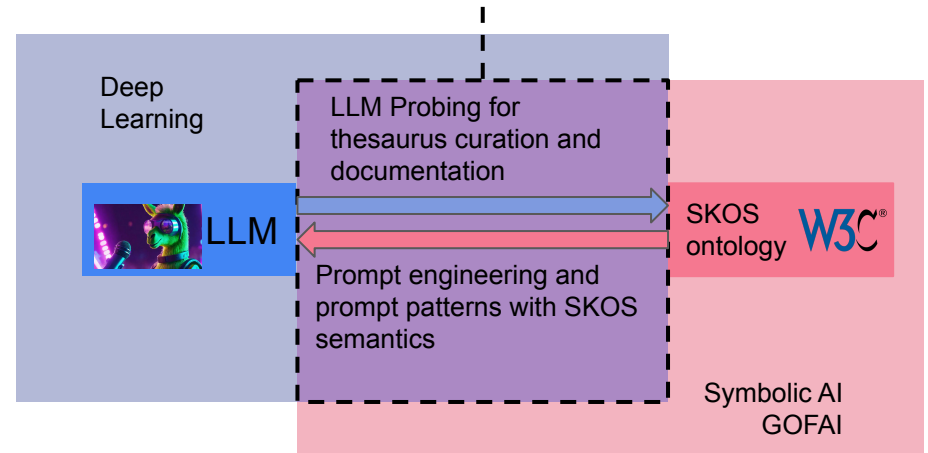


RDF/XML Json JsonLd Turtle

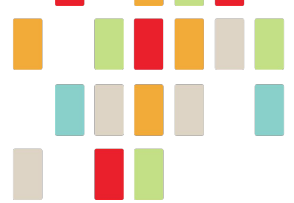
Créé le: 2024-11-07 Dernière modification le: 2024-11-11

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

Neuro-symbolic (NeSy) methodology

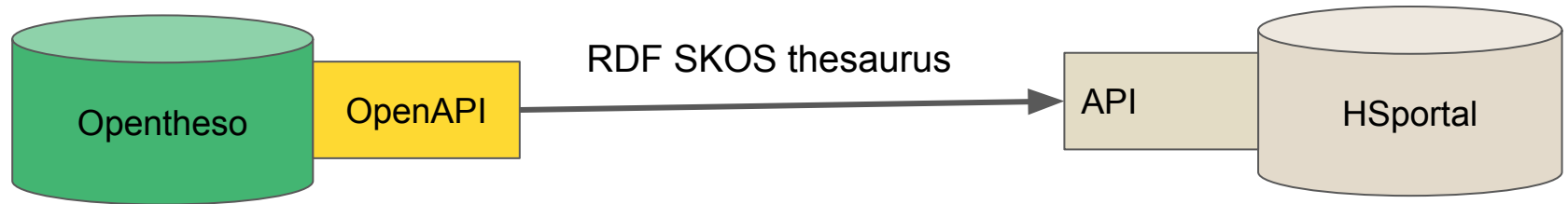
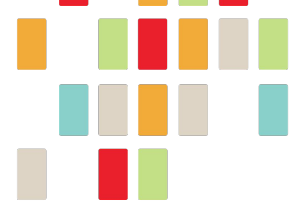


Frollo: instance of Opentheso for Notre-Dame de Paris' research: 15 thesauri/30.000 concepts



- 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)
- Thésaurus 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

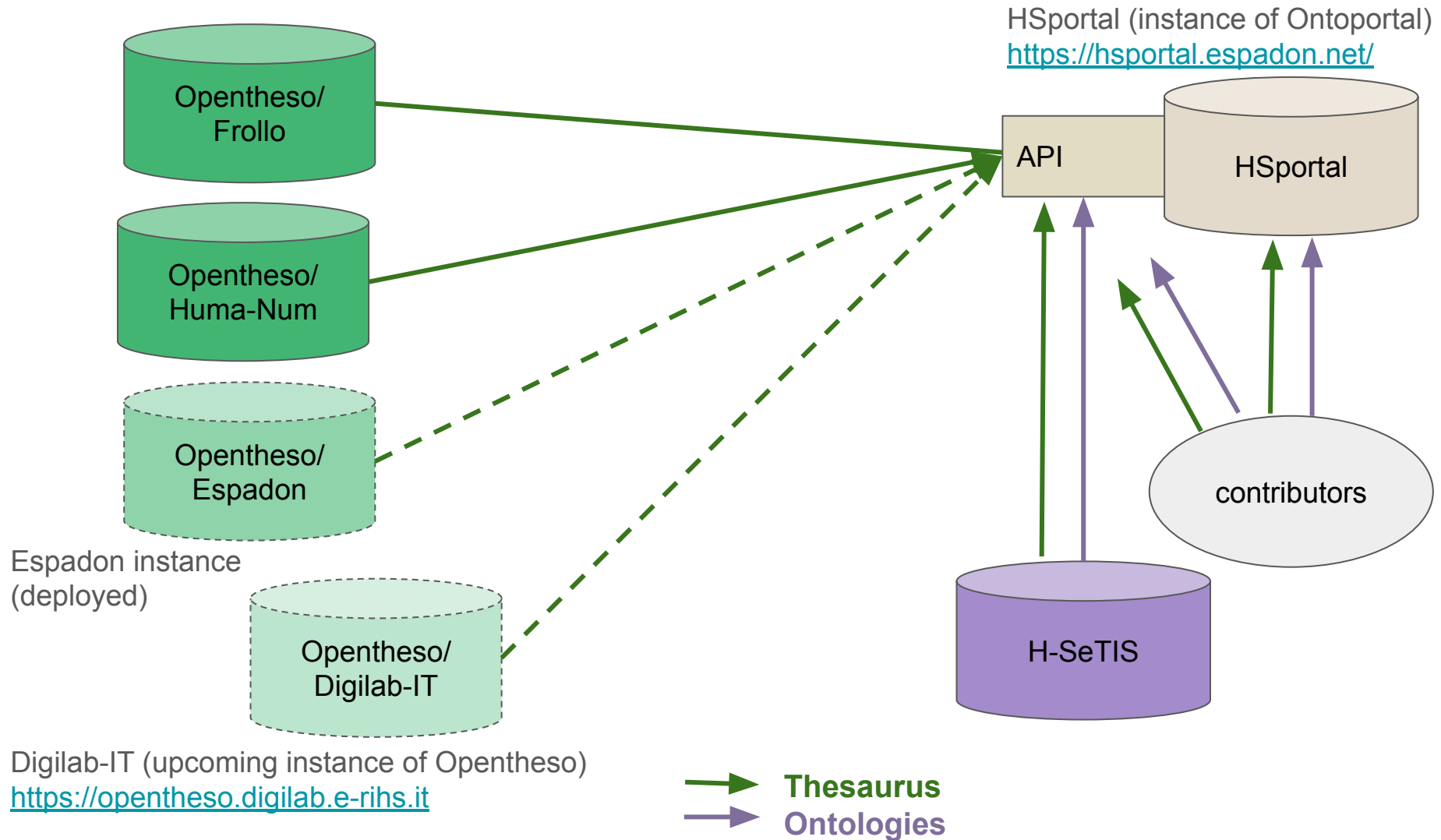
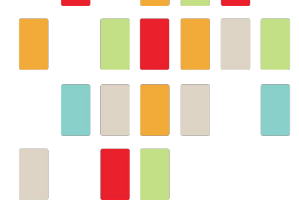


Frollo (instance of Opentheso)
<https://frollo.notre-dame.science/>

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

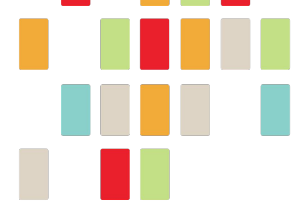
- Ontoportal doc: <https://www.bioontology.org/wiki/SKOSSupport>
- Proposed contribution to the Ontoportal Alliance: Documentation of using Ontoportal with Opentheso

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 publiques

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 * <small>required</small>	Identifiant du thesaurus à récupérer
string (path)	th59
accept string (header)	accept

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:/39572/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"
    }
  ]
}
```

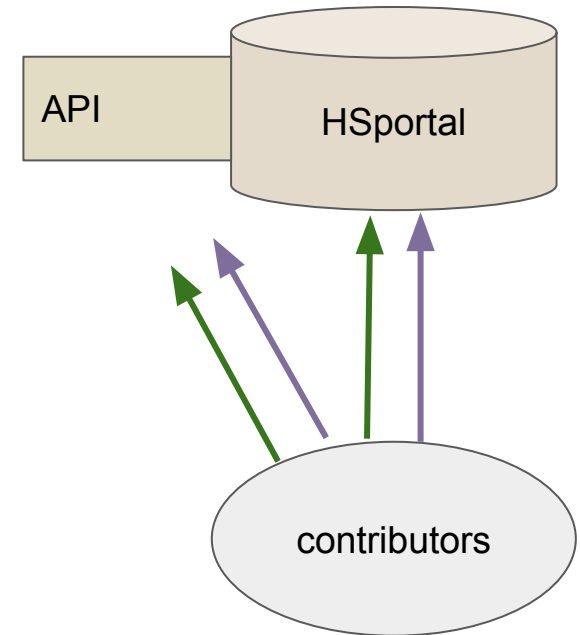
Example of early adopter: Raphaëlle Krummeich -> project thesaurus deposit

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

Resource :

1882-Historic Spatial Typology of
Cyprus Thesaurus

HSportal (instance of Ontoportail)
<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 Ontoport?



HS Academy

Opportunities

Documentation:
https://ontportal.github.io/documentation/administration/ontologies/submitting_ontologies

HS Academy:

HSportal tutorial, webinar,
lecture, workshop?

How to... in HSportal?

About

Services

Results Library

Get involved

Newsroom

E-RIHS IP

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.

Opportunities

Search for opportunities

Search...

categories:

All HS-Categories

Lectures

Webinars

Training Camp

Meeting

Workshop

E-RIHS
EUROPEAN RESEARCH INFRASTRUCTURE FOR HERITAGE SCIENCE

Lecture 1
JUNE 19, 2023
11:30 am CEST

RY-GCMS IN HERITAGE SCIENCE: AN IMPORTANT INVESTIGATIVE TOOL FOR THE ANALYSIS OF ORGANIC MATERIALS

- Types of compounds that can be analysed with GC-MS
- The advantages and disadvantages of GC-MS in multi-analytical investigations
- Smoothing data analysis for natural/synthetic materials

Hosted by emerging professionals

JENNIFER POULIN
Edition 3

E-RIHS
EUROPEAN RESEARCH INFRASTRUCTURE FOR HERITAGE SCIENCE

Lecture 2
MAY 22, 2023
11:30 am CEST

ANALYSIS OF INDIGENOUS AMERICAN OBJECTS FROM THE VIVA COLLECTION

- Multidisciplinary Study - The value of recovering indigenous American heritage using a combination of scientific, historical and archaeological approaches - The role of archaeology in the identification of indigenous objects
- Recent findings - The role of archaeology in the identification of indigenous objects

Hosted by emerging professionals

LUCIA BURGOS
Edition 3

E-RIHS
EUROPEAN RESEARCH INFRASTRUCTURE FOR HERITAGE SCIENCE

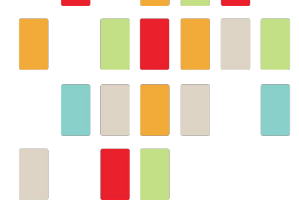
Lecture 3
APRIL 14, 2023
11:30 am CEST

ACOUSTIC EMISSIONS TECHNIQUES APPLIED TO HISTORICAL VEHICLE ENGINES

- Use of Acoustic Emission for the monitoring of engine health
- Importance of the correct set-up of the instruments, materials and parameters
- The data is representative of the engine's state of wear, friction and vibration

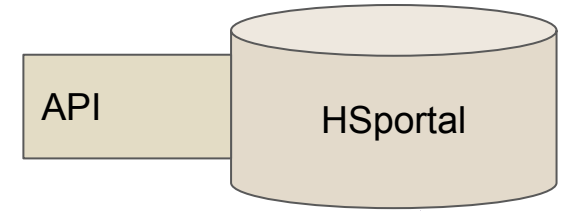
Hosted by emerging professionals

LAURA BRAMBILLA
Edition 3

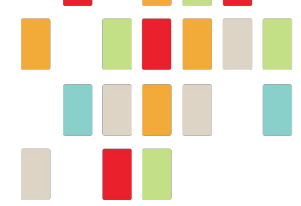


Ongoing tests with Elias Tzortzakakis (FORTH ICS)

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



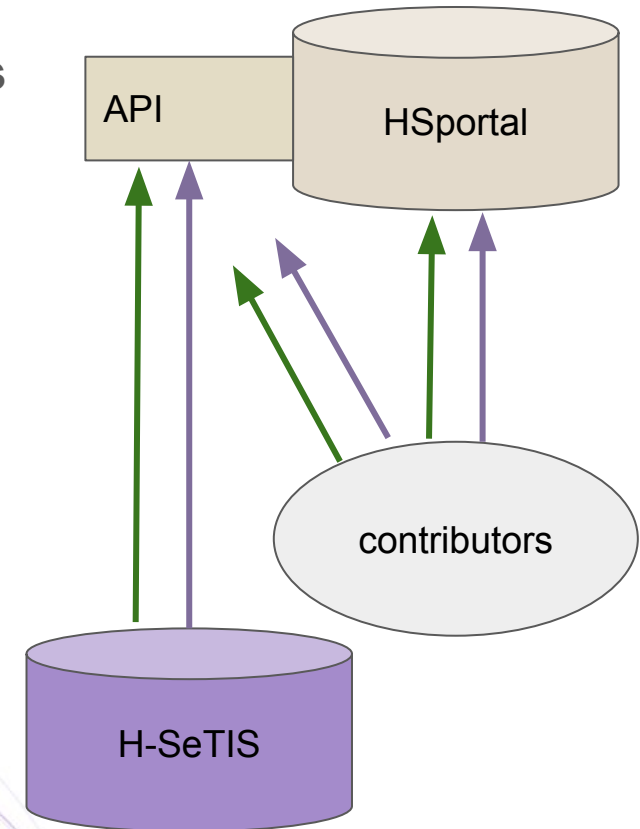
Possible contributor: H-Setis project and DB



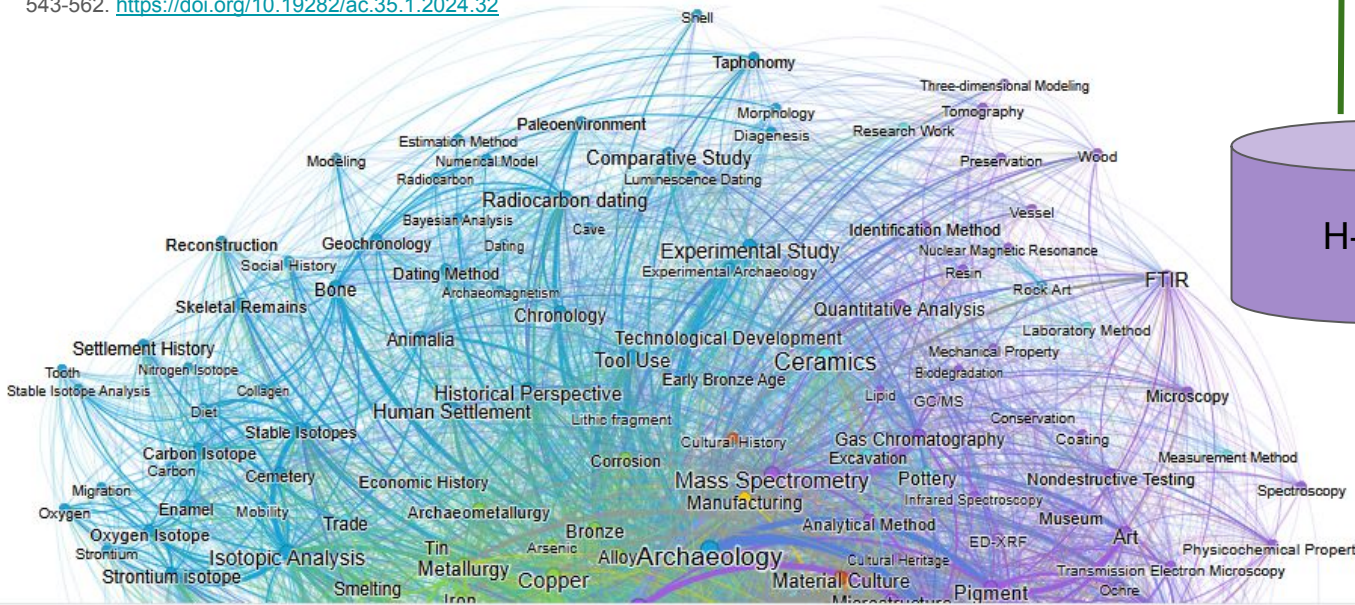
H-SeTIS database (<https://doi.org/10.71795/8t2z-hh65>) serves as a comprehensive hub for systematically **surveying and describing various semantic artefacts and tools relevant to the Heritage domain.**

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>

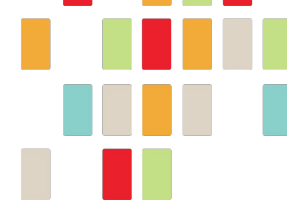
HSpotal (instance of Ontoportol)
<https://hsportal.espadon.net/>



→ Thesaurus
→ Ontologies

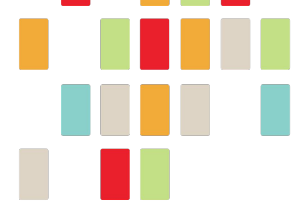


HSportal objectives for 2025: tests, portal deployment and launch



Installation and initial tests	✓	Conclusive tests in Digilab group
Registration	ongoing	
Running instance of Ontoport (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 Ontoport community and start collaboration, knowledge exchange	✓	Github, mail, Ontoport workshop

Main technical obstacle to having a running instance



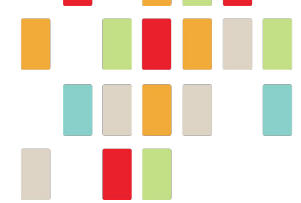
Resetting configurations: Executing the `./ontoportals start` command (or `docker-compose up`) appears to clone or rebuild the containers and their configurations each time they are launched, thereby undoing local changes.

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

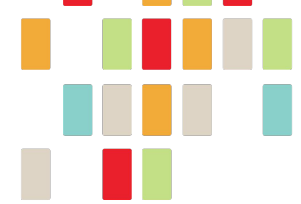
Main service malfunction (API/Web): The front-end container instance (the one exposed on port 3000 or 9393, depending on the configuration) systematically switches to “Exited” status after startup. The service therefore does not remain active.

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 Ontoport contribution
- ❑ Contribution: Opentheso/Ontoport
 - ❑ 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
- ❑

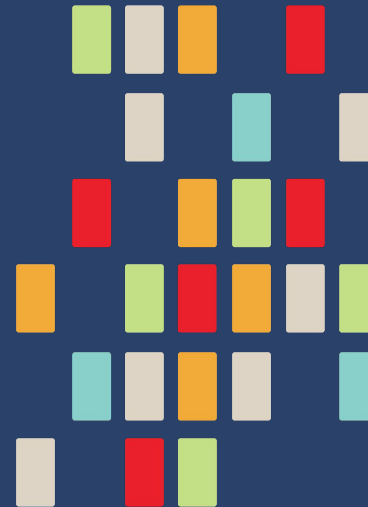


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- Data curation: AG
- Formal analysis: AG
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- Validation
- Visualization
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Thank you
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