

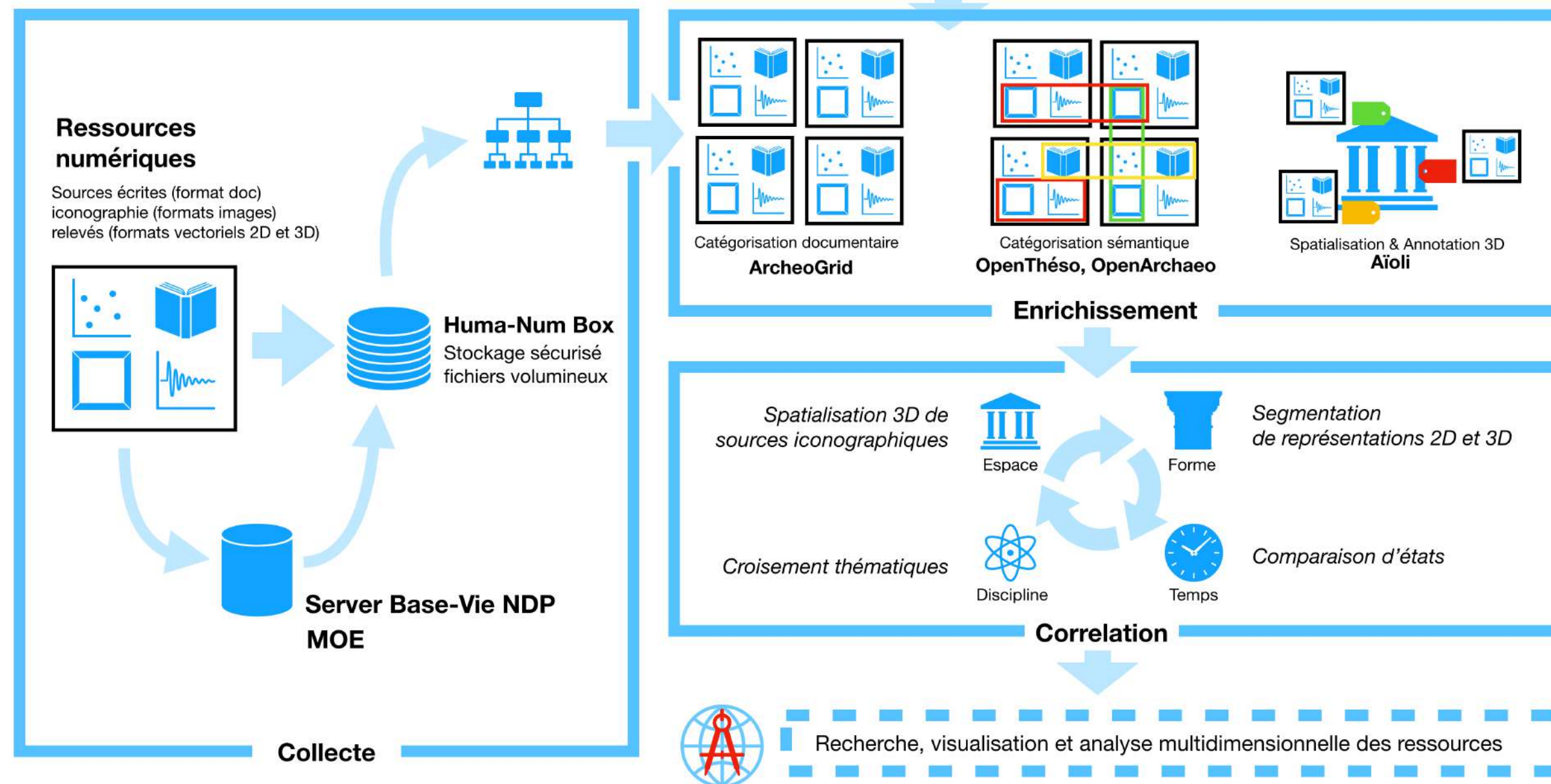
From data to multidisciplinary knowledge : semantic enrichment, visualisation, and query strategies for Notre-Dame heterogeneous data

Violette Abergel, MAP UMR 3495 CNRS/MC

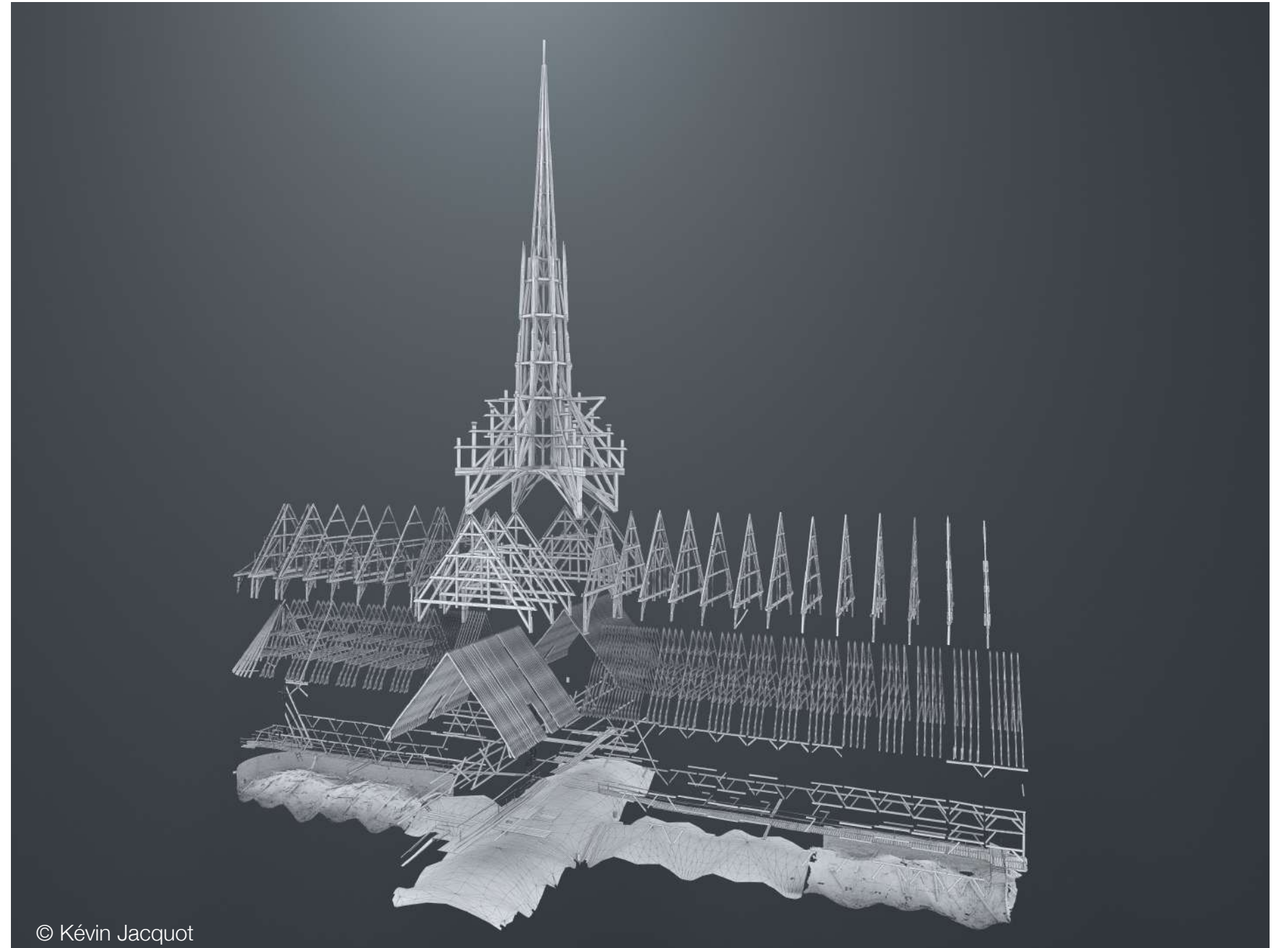
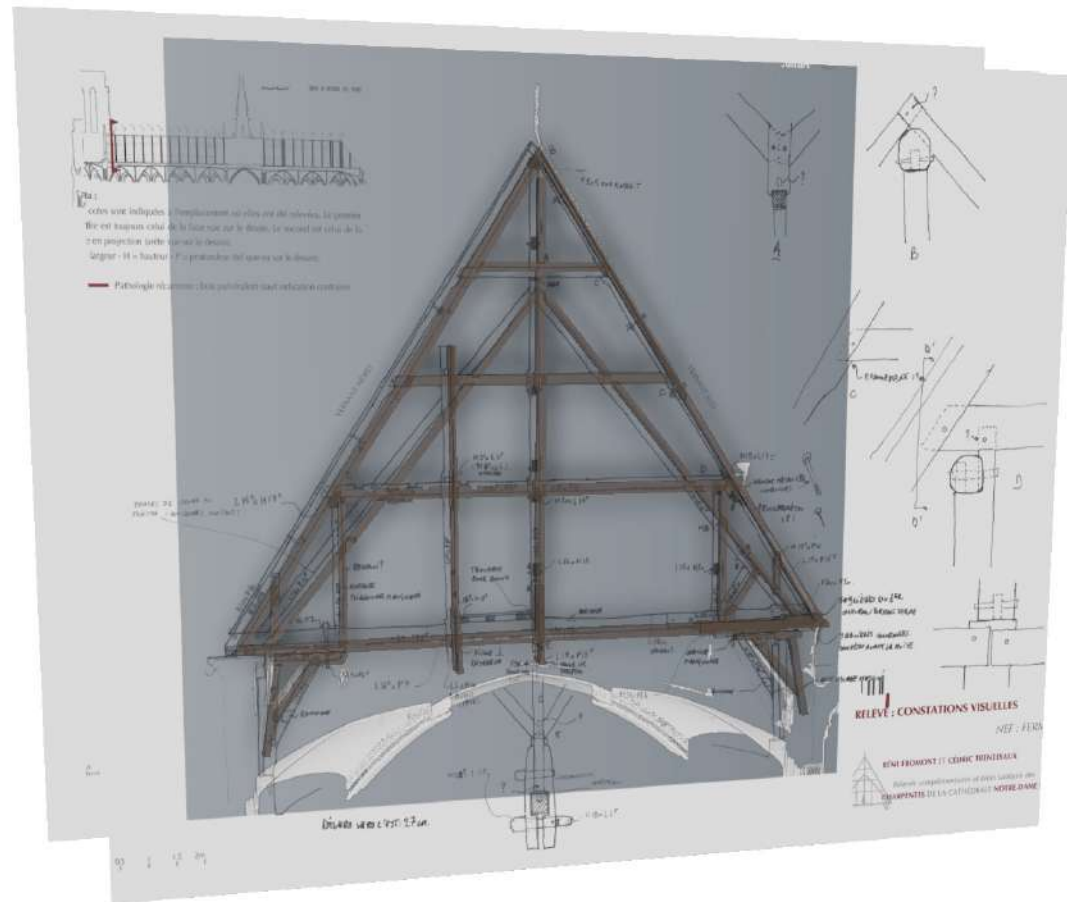
nDame • Digital ecosystem

Team : Thomas Pouyet (CITERES), Denis Hayot (Plemo3D), Violette Abergel (MAP), Sara Tournon (Archéovision), Olivier Malavergne (LRMH), Isabelle Cao (MAP), Miled Rousset (MOM), Kévin Jacquot (MAP), Renato Saleri (MAP), El Mustapha Mouaddib (MIS), Joel Marchand (Huma-Num).

Lead : Philippe Dillmann (IRAMAT), Livio De Luca (MAP), Dany Sandron (Plemo 3D), Xavier Rodier (MASA), Xavier Granier (3DSHS)

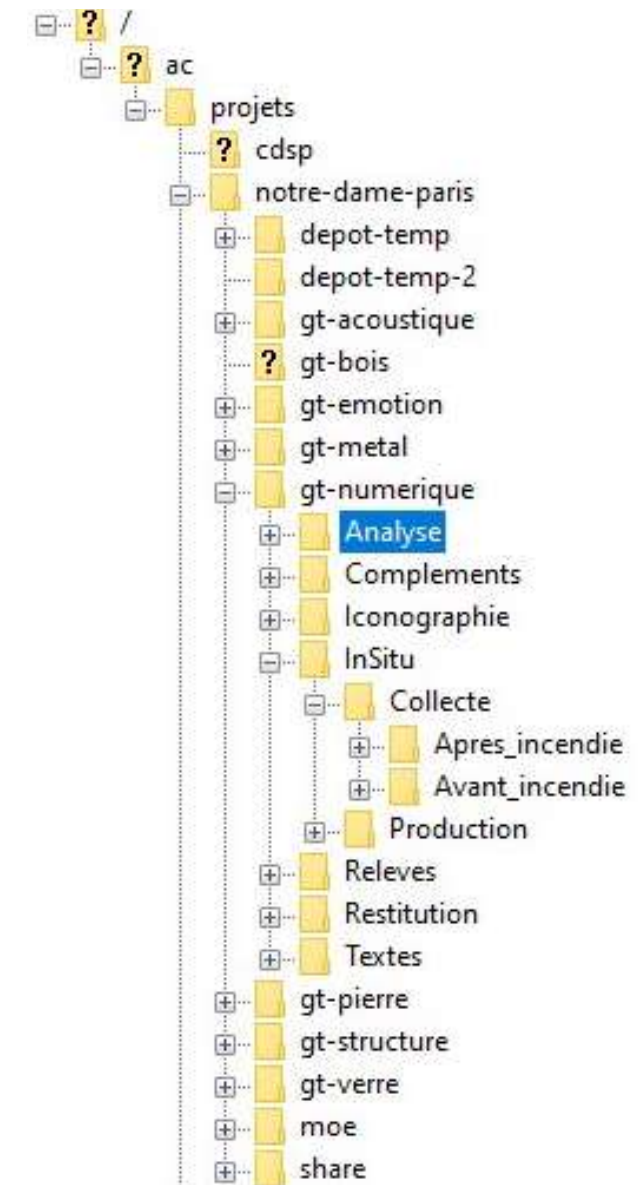
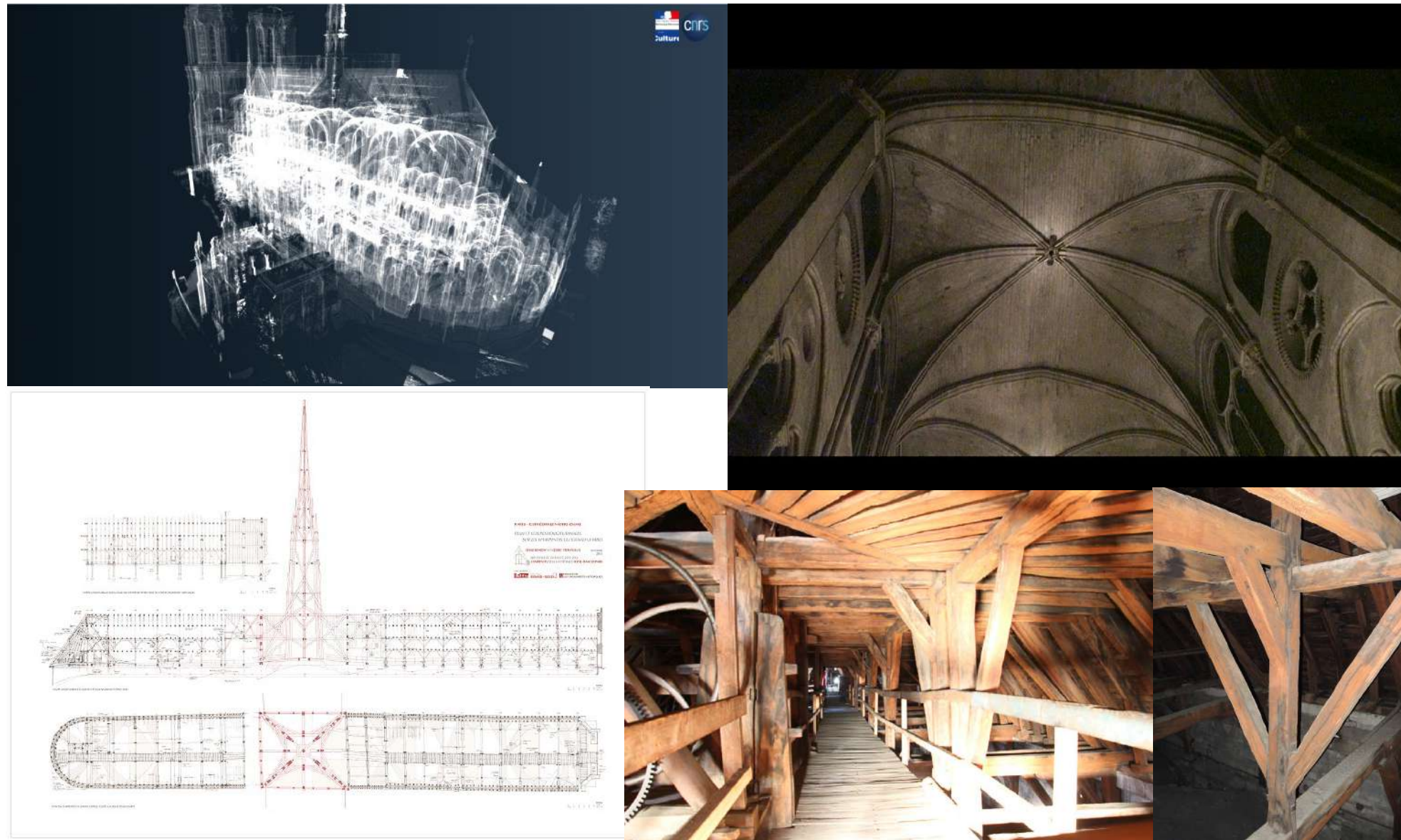


Cross analysis of drawings and heterogeneous digital resources for 3D restitution of historical hypothesis

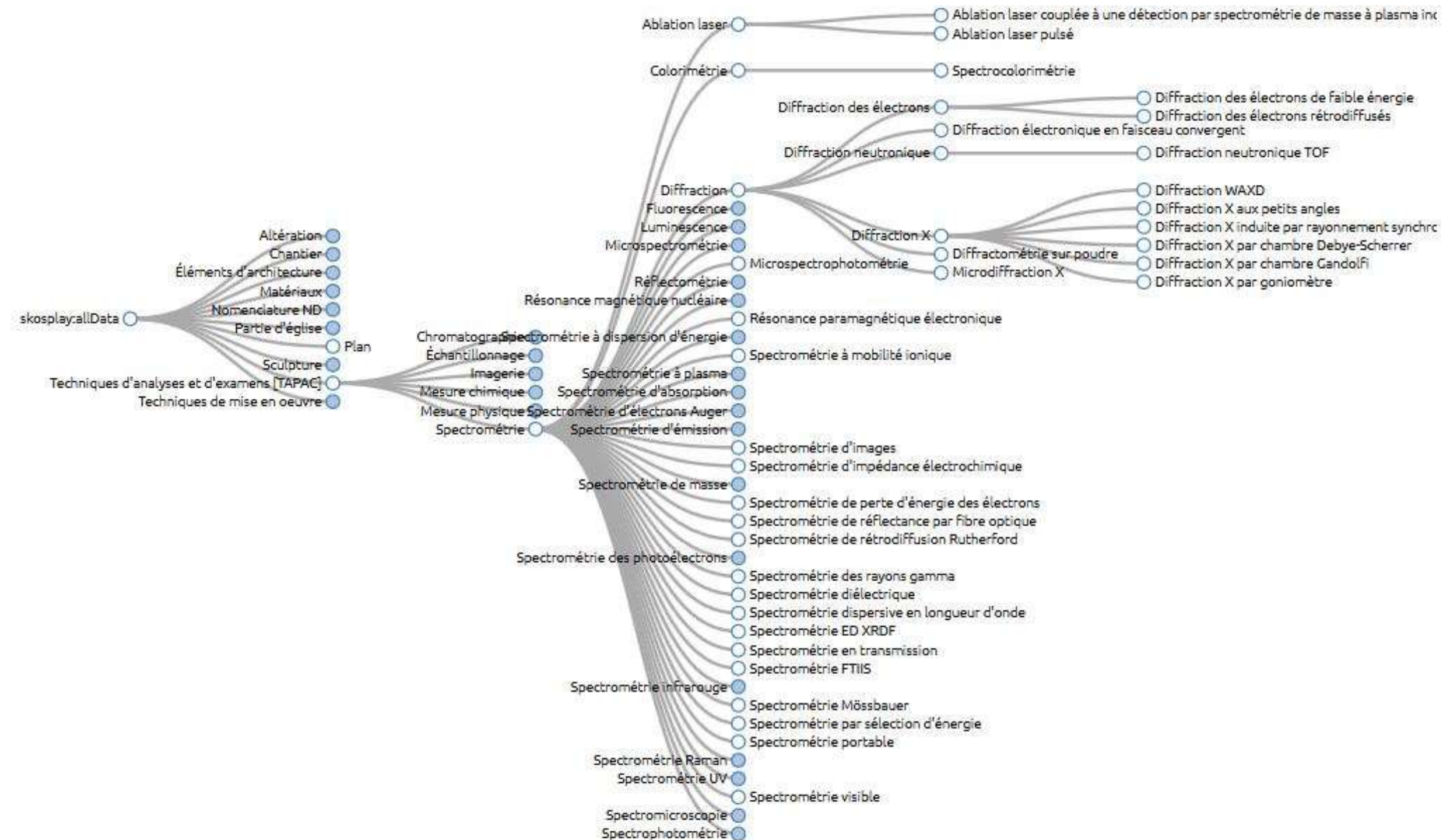


nDame

Collection of data on the cathedral



Collection, structuring and alignment of multidisciplinary thesauri

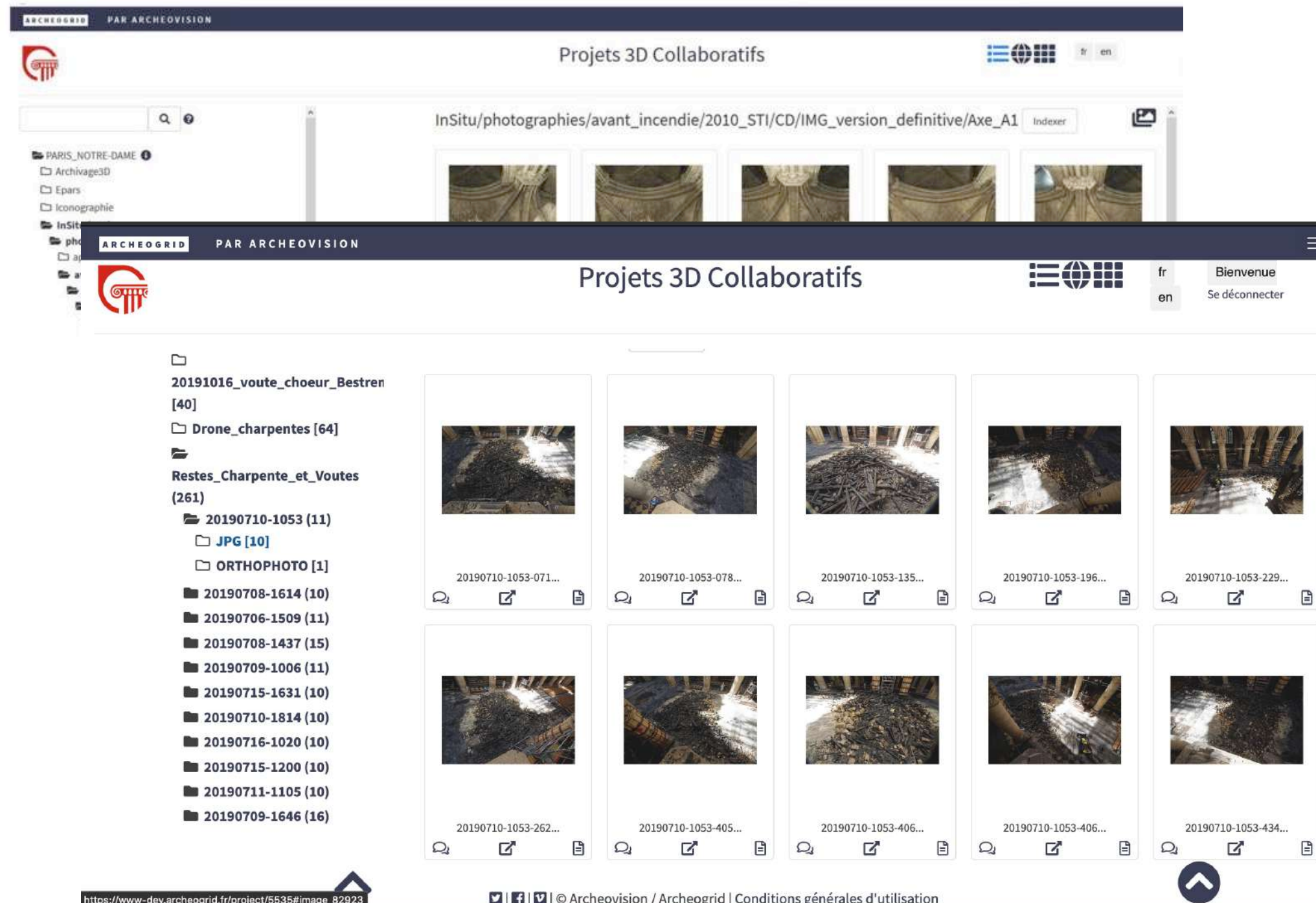


OpenTheso

Controlled vocabularies

- Architecture
- Building techniques
- Materials
- Weathering phenomena
- Scientific analysis
- Instruments
- Actors

Documentation management of collected data



Archeogrid

Configurable metadata sets

- Provenance
- Technical specifications
- Spatial and temporal localisation
- Thematic tags
- Thematic descriptions
- Thesaurus terms (OpenTheso)

Semantic enrichment of collected 2D and 3D data



Aioli

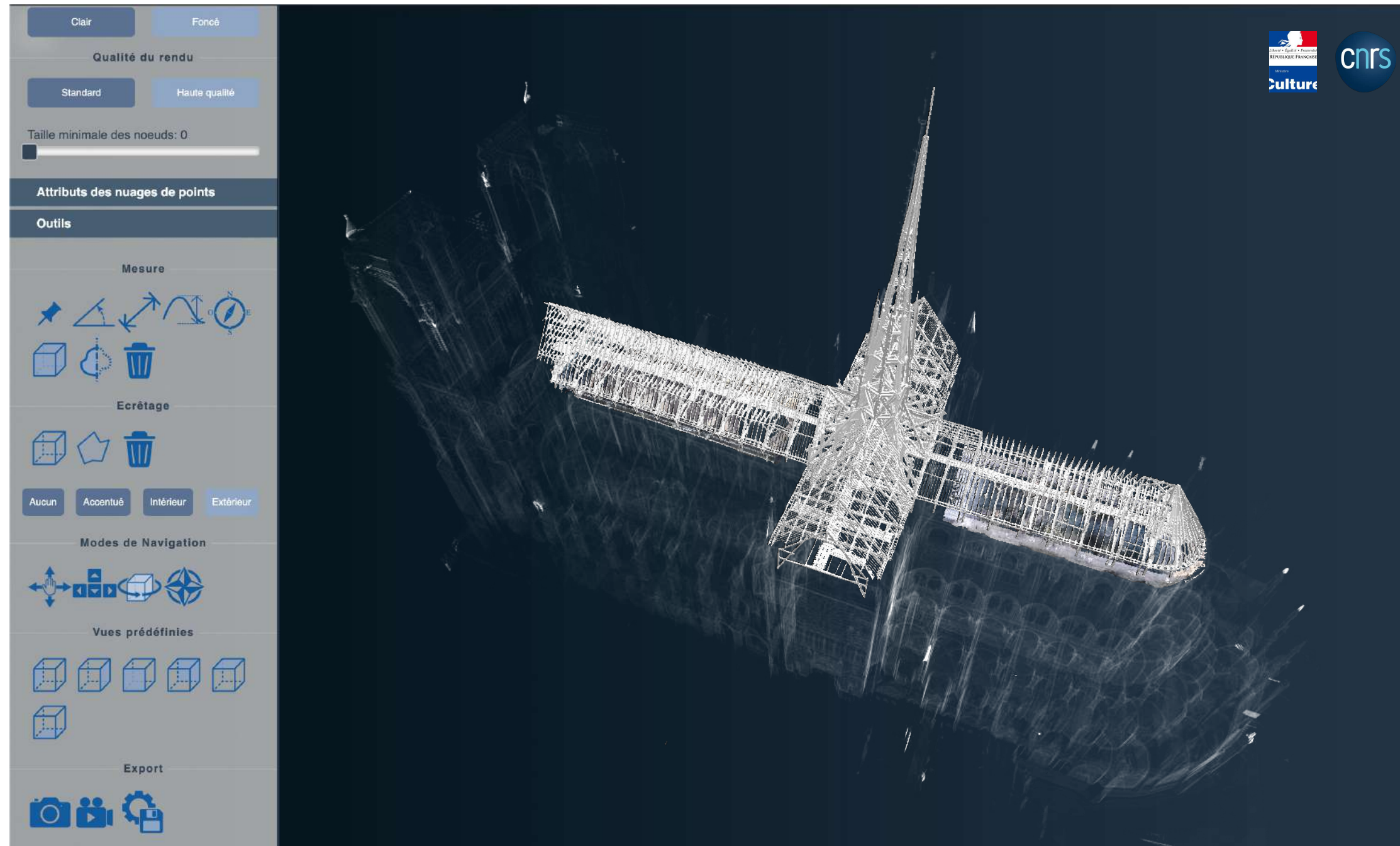
A reality-based annotation platform for the collaborative documentation of Cultural Heritage artefacts

- 3D spatialization of 2D images
- 2D/3D annotation layers
- Configurable qualitative descriptors
- Thesaurus terms (OpenTheso)
- Additional multimedia resources
- Computed geometrico-visual descriptors



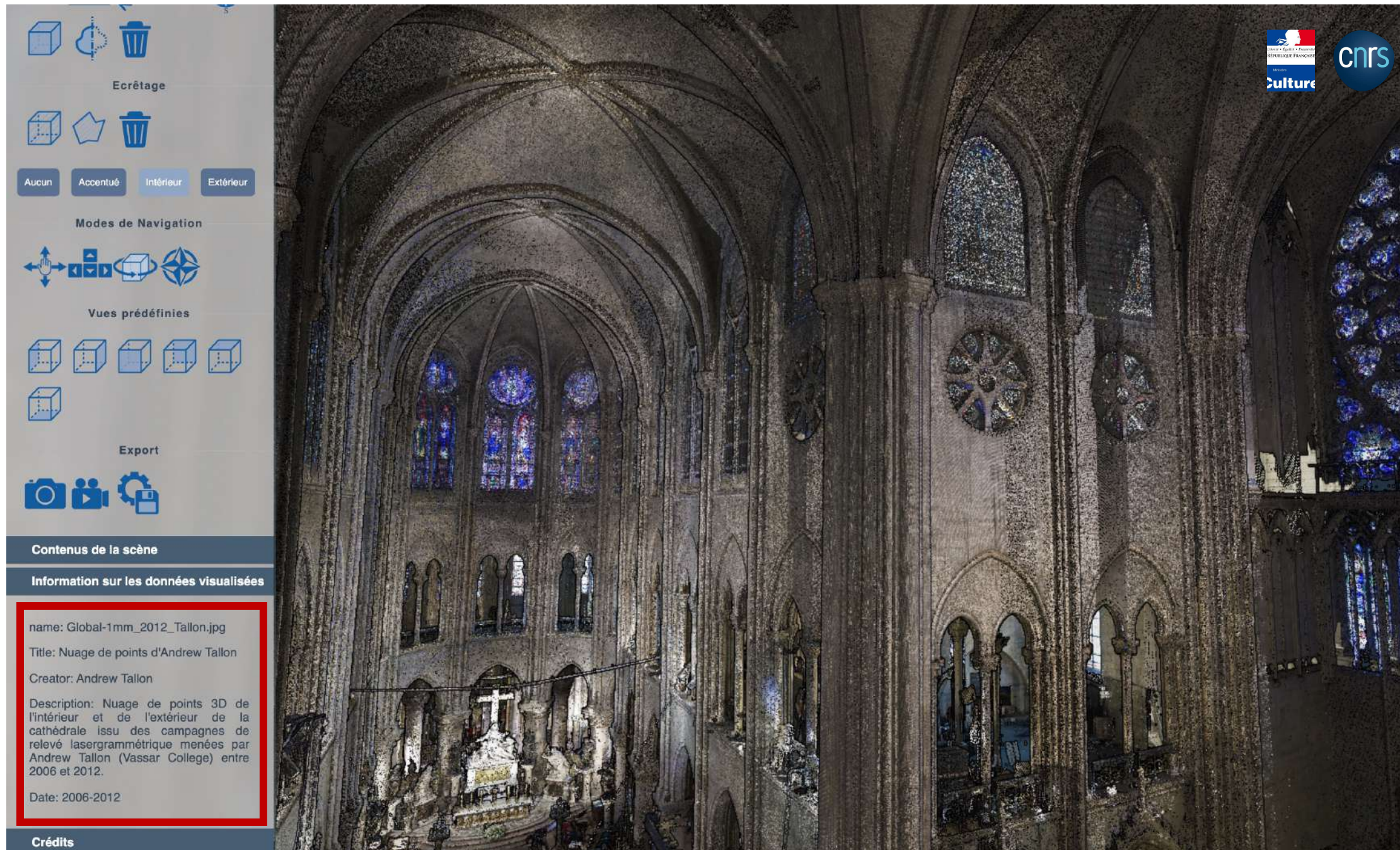
Heterogeneous data

- Different temporal states
- Different areas of interest
- Different file types
- ...



NDPV viewer

- Interactive web-based 3D visualization
- Measurement and analysis tools
- Metadata access (linked to Archeogrid)
- Spatialization of 2D images and 2D/3D semantic annotations (linked to Aioli)
- Ad-hoc functionalities (anastylosis, multi-temporal animations, nomenclature-driven navigation, ...)
- Corpus exploration tools (work in progress)



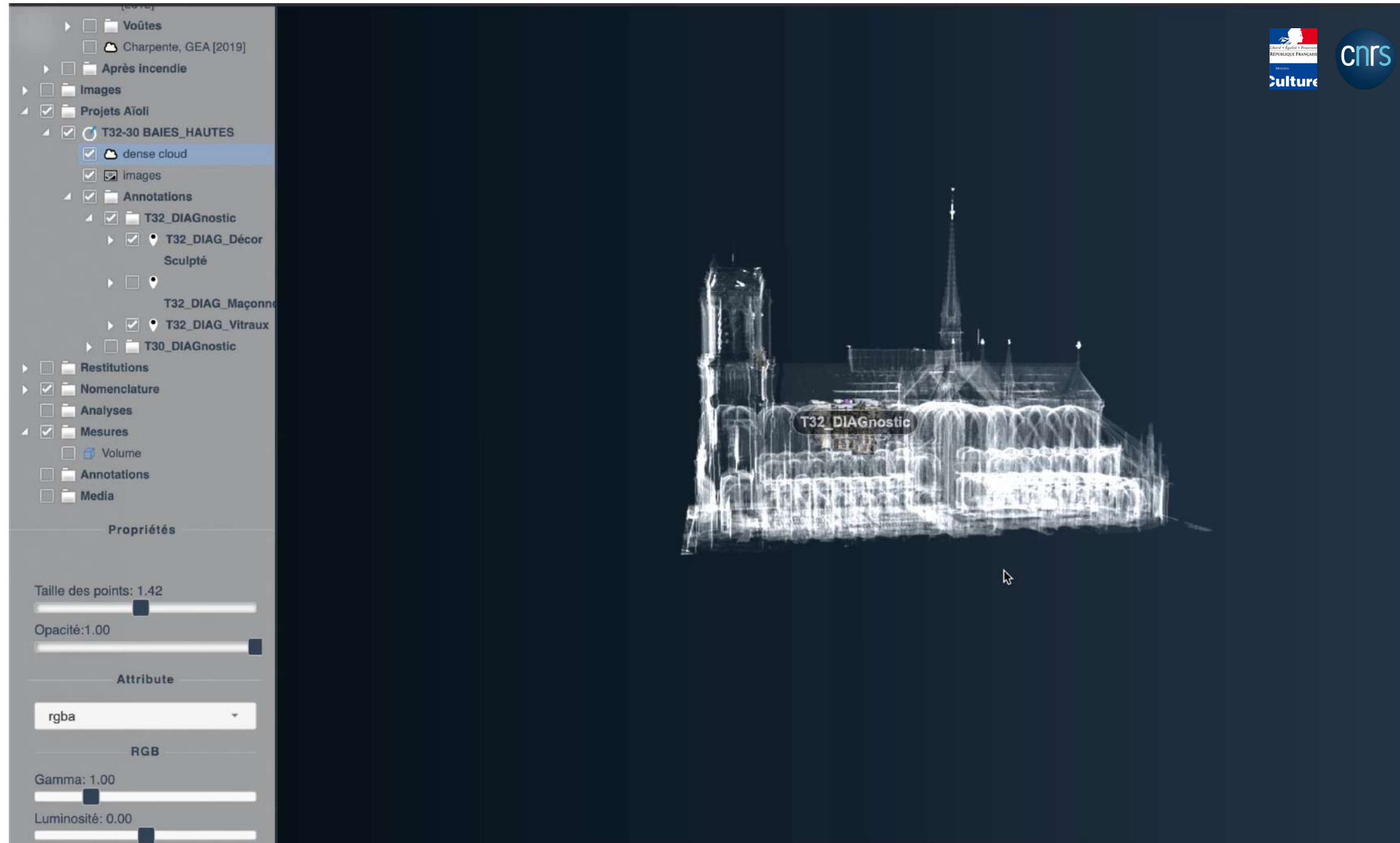
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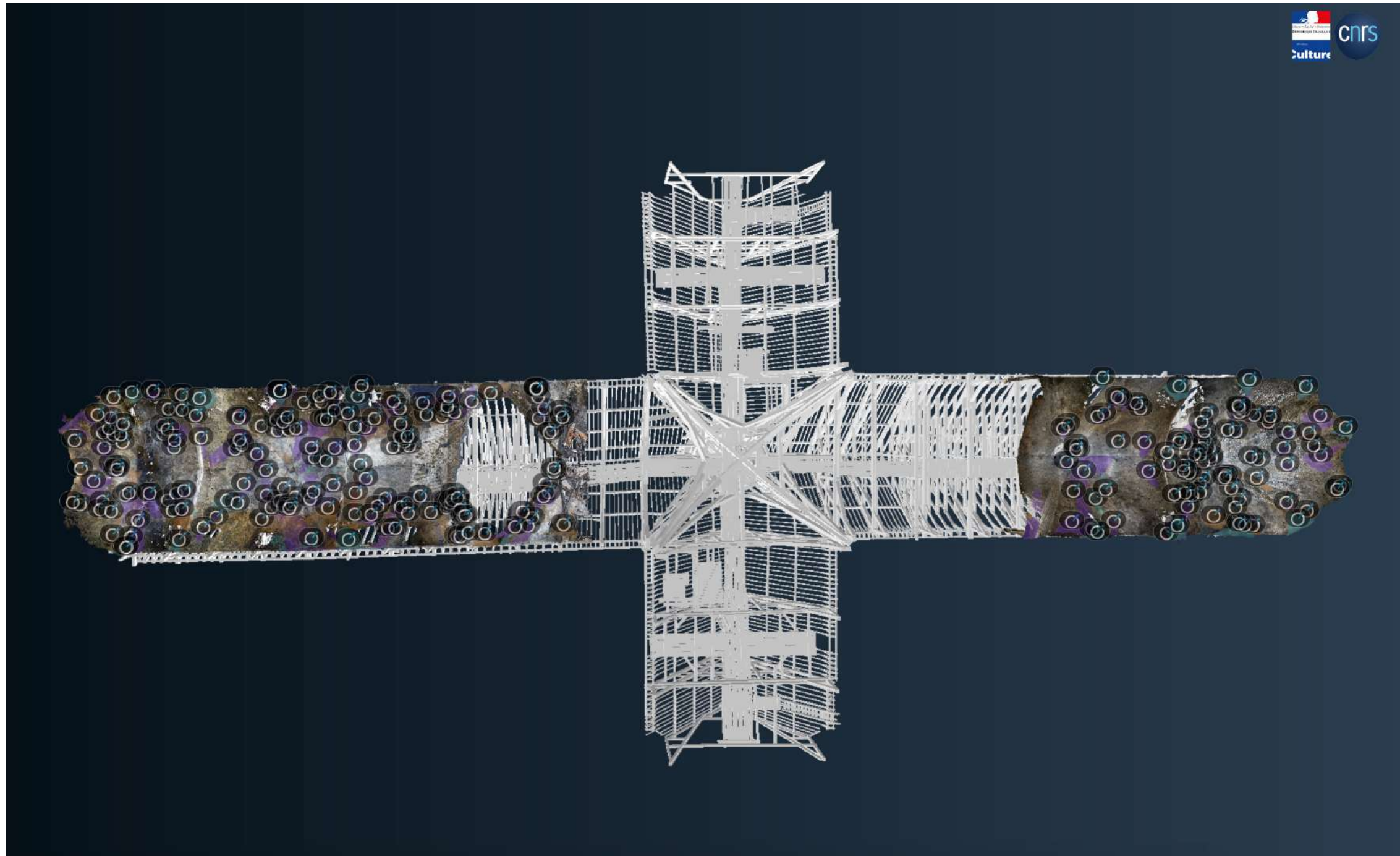
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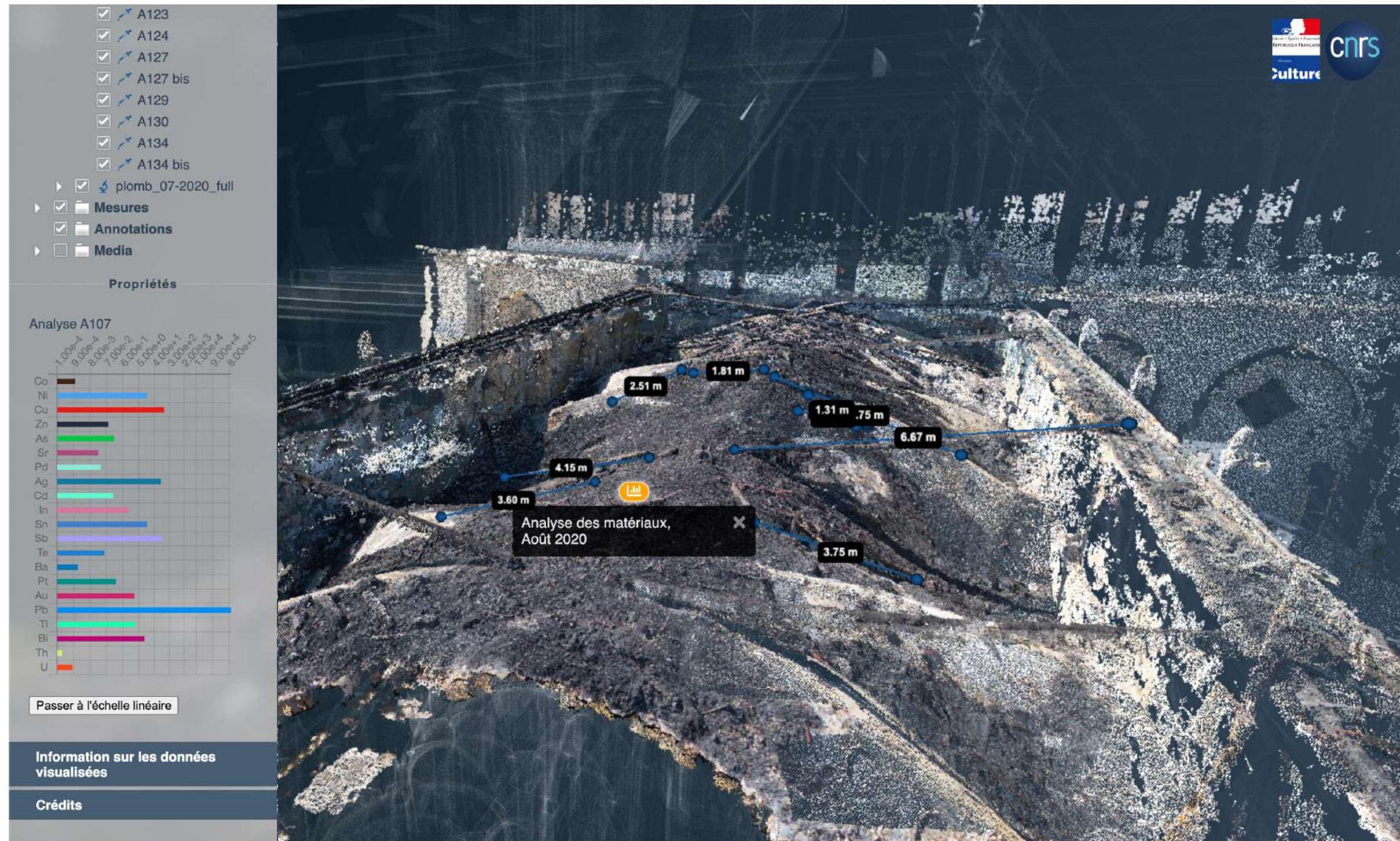
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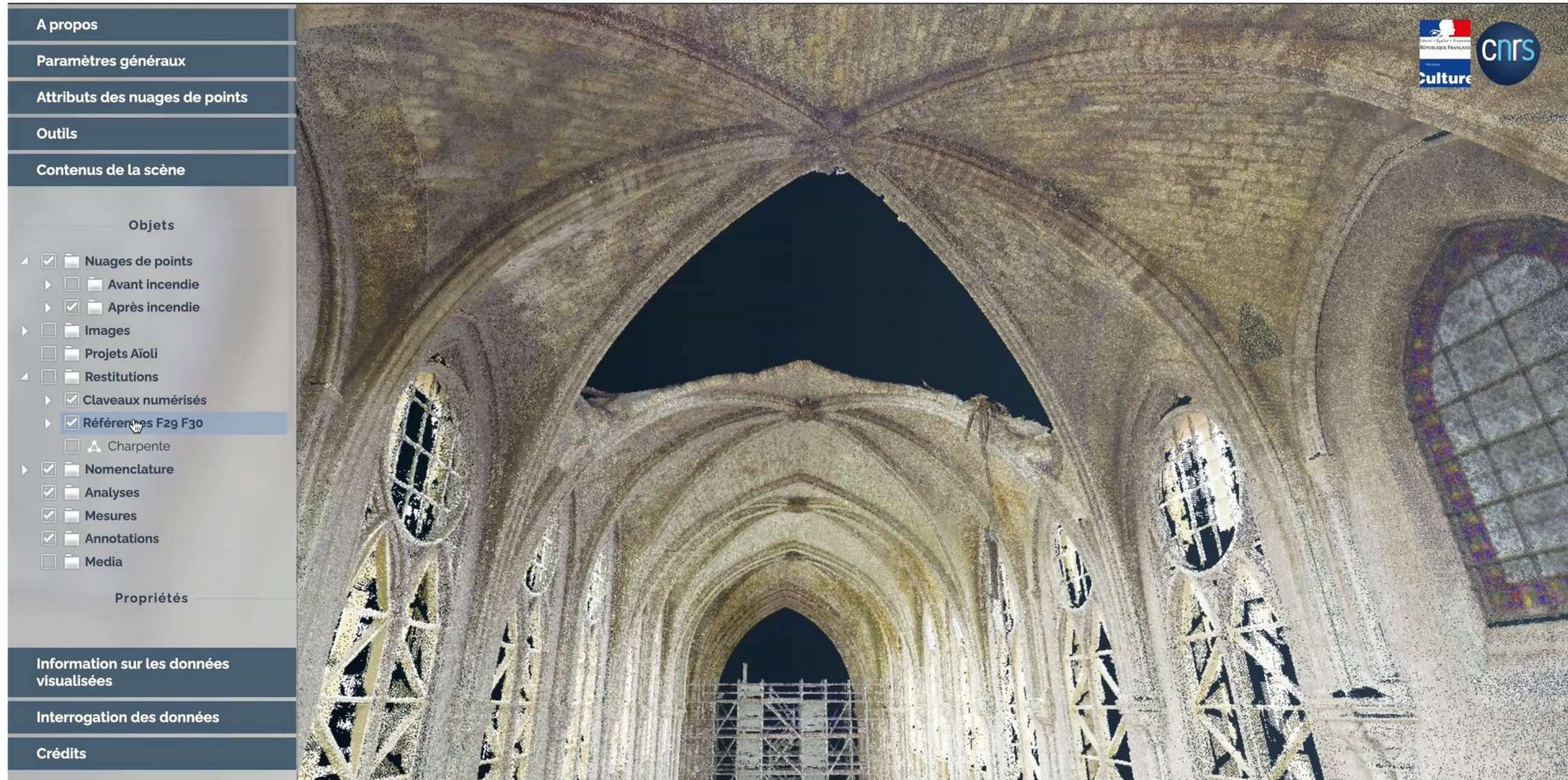
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Virtual anastylosis of the collapsed transverse arch



Management of several temporal states



Work in progress and perspectives

- + Automatic propagation of semantic attributes
- + nDimensional analysis and correlation based on :



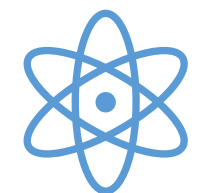
Space, by the 3D spatialization of the documentary and analytical resources collected, analyzed and produced within the scientific worksite ;



Shape, by introducing annotation/segmentation/morphological characterisation methods developed in respect of several points of view (terminology/area of knowledge) and interpretation levels (observation and analysis scales) ;

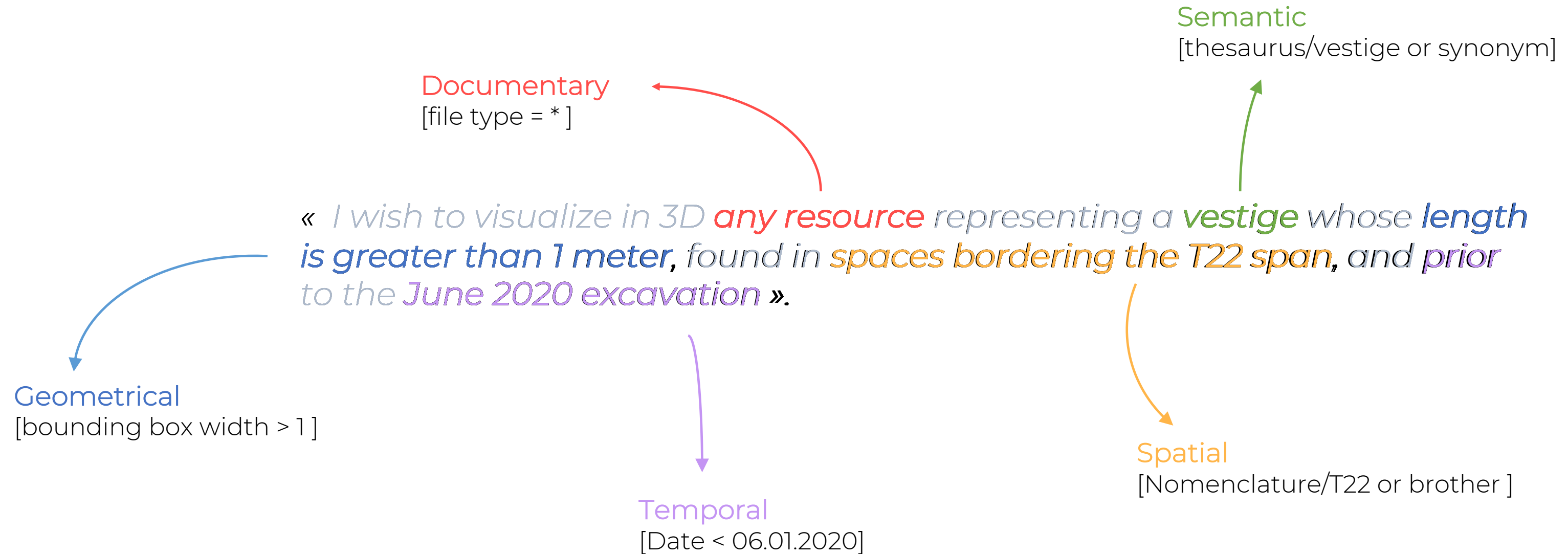


Time, by analysing the transformations resulting from the comparison of temporal states of the cathedral and the diachronic representation of events related to the restoration work ;

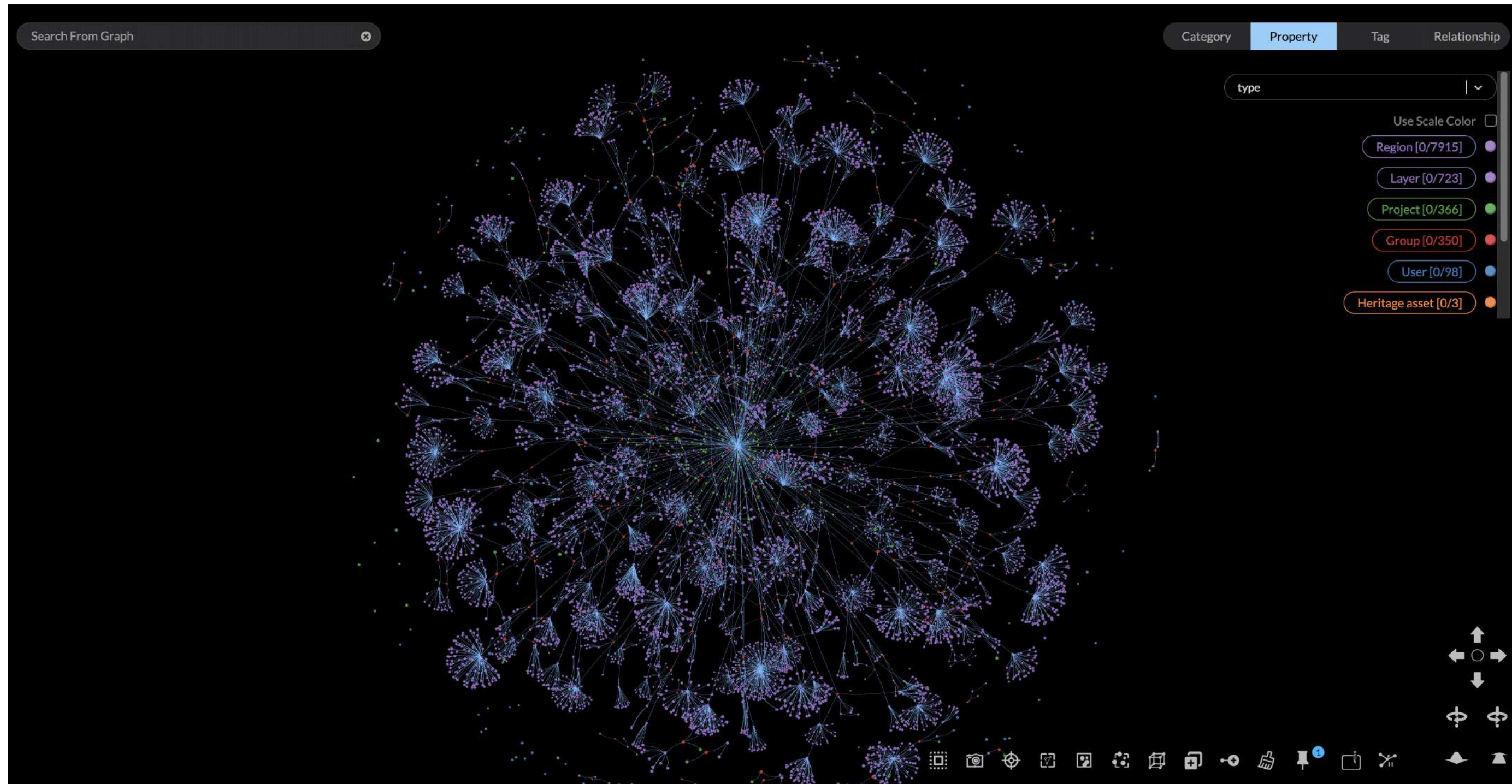


Knowledge domain, by analysing the thematic overlaps resulting from the multiple disciplinary views on spaces, shapes and transformations.

Work in progress and perspectives



Work in progress and perspectives



More videos on www.notre-dame.science

Thank you !



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Renato Saleri (MAP)



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