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# 4Science role in the Open Science and DSpace community

At 4Science We are driven by serving the open knowledge ecosystem.

Certified Platinum provider and main contributors of DSpace

Our goal is to anticipate the future making it more accessible

4Science created and maintains DSpace-CRIS

Experts in the field and enablers that can help with any situation

**Open knowledge**

empowering open access, supporting open science, advancing open scholarly communication.

**FAIR data**

Our solutions enable your data to be Findable, Accessible, Interoperable and Reusable

**Interoperable solutions**

ORCID best Certified Service Provider, Datacite Registered Service Provider, CERIF enablers, IIIF open standards

**Compliance & Quality**

OpenAIRE guidelines, Certified Platinum Providers of DSpace, ISO 27001:2022, ISO 9001:2015

**Security**

Battle-tested solutions, secure by design; Trusted Providers of the Cloud Security Alliance



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# Certifications

4Science brings a high level of assurance to the services it provides for its clients. 4Science is the DSpace Certified Platinum Provider with the highest number of certifications

# Clients that trust us

CORNELL UNIVERSITY

PRINCETON UNIVERSITY

HARVARD UNIVERSITY

Digital Library PAVIA
UNIVERSITÀ DI PAVIA

The State Library of Massachusetts

Imperial College London

UNIVERSITY OF CAMBRIDGE

EPFL

IAS | INSTITUTE FOR ADVANCED STUDY

Fraunhofer IIS

UNIVERSITÀ DEGLI STUDI DI MILANO

BIBLIOTECA NAZIONALE DI NAPOLI | BIBLIOTECA DIGITALE

UNIVERSITÀ DEGLI STUDI DI GENOVA

Università Ca'Foscari Venezia

# Shaping the future together

It's all about fully exploiting the cultural heritage, and not only preserving it: we believe it's crucial to choose a provider that guarantees domain expertise and the best visibility and accessibility of your heritage.

Investing in the ongoing support and strengthening as well as in the modernization of the other tools and functions, the ultimate goal of the right preservation solution is to create capable conditions for the provision of upgraded services to your public.

# GLAM

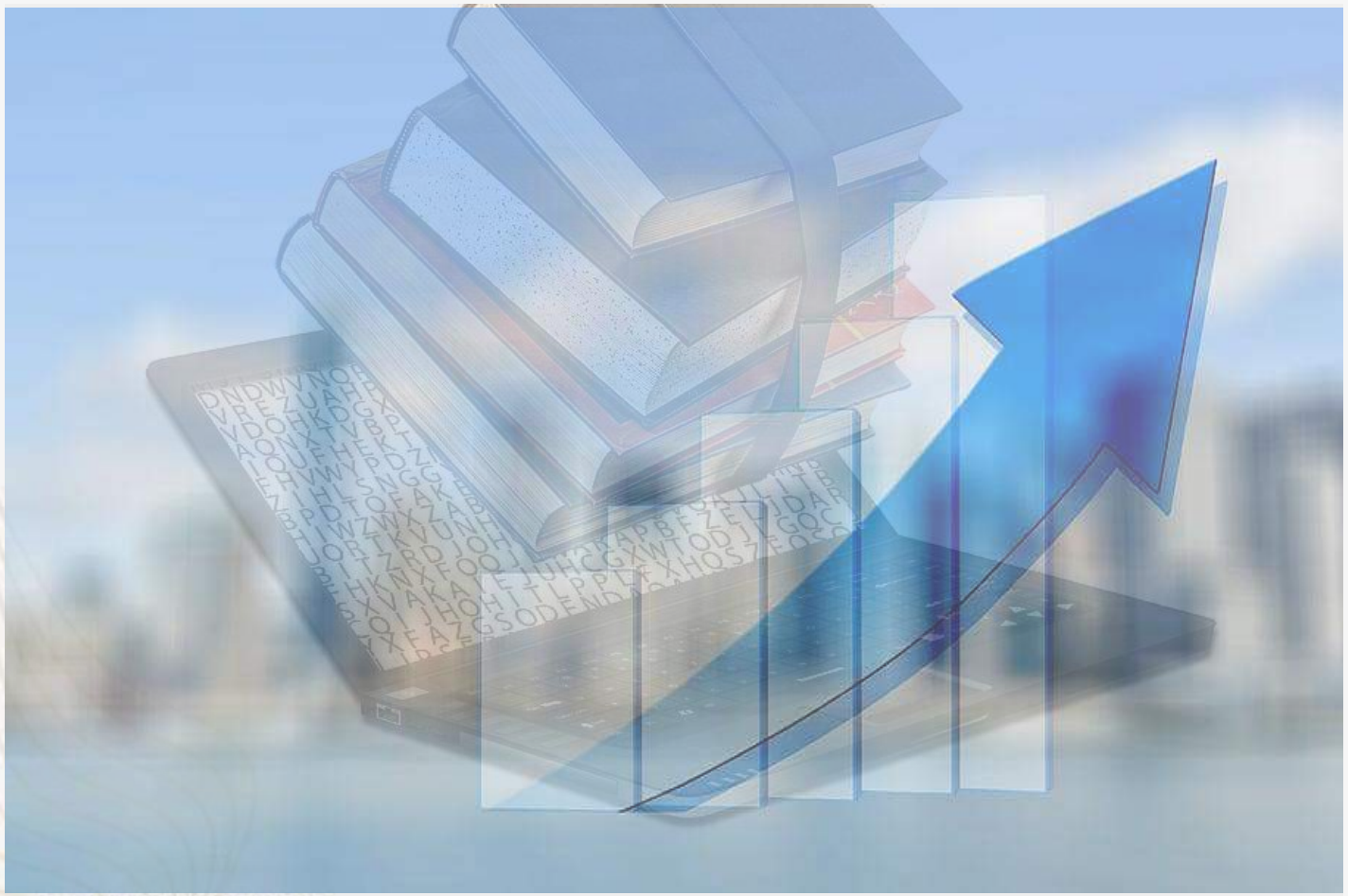
We designed a state-of-art solution that fits with your needs and standards

# Data Science in a digital Humanities Heritage framework

The goal of GLAM is to provide a **fully interoperable environment for integrating the traditional hermeneutic and interpretative** work of historical sciences, archaeology, artistic and cultural studies with data visualization and analysis.

In this way, we know that there may be a fundamental change in the way digital cultural heritage is experienced and analysed.

# All-in-one state of the art solution for all digital material




Humanities are witnessing a growth of available digital data:

- Databases
- Archival Materials
- Books
- Museum Objects
- Digital Born Cultural Resources
- .....

# cultural heritage material cannot be analyzed without its CONTEXT

•Cultural data can be fragmentary, partial, biased.

•Scholars and cultural heritage professionals have to be able to **correlate different data sources**, to better i**nvestigate the articulation of historical phenomena and of the transformation processes that affected human history and culture.**

•Digital Cultural Resources have to be analyzed together with all contextual information needed to answer research questions, such as:

- (cultural, social, economic, technological…) production context of a document/object
- contextual associations at different levels and scales (spatial, temporal, functional, etc.)

# ...context that can be efficiently explored with a digital library solution!

To move such an approach from theory to practice we need infrastructures and tools for integration, analysis and storage of digital data and resources.

Today most of the digital cultural resources and data are in the Digital Libraries.

Digital Libraries should provide tools for:

- modeling, visualising and analysing information, both in a qualitative and quantitative way, as well as collaboratively working on it
- highlighting the relationships between data at different scales and the network of contextual relations in which historical sources are involved
- to enter the daily workflow of historians, archaeologists and humanities scholars.



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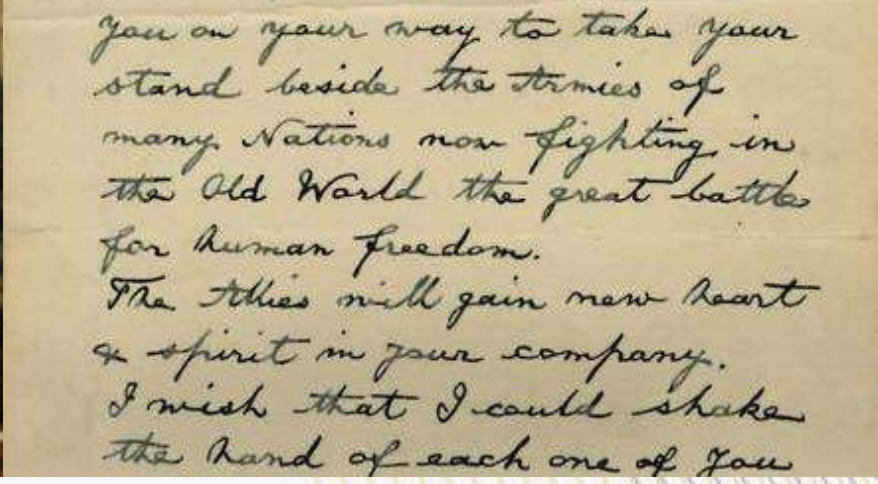
# DIGITAL COLLECTIONS: ENABLING NEW IMMERSIVE EXPERIENCES

An extensible model to define a network of relationships to be discovered, browsed and studied.

Links are made between digital objects and an overview of artistic productions, thematic routes, historical paths…

…and all this allows to explore for real the contexts (historical, geographical, cultural) of the browsed digital objects.



# From Digital Records to Digital Cultural Landscapes

Beyond Digital Library Boundaries with DSpace

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- Extending DSpace for Digital Cultural Heritage Management

# Why DSpace?

- To achieve the outlined goals and build a state-of-art Digital Library Management System, open source software is preferable.

- Development of open source software gives an effective way to create Digital Library Management Systems with a small financial investment.

- Looking exactly at sustainability, among the most used open source Digital Library Management Systems, we chose DSpace.



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- DSpace has  been extended for managing Digital Cultural Heritage
- IIIF based add-ons have been developed for curating and exploring digital objects
- An extended and extensible data model has been modeled to display contextual relationships at different levels and to manage different metadata schemas and conceptual models

# Managing Galleries, Libraries, Archives, Museums

Ancient and modern books, archival fonds, journal fonds, museums objects, documents, audio, video, maps ...

Cultural Heritage materials can be explored in an integrated way, without loosing domain metadata standards granularity

The applications can be extended to map further domains (tourism, botany.....)

# Image International Interoperability Framework

- In the last years IIIF became the “de facto” standard for presenting, navigating and delivering digital images on the web all over the world.

- It defines several APIs for providing a standard method for describing, analysing and sharing images over the web, as well as "presentation-based metadata" about structured sequences of images.

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# An ecosystem built on IIIF

We developed  3 add-ons to "enrich" the IIIF experience.

- Image Viewer
- Document Viewer
- OCR & Transcription

The 3 add-ons implement several curation task for an easier digital resources management



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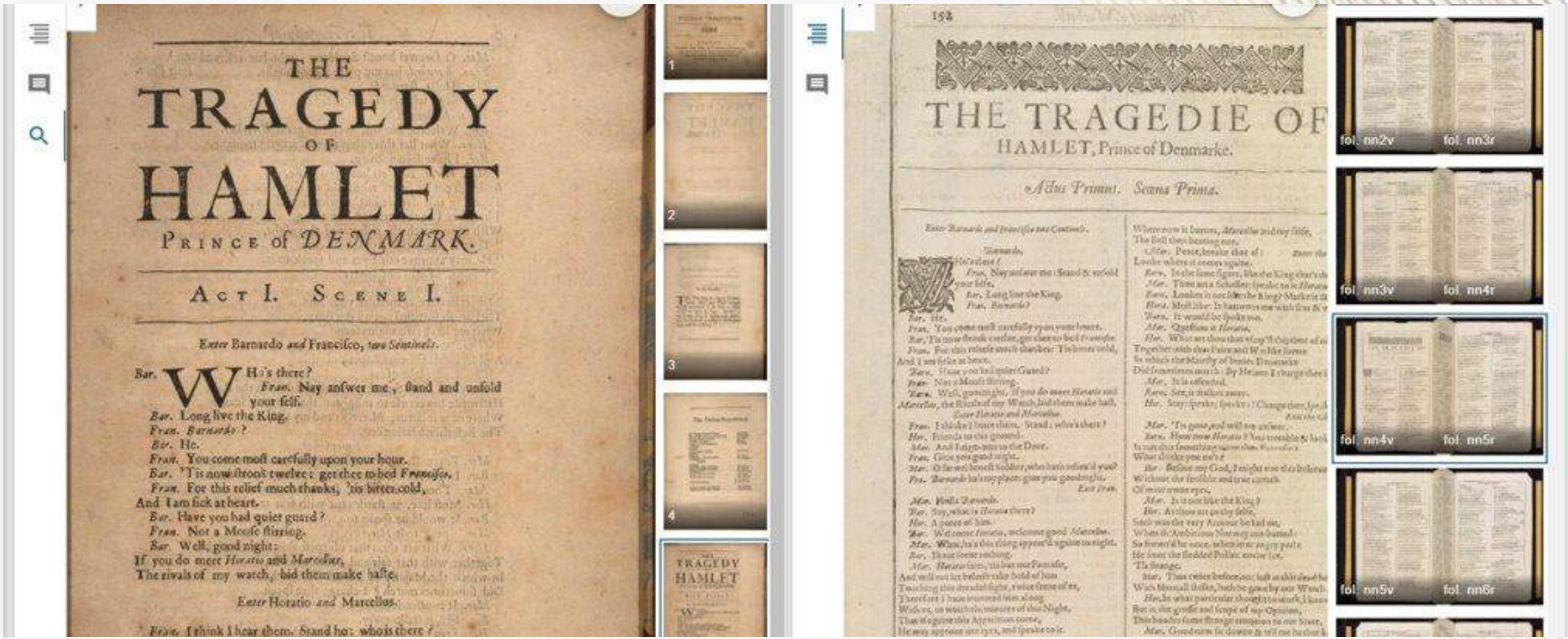


# Comparing different contents on the Virtual Desktop

Experience an immersive journey outside repositories boundaries.

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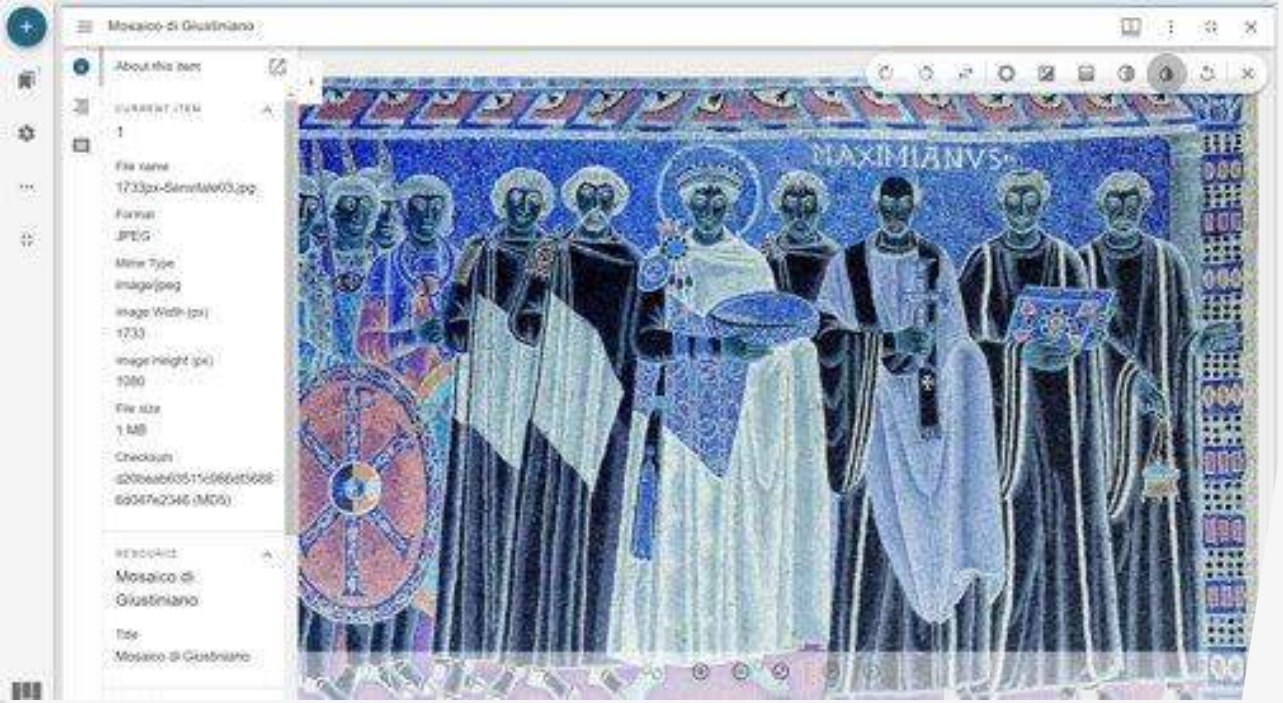


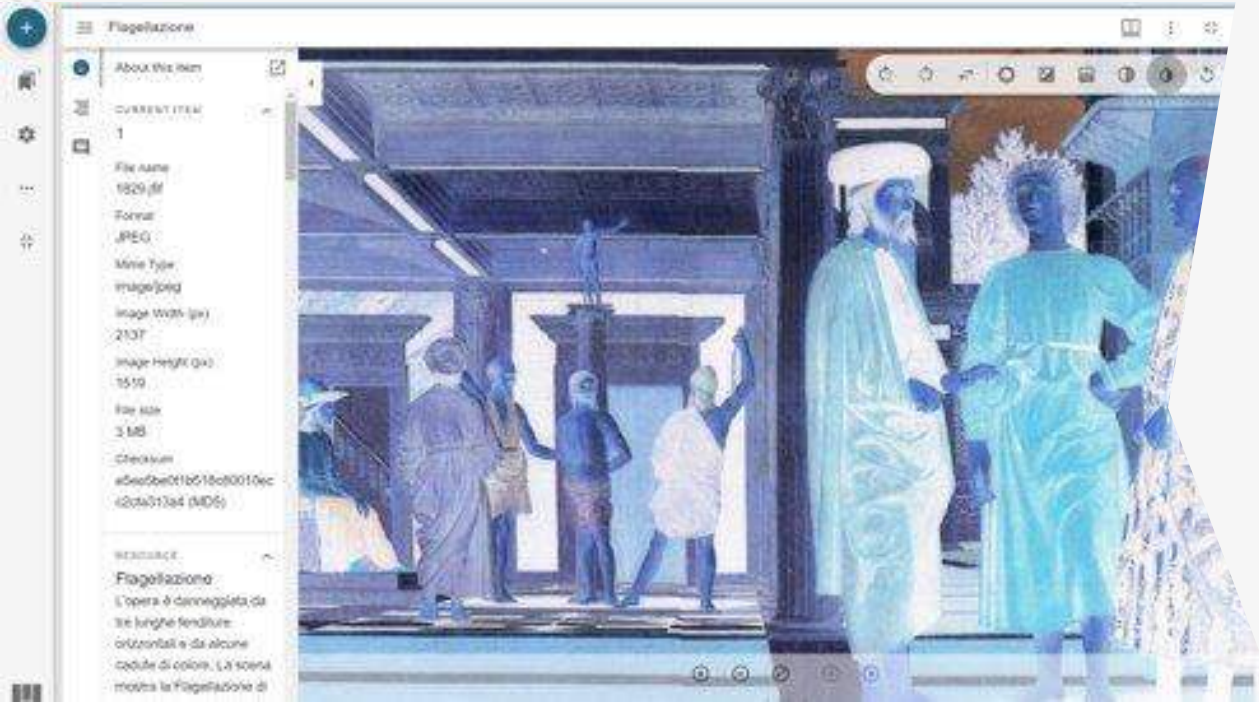


# Image Processing: analyzing images

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La Flagellazione

Annotations

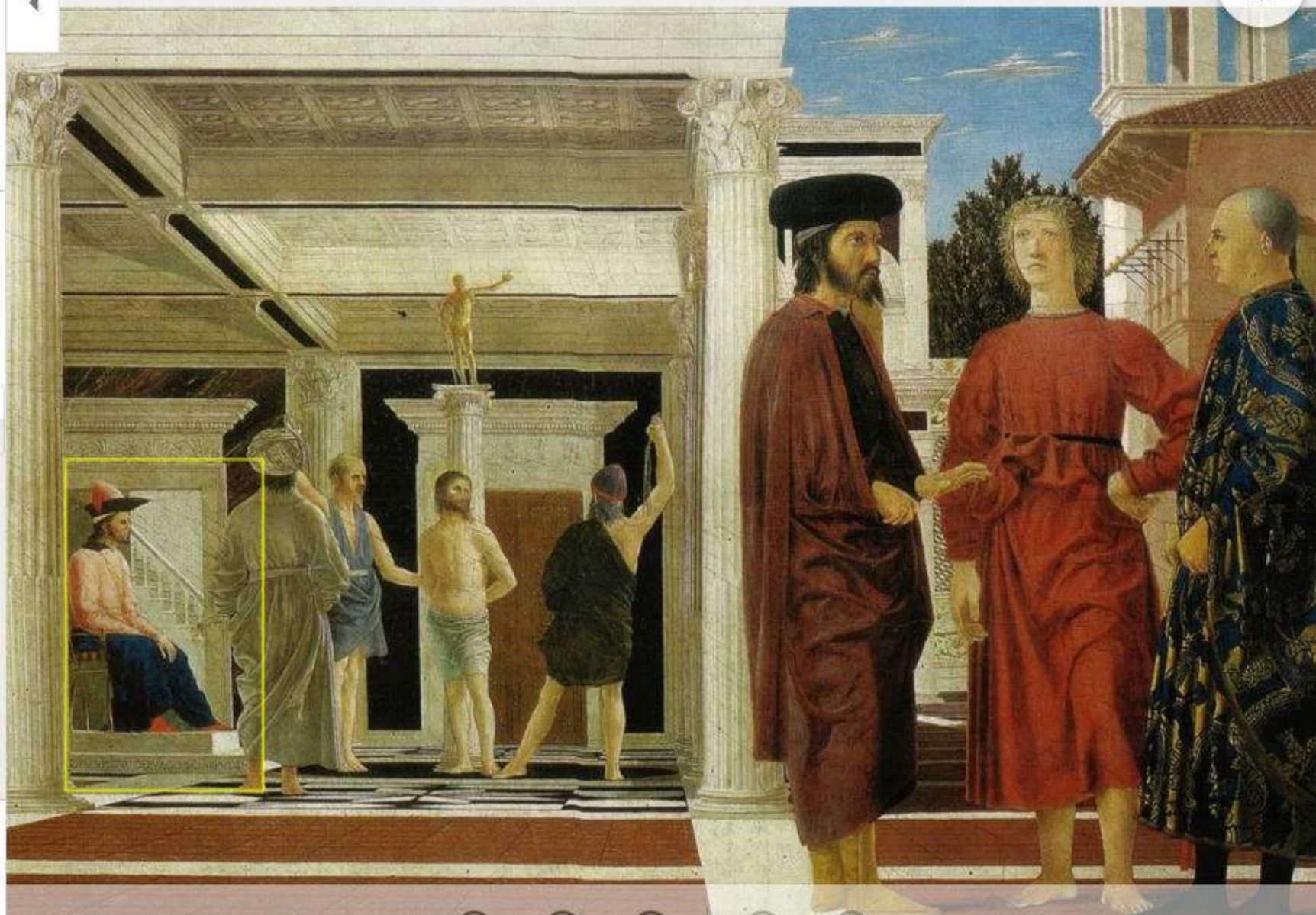
Showing 3 annotations

ITEM: [1]

The column refers to the one in Constantinople's Forum

Pontius Pilate presents the marks of Byzantine kingship: pointed hat and purple shoes. He represents John VIII Paleologus observing the martyrdom of Byzantium without intervening

Cardinal Bessarion has been recognized in this character.



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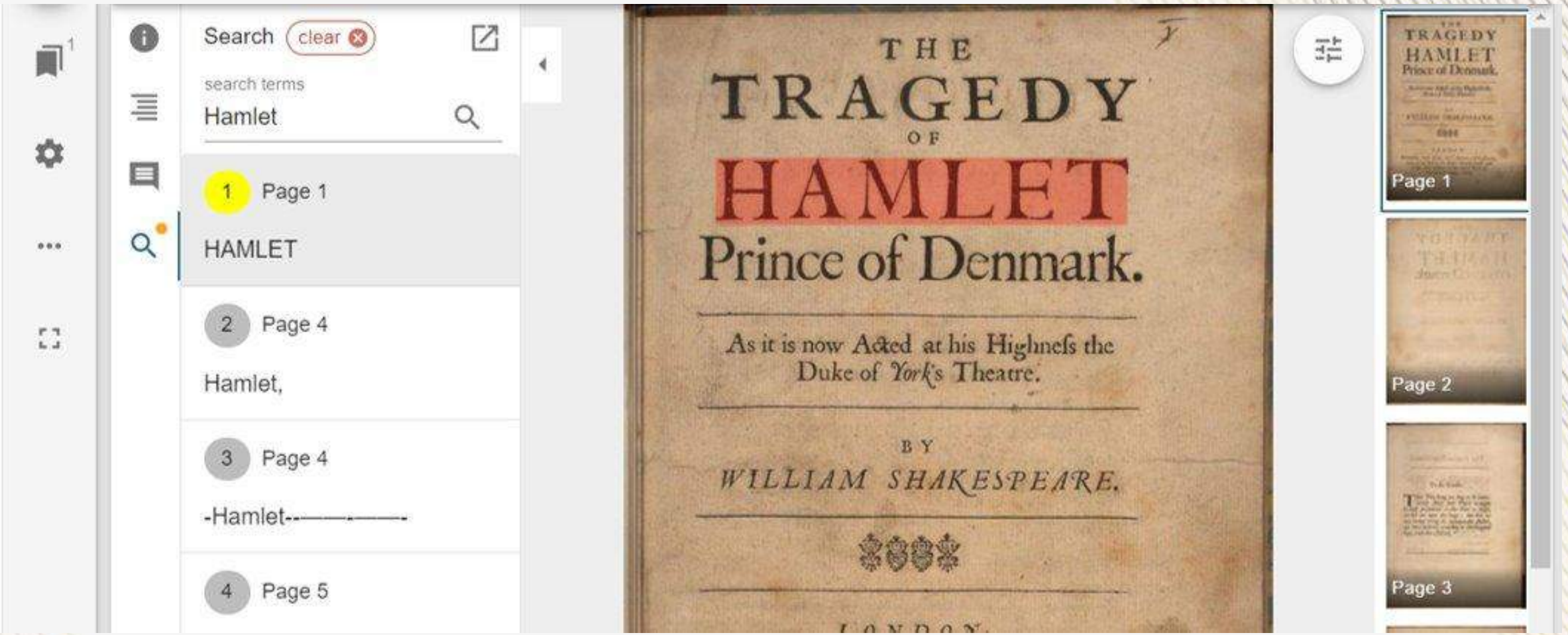
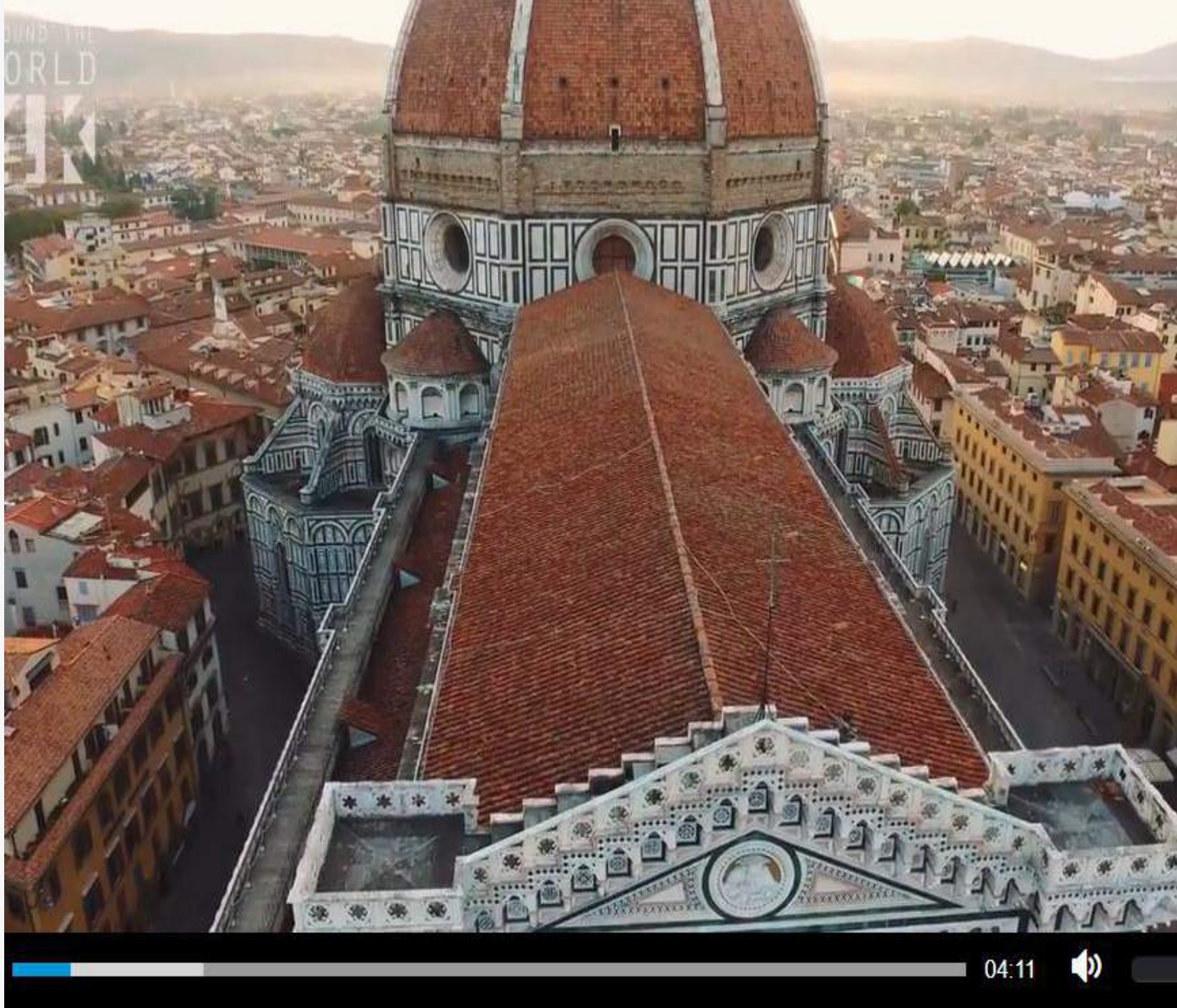


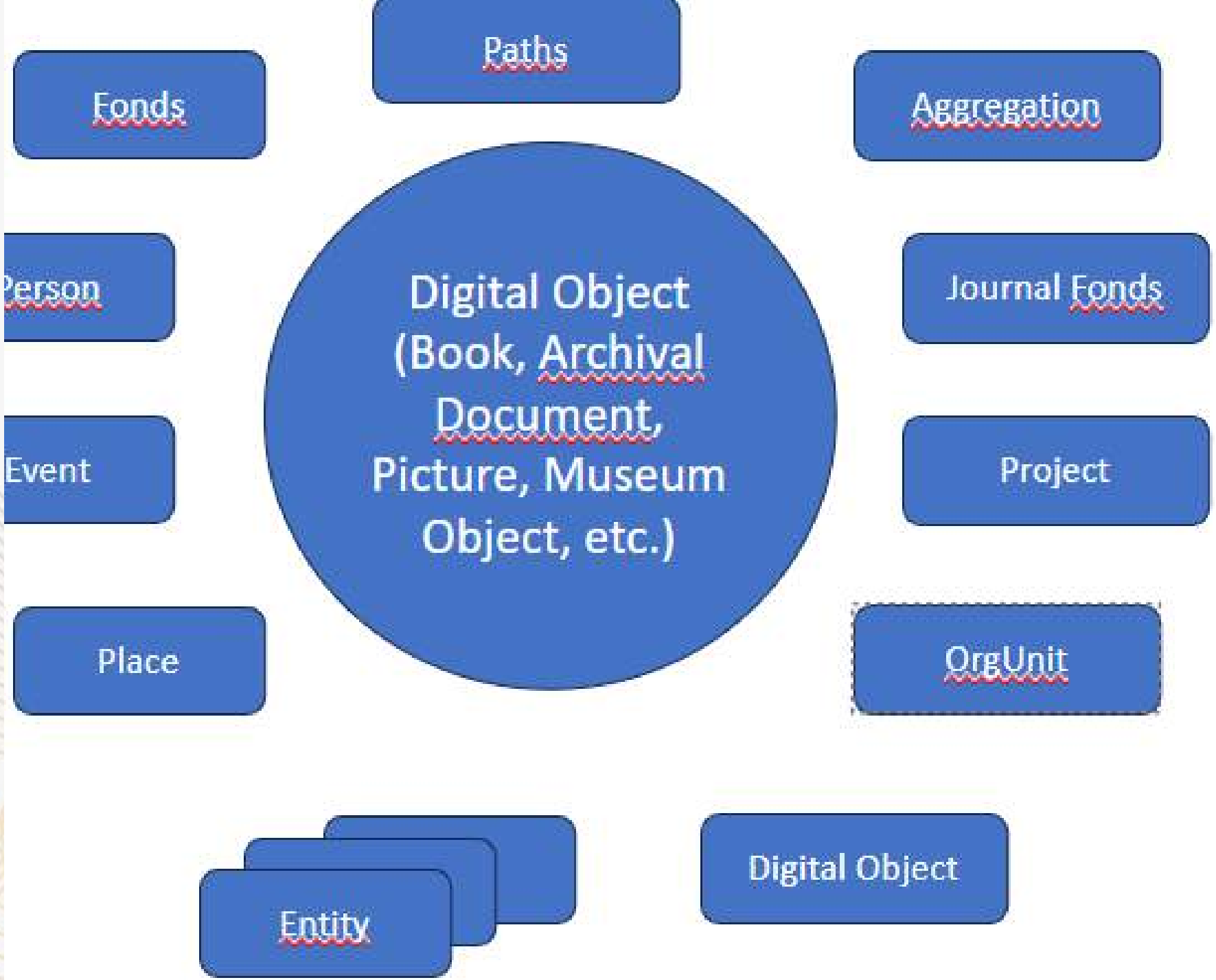

# The OCR & Transcription Module

Allows to extract text
from images and index it

# Video/Audio streaming

- Allows streaming of video and audio content uploaded to the repository with the use of a solution based entirely on open source components.






# Relationship between Events and Digital Objects

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# Flagellation of Christ

**Date Issued** 1458

**Author(s)** Piero della Francesca Pittore

**Abstract**

The Flagellation of Christ (probably 1468–1470) is a painting by Piero della Francesca in the Galleria Nazionale delle Marche in Urbino, Italy. Called by one writer an "enigmatic little painting,"[1] the composition is complex and unusual, and its iconography has been the subject of widely differing theories. Kenneth Clark called The Flagellation "the greatest small painting in the world".

Collapse

**Physical Description**

The theme of the picture is the Flagellation of Christ by the Romans during his Passion. The biblical event takes place in an open gallery in the middle distance, while three figures in the foreground on the right-hand side apparently pay no attention to the event unfolding behind them. The panel is much admired for its use of linear perspective and the air of stillness that pervades the work, and it has been given the epithet "the Greatest Small Painting in the World" by the art historian Kenneth Clark.

The painting is signed under the seated emperor OPVS PETRI DE BVRGO S[AN]C[T]I SEPVLCRI – "the work of Piero of Borgo Santo Sepolcro" (his town).

The Flagellation is particularly admired for the realistic rendering of the hall in which the flagellation scene is situated in relation to the size of the figures and for the geometrical order of the composition. The portrait of the bearded man at the front is considered unusually intense for Piero's time.

Collapse

**File(s)**

**Name**
1829.jfif
**Size**
3.76 MB
**Format**
JPEG
**Checksum**
e5ee5be0f1b518c80010ecc2cfa313a4

Open in Mirador IIIF

Relations

Path

Flagellazione

Event

Concilio di Mantova
Concilio di Ferrara

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# Concilio di Mantova

**Start Date** 1459
**End Date** 1460
**Location** Mantova
**Country** Italia
**Abstract** The Council of Mantua of 1459, or Congress of Mantua, was a religious meeting convoked by Pope Pius II, who had been elected to the Papacy in the previous year and was engaged in planning war against the Ottoman Turks, who had taken Constantinople in 1453. His call went out to the rulers of Europe, in an agonized plea to turn from internecine warfare to face Christendom's common enemy.

Collapse

**Path** Flagellazione

Documents | People | External Links

Export

Now showing 1 - 1 of 1

## Filters

Reset Filters

## Settings

Sort By

Owner Relevance Des

Results per page

10

Publication

### Flagellation of Christ

(1458) Piero della Francesca; Pittore

The Flagellation of Christ (probably 1468–1470) is a painting by Piero della Francesca in the Galleria Nazionale delle Marche in Urbino, Italy. Called by one writer an "enigmatic little painting,"[1] the composition is complex and unusual, and its iconography has been the subject of widely differing theories. Kenneth Clark called The Flagellation "the greatest small painting in the world".

Collapse



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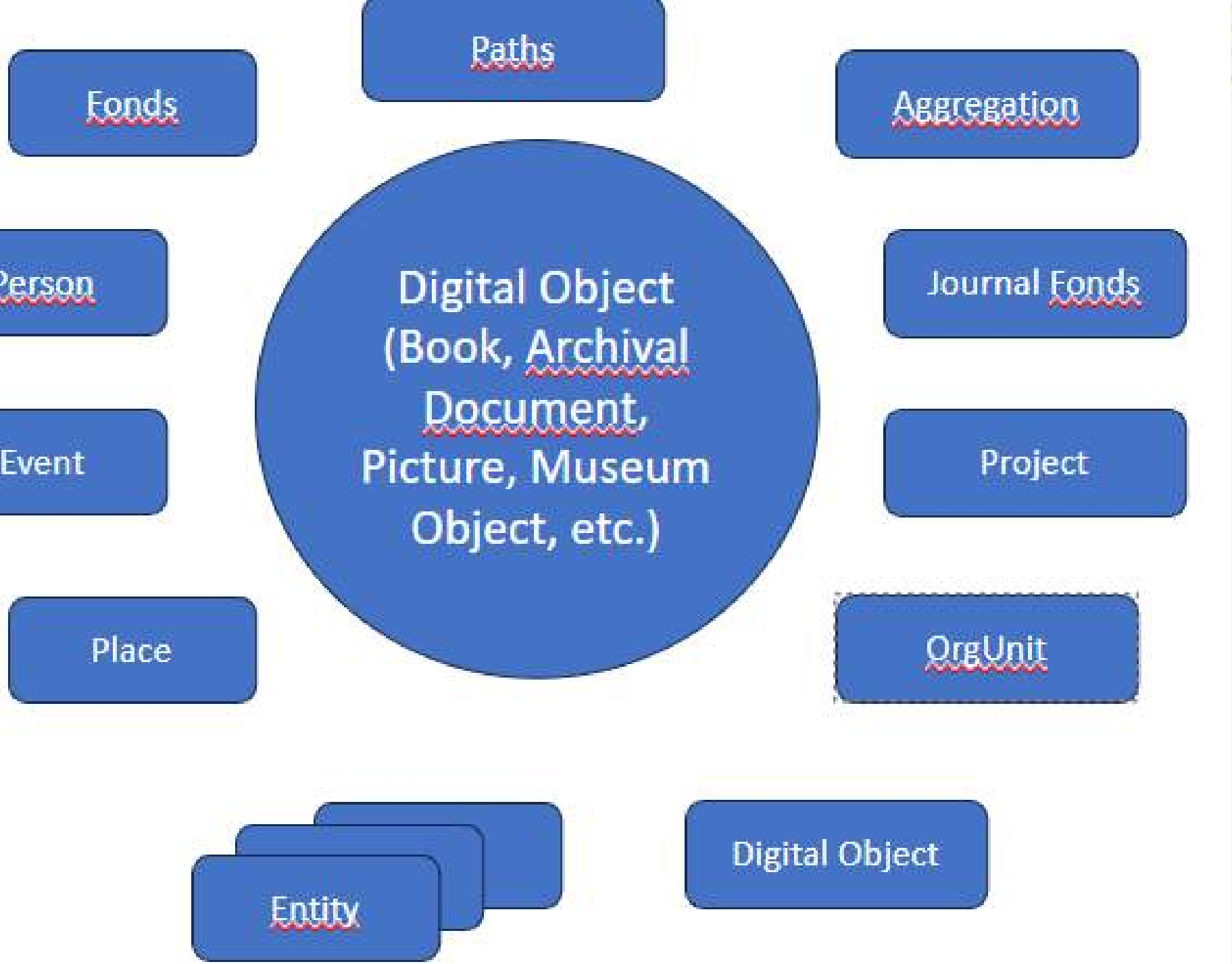


# Relationship between People and Events

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Export | Statistics | Subscribe | ...

# Bessarione

| | |
|---|---|
| **Alternative Names** | Bessarion<br>Basilio |
| **Gender** | m |
| **Role** | Cardinale |
| **Nationality** | Bizantina |
| **Birth Date** | January 2, 1403 |
| **Death Date** | November 18, 1472 |
| **Birth Year** | 1403 |
| **Death Year** | 1472 |
| **Birth Place** | Trebisonda |
| **Death Place** | Ravenna |
| **Partecipated in** | Concilio di Mantova<br>Concilio di Ferrara |

**English Biography**

Bessarion (Greek: Βησσαρίων; 2 January 1403 – 18 November 1472) was a Byzantine Greek Renaissance humanist, theologian, Catholic cardinal and one of the famed Greek scholars who contributed to the so-called great revival of letters in the 15th century.

He was educated by Gemistus Pletho in Neoplatonic philosophy and later served as the titular Latin Patriarch of Constantinople. He eventually was named a cardinal and was twice considered for the papacy.

His baptismal name was Basil (Greek: Βασίλειος, Basileios or Basilios). The name Bessarion he took when entering the monastery.He has been mistakenly known also as Johannes Bessarion (Italian: Giovanni Bessarione) due to an erroneous interpretation of Gregory III Mammas.

Collapse

**Path** The Flagellation

External Links

**Wikipedia Link** https://it.wikipedia.org/wiki/Bessarione_(cardinale)

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# Concilio di Mantova

| | |
|---|---|
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| | ^ Collapse |
| **Path** | The Flagellation |

Documents | People | External Links

Export

Now showing 1 - 1 of 1

## Filters

Reset filters

## Settings

Sort By

Owner Relevance Des

Results per page

10

Person

Bessarione



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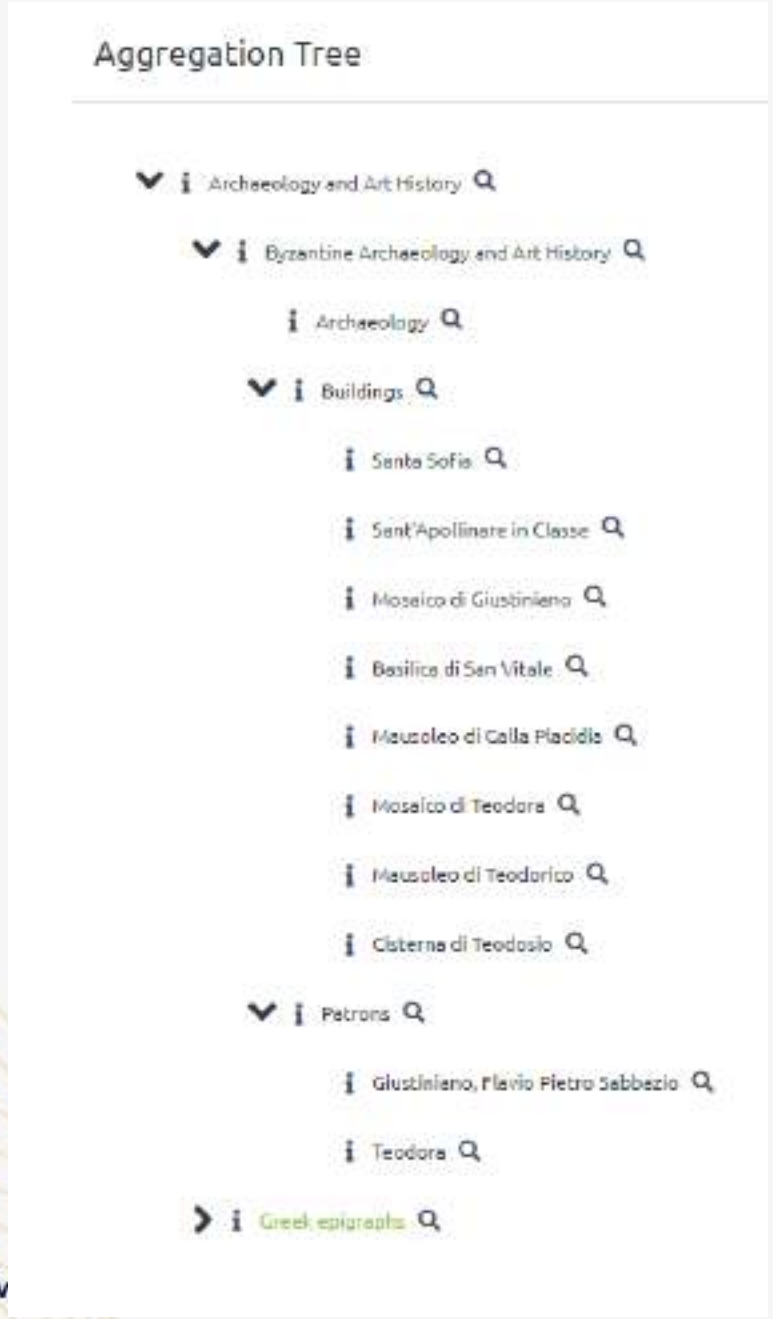


# The Aggregation

- Possibility of aggregating different contents present within the Digital Library, even organizing them in a hierarchical mode

- Enhancing relationships according to an even different declination, with the possibility of "disassembling" and "reassembling" them based on the changing needs of institutions.

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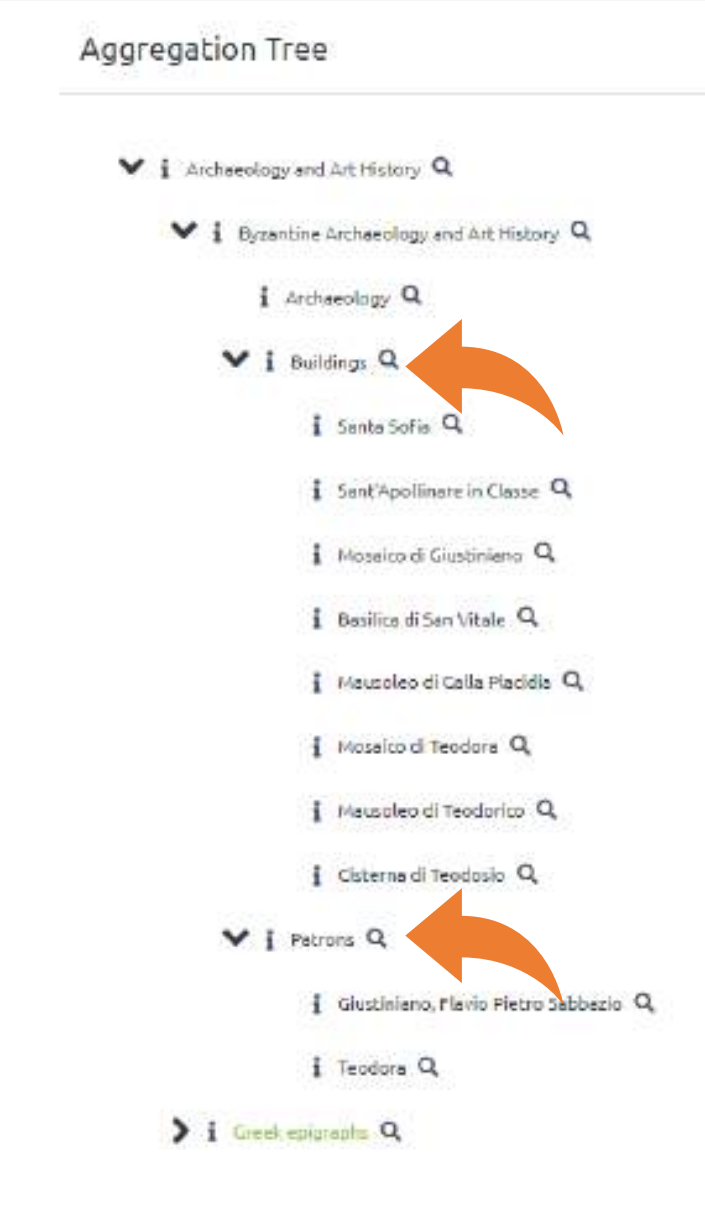


# The Aggregation

Using Aggregations, any type of entity can be correlated

- all buildings and all buildings patrons within the Digital Library



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# The **Aggregation**

- Each "object" in DSpace can belong to multiple Aggregations.
- Each "object" can be presented differently depending on the Aggregation with which it is connected.
- The logical views that can be created are virtually "infinite."



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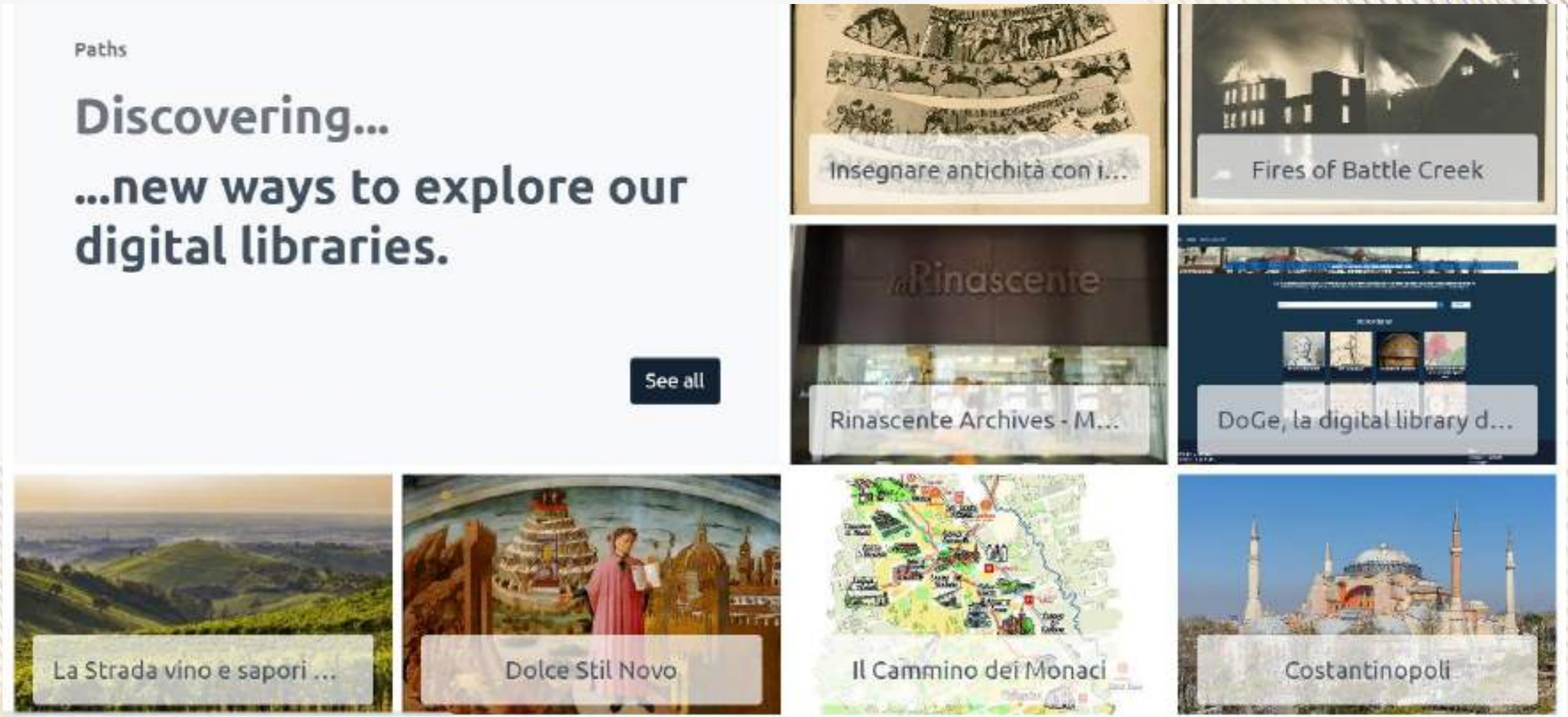


# Cultural Paths and storytelling

# Paths

Paths mainly tell "stories."

Paths can also include objects of different types (Documents, Photographs, People, Events, Places, etc.).

The same object can be included in different Paths

# Paths: one concept, several declinations

Historical contexts,
Itineraries
Exhibitions,
…

# Paths creation and storytelling

- With DSpace-GLAM, it is easy to create paths by relating different entities, highlighting contexts, structuring exhibitions and enhancing itineraries

- Greater interaction between text and digital resources makes it possible to build real narratives around cultural heritage



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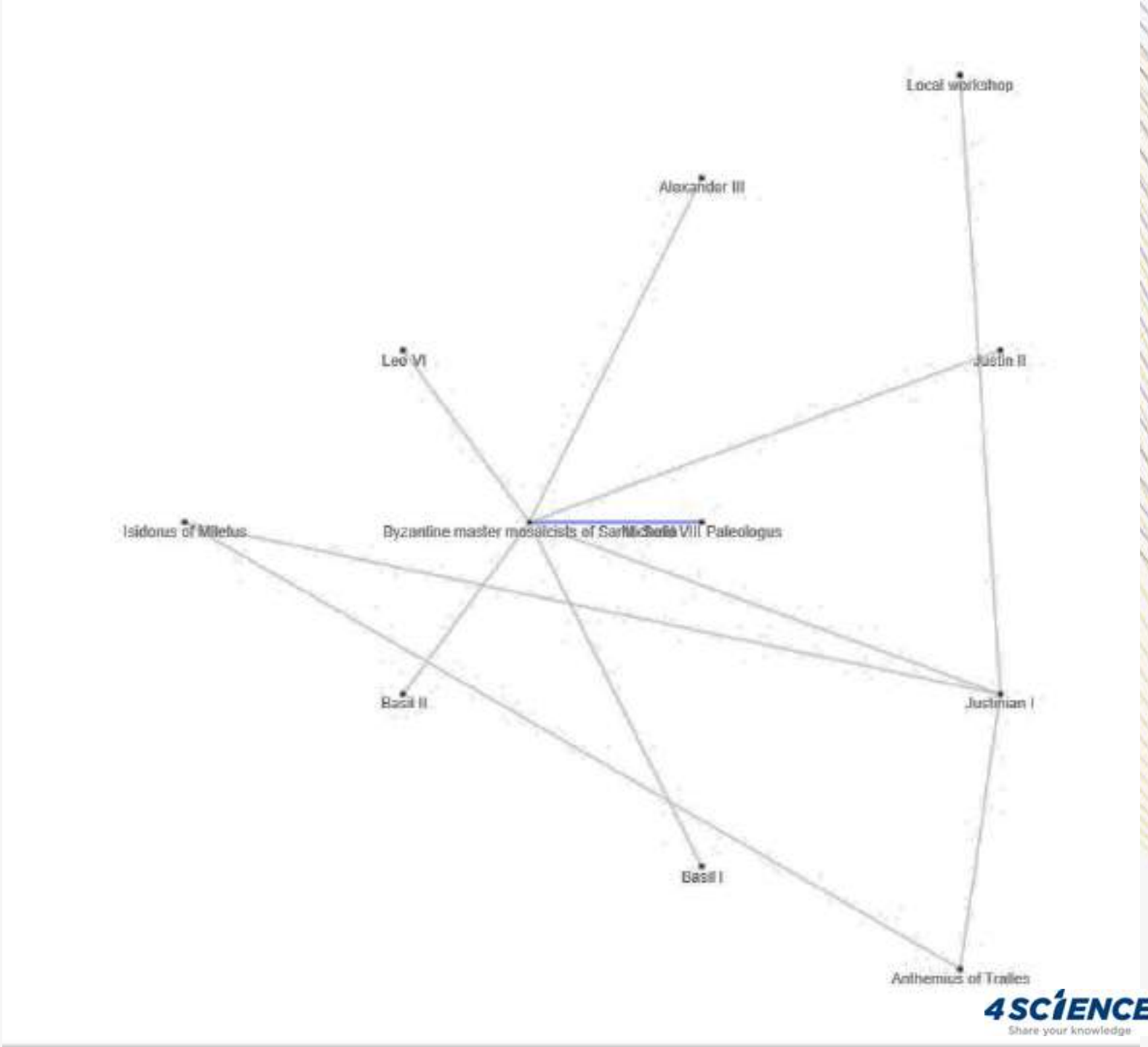
# Structuring Digital Cultural Landscapes

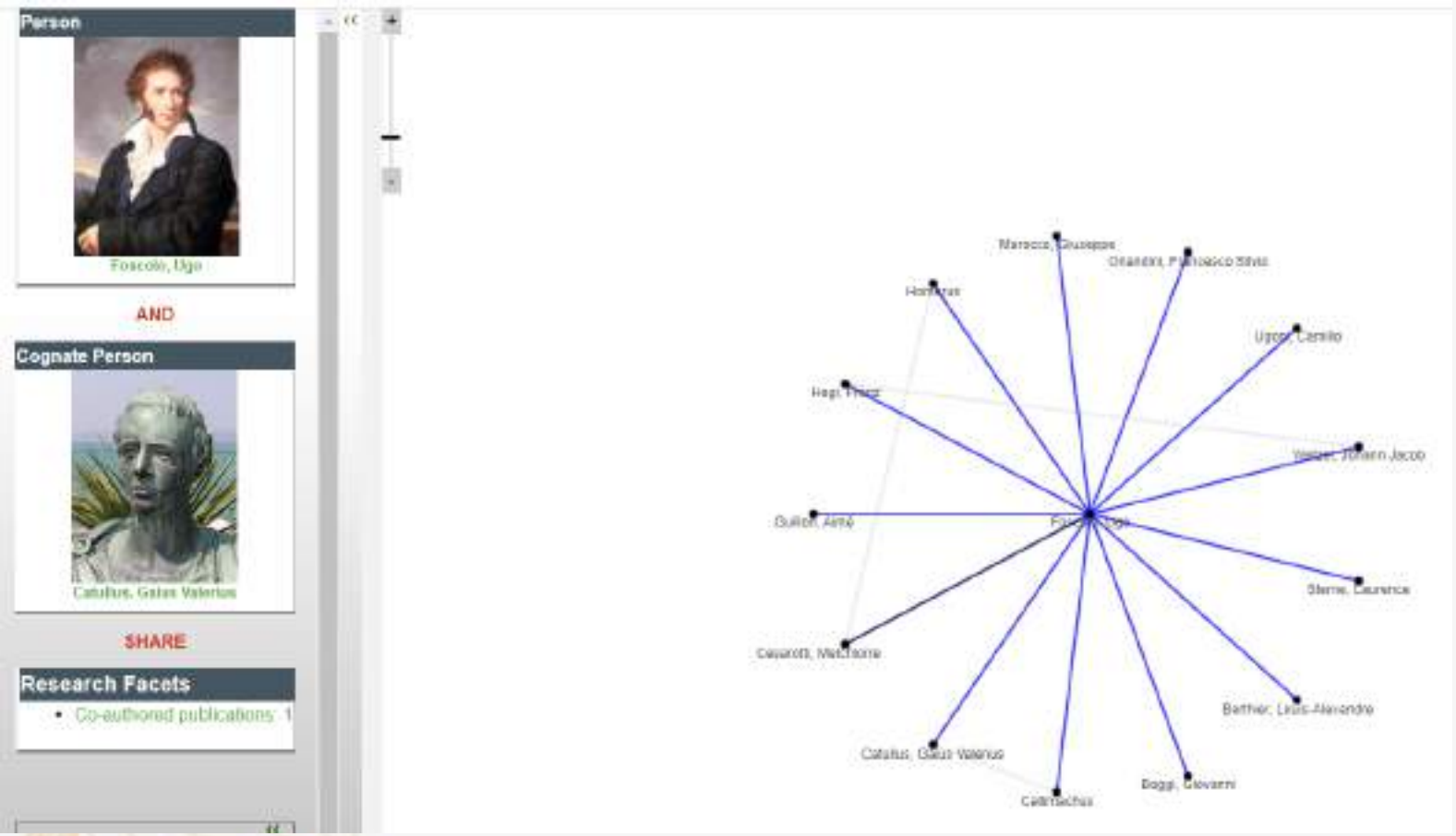
- Through DSpace extension for Cultural Heritage, today many institutions are enhancing the relationships among their content, shaping "their" digital cultural landscapes according to the dimensions of variability needed
- Digital cultural landscapes are “virtual ecosystems” in which digital cultural heritage subsets are related with entities such as people, places, events, fonds, etc., according to different visions and interpretations, in order to generate new knowledge and to open up new perspectives.
- Such "digital landscapes" can be visualized either as Semantic Network, Paths or Aggregations.

# The Network Lab: explore the relationships graph

- For example you can navigate through the different Byzantine emperors who commissioned interventions on a building and explore their relationships with architects and workers who actually did the work

- In this way it is possible to uncover "hidden relationships" producing new knowledge






# Exploring literary interests and collaborations (a cultural context )



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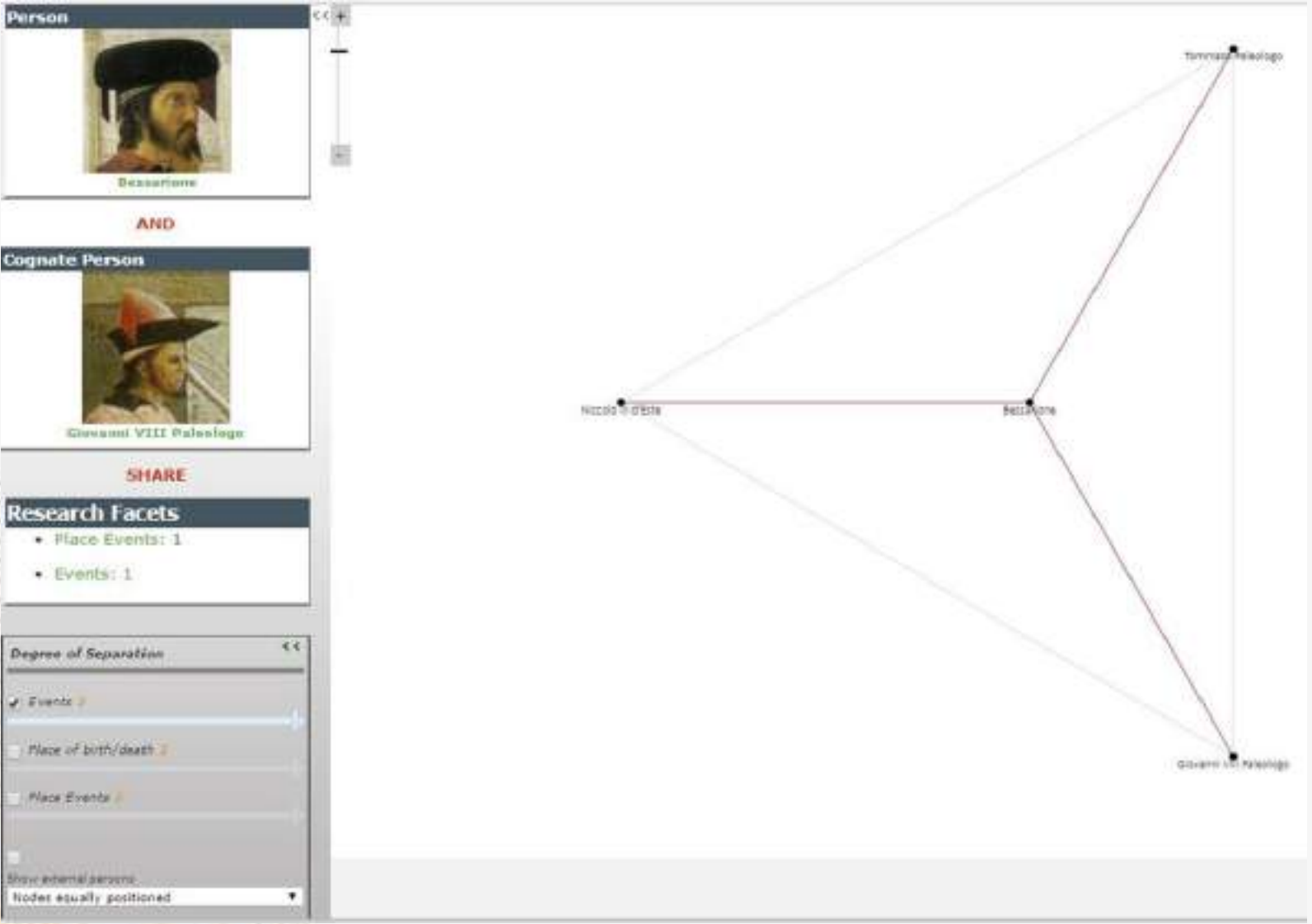


# Explore historical events

# Where are we going?

Towards a Digital Library

- Different navigation modes
- Different tone of voices
- Different ships

**Everyone** should reach the **treasure**

# A Digital Library many audiences

- The new DSpace-GLAM expands its ability to enhance content and make it usable through diversified consultation channels, also based on the needs of different types of audiences:
  - specialist, related to research and university studies
  - belonging to the sphere of school learning
  - tourists, interested in discovering or acquiring new knowledge about the territories being visited
  - citizens, who wish to acquire information on facts, places, objects

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# We empower knowledge sharing and collaboration
# To help you generate solutions for social good and innovation

We are fully committed to being systemic enablers of **innovation, knowledge exchange and connecting cultures**.

Open-source development is a powerful collaborative mechanism to these ends, as it supports transparency and cost-effectiveness, so we constantly innovate to enhance our information and data management tools….

That's why we are the **lead contributor and member of the Dspace community**, and it is only by providing our services to institutions that we can continue to invest resources in co-creating the global infrastructure that supports research and innovation.

We'd love you to be a part of it.

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