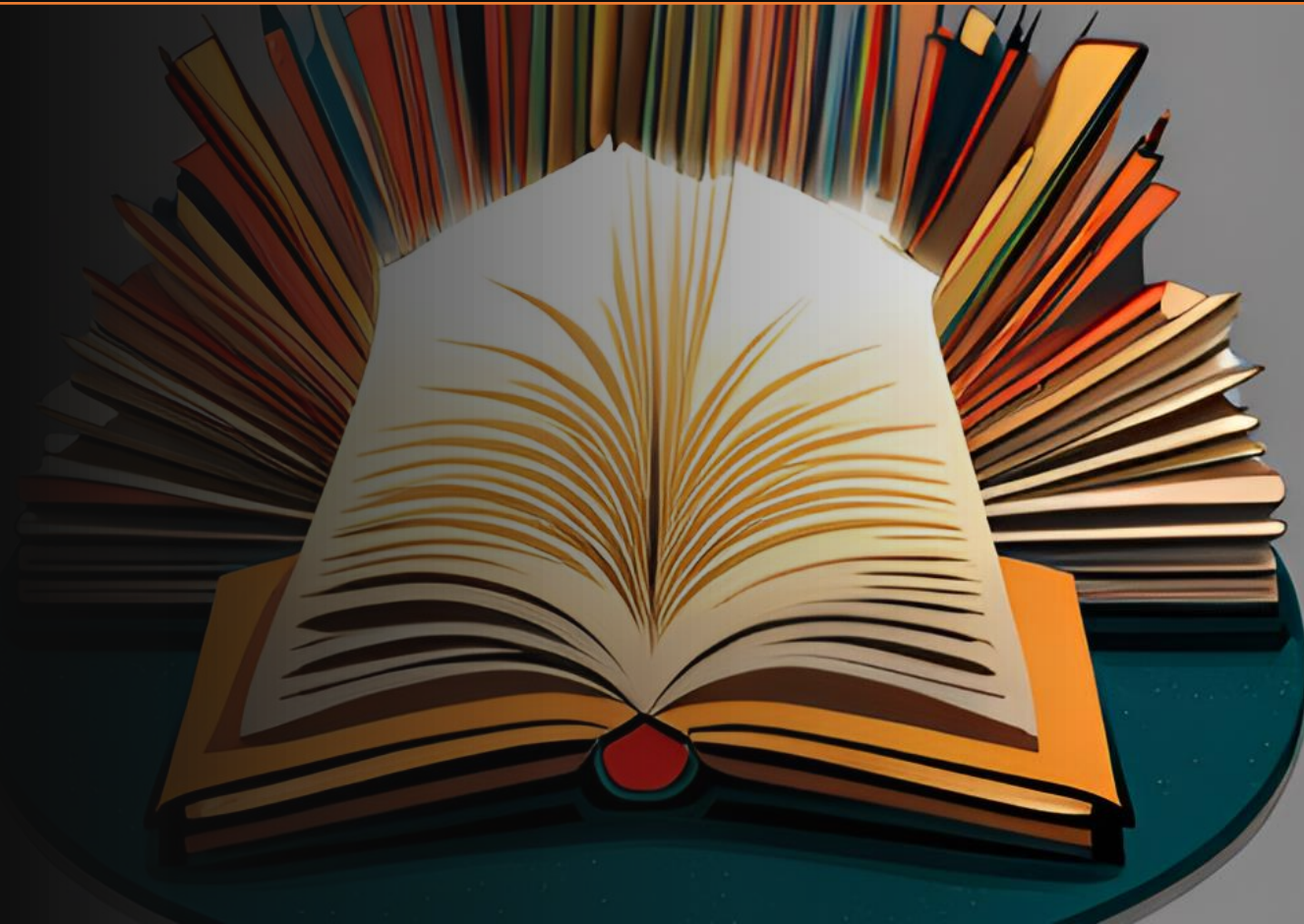


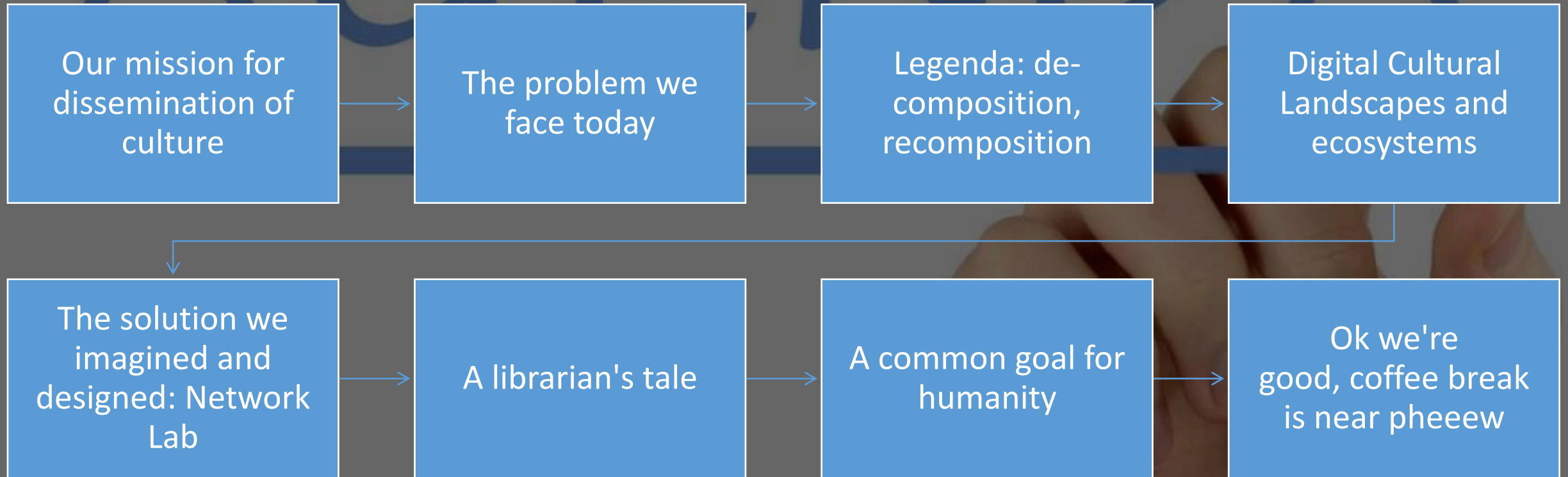
4SCIENCE
Share your knowledge

Modeling Digital Cultural Landscapes with DSpace

18th International Open Repositories
Conference (OR2023),
Stellenbosch University



AGENDA

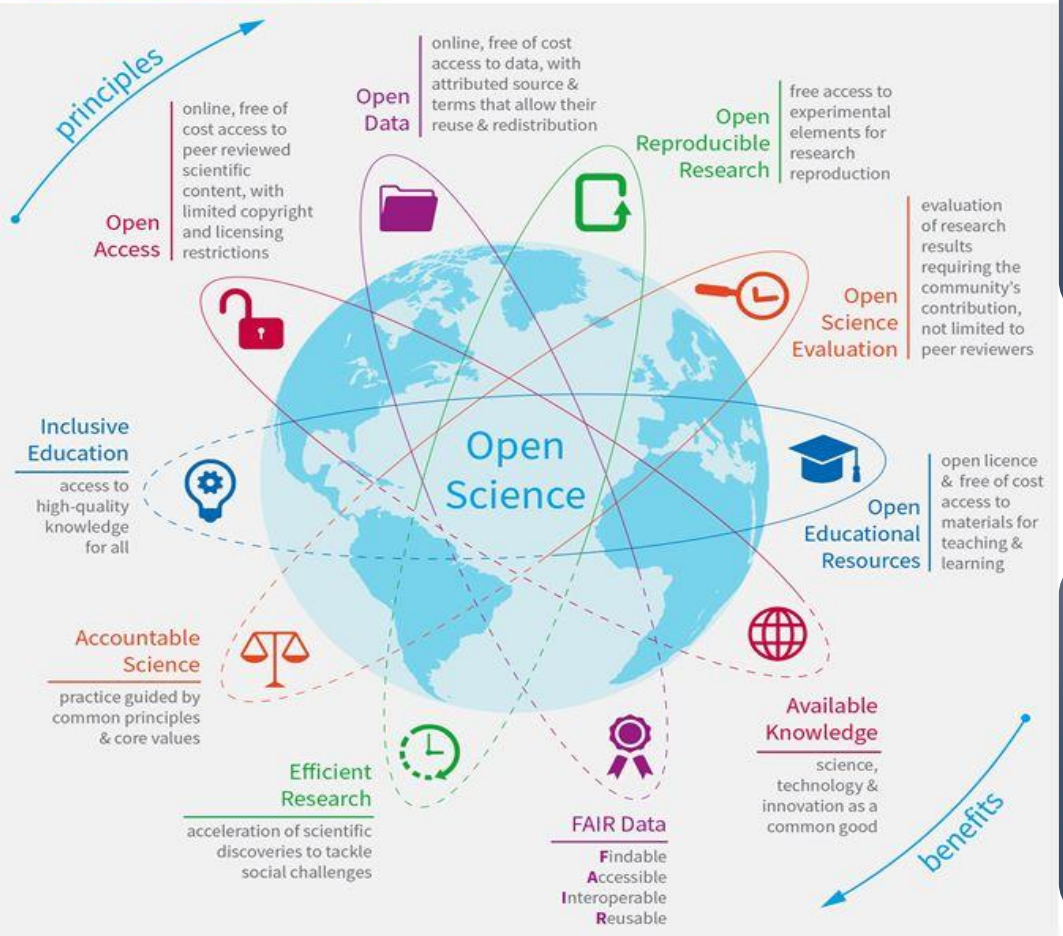


The power of infographics

Towards an Open Science

Since 2017 a global movement is gaining force and many countries are developing policies to guarantee the opening of publicly funded science, where research data, processes and results are freely accessible, under terms that enable their reuse, redistribution and reproduction. [1][2][3]
Open Science is...
 ... an essential path to global scientific development that enhances research quality and efficiency and improves public trust in research results.
 ... a requisite for an inclusive society that makes science available to all, fosters the integration of scientific knowledge across disciplines, and assumes responsibility for the social impact that results from scientific advancement.

The context in which we operate since 2016



We are driven by serving the open knowledge ecosystem.

Proprietary products often come with expensive licenses and pricing fluctuations, can become obsolescent and can result in vendor-lock-in.

Open knowledge helps to solve, by collaboration, the world's very pressing problems, and creates new opportunities, especially when cross-disciplinary.

Our open solutions (open standards, open protocols, open source) are designed to support open science.

[1] Towards a global consensus on open science: report on UNESCO's global online consultation on open science. UNESCO, 2020.
 [2] FOSTER portal <https://www.fosteropenscience.eu/>, accessed in March 2021
 [3] Science ouverte à l'Université de Genève: feuille de route pour un partage de connaissances scientifiques 2020-2023.

Time to imagine a real
context

**Irene Buso, Business Development
Manager**

Irene.buso@4science.com



What about the possible issue to be faced

- Mapped informations can be dramatically reduced it into the "atomic" fields required by the standards, and more generally by the need for an easier automatic management.
- Cultural Heritage digitization always implies the risk of information fragmentation.

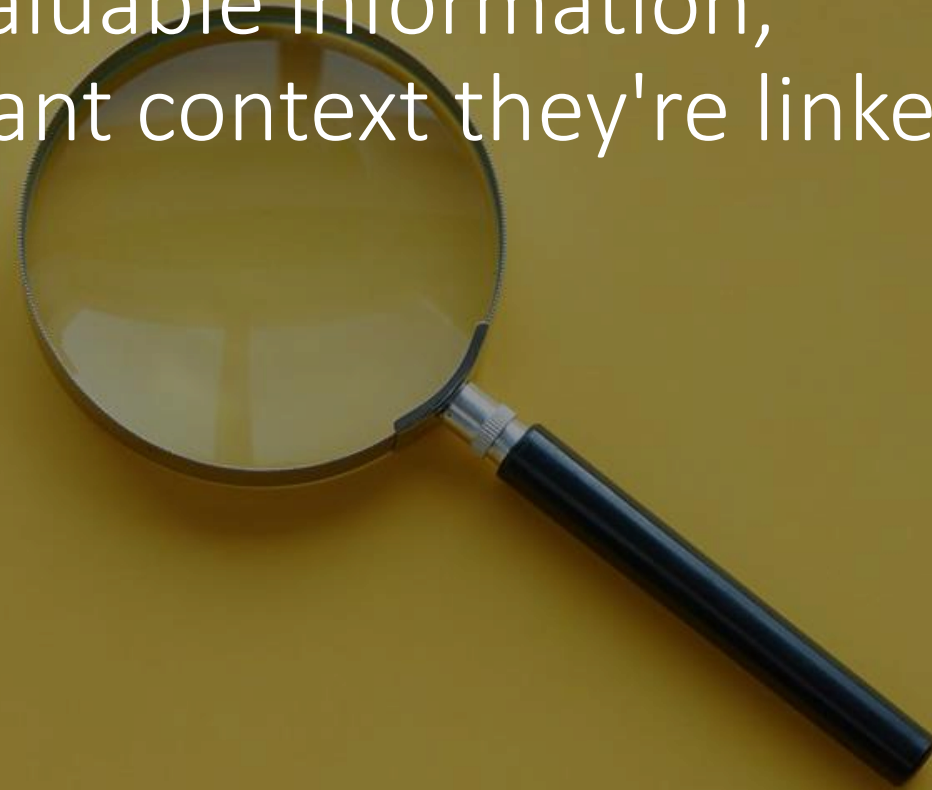
Where is the
wisdom we
have lost in
knowledge?

Where is the
knowledge we
have lost in
information?



Still, a knowledge reduced to information (to which we can add today, the risk of an information reduced to data), as said by T.S. Eliot, would be detrimental.

How often researchers and librarians struggle in the process of finding valuable information, and especially the relevant context they're linked to?



That's why we thought about DSpace-GLAM

- DSpace-GLAM it's a solution for managing Digital Libraries
- The GLAM acronym highlights the power to include and manage the cultural multi-domain: ancient and modern books, fonds, museums objects, documents, video, audio, maps, ...
- Provide an extended and extensible data model to display contextual relationships at different levels and to manage different metadata schemas and conceptual models

Virtual ecosystems to preserve your heritage, connecting informations

These virtual ecosystems today can be easily structured by cultural institutions, using a popular application such as DSpace, the world's most widely used open source Digital Asset Management System.

**Digital Libraries =
mere lists
of items grouped into
collections**

Built on top of DSpace

DSpace is an Open Source Digital Asset Management System, allowing out-of-box to:

- capture and describe digital objects using a submission workflow module, or a variety of batch ingest options
- distribute digital assets over the web through a search and retrieval system
- preserve Digital Assets over the long term



DSPACE

- There are over 3000 digital repositories and libraries worldwide using the DSpace application for a variety of digital archiving and dissemination needs.
- DSpace is often used as an institutional repository to provide access to research outputs, scholarly publications, library collections, educational material and more.



The system is based on the specifications of the OAIS (Open Archival Information System) for Long Term Preservation and is able to manage the whole "life cycle" of a digital object in terms of "Digital Curation", by means of:

- Metadata creation according to different standards
- SIP (Submission Information Package) import and validation
- AIP (Archival Information Package) creation
- AIP export
- Digital resources dissemination (also by means of the OAI
- PMH)
- Digital object history management and integrity check



DSPACE

It supports many file formats, but historically has lacked specific support for presenting and sharing digital objects online.

Imagine a
solution for
putting
informations in
context,
enriching
knowledge

- 4Science has developed modules and add-ons since 2017 to enhance DSpace, the world's most widely used open-source Digital Asset Management System.
- Key components, such as Configurable Entities and support for IIF, are now part of the core DSpace platform.

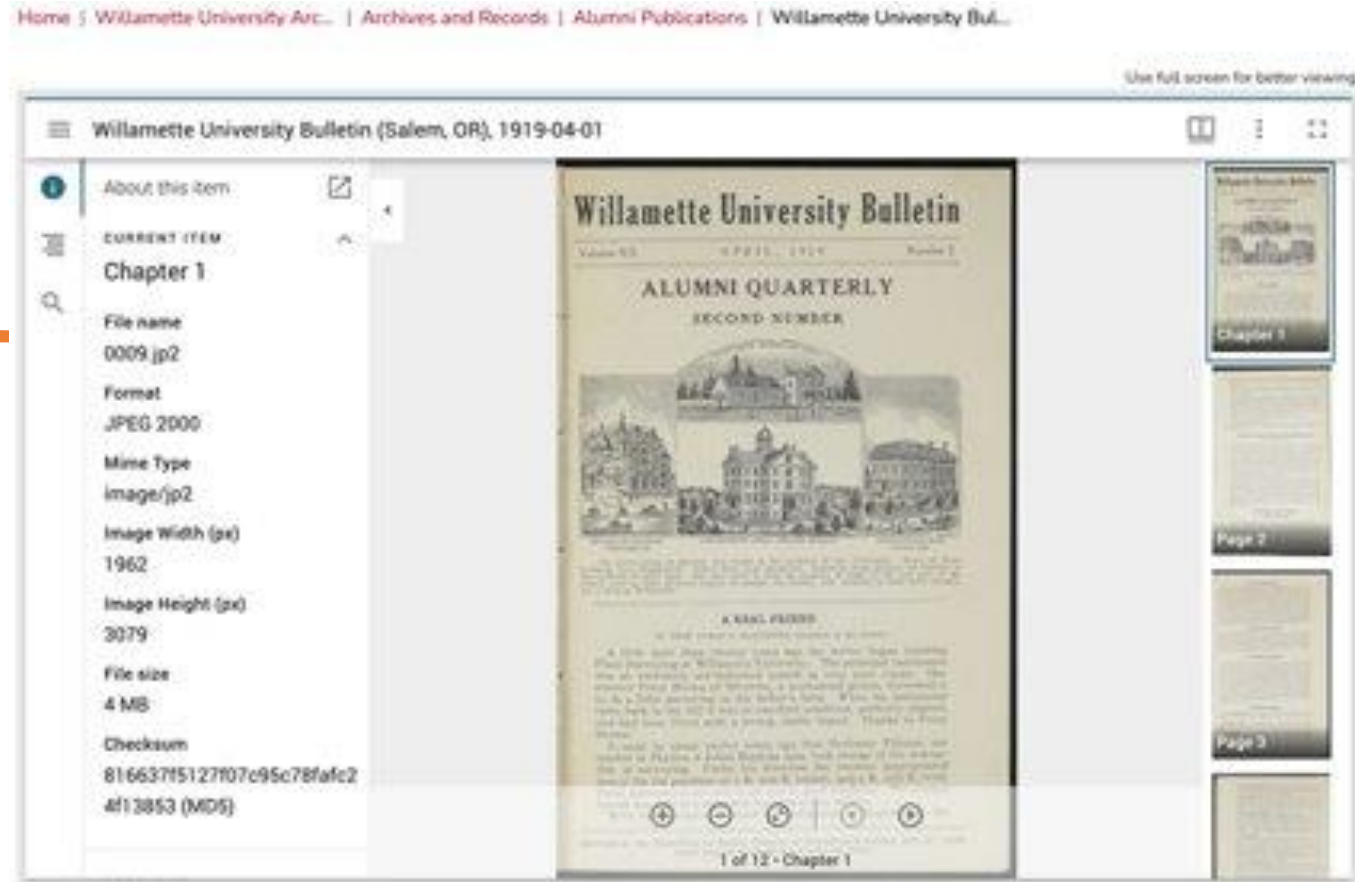
Search options are added dynamically based on Item metadata.

Mirador can help!

Mirador IIF Image Viewer add-on enhances document analysis in DSpace.

It provides image processing tools and annotation features.

Importing images from other IIF compliant applications allows for comparison and immersive exploration.



Willamette University Bulletin (Salem, OR), 1919-04-01



Citation

volume 12 issue 2 edition 1

URI

<https://digitalcollections.willamette.edu/handle/10177/7126>

Collections

Alumni Publications

Galleries, Libraries, Archives, Museums

Materials from Museums, Archives, Libraries can be explored in an integrated way, but without losing the granularity of cataloging required by the respective domain standards.

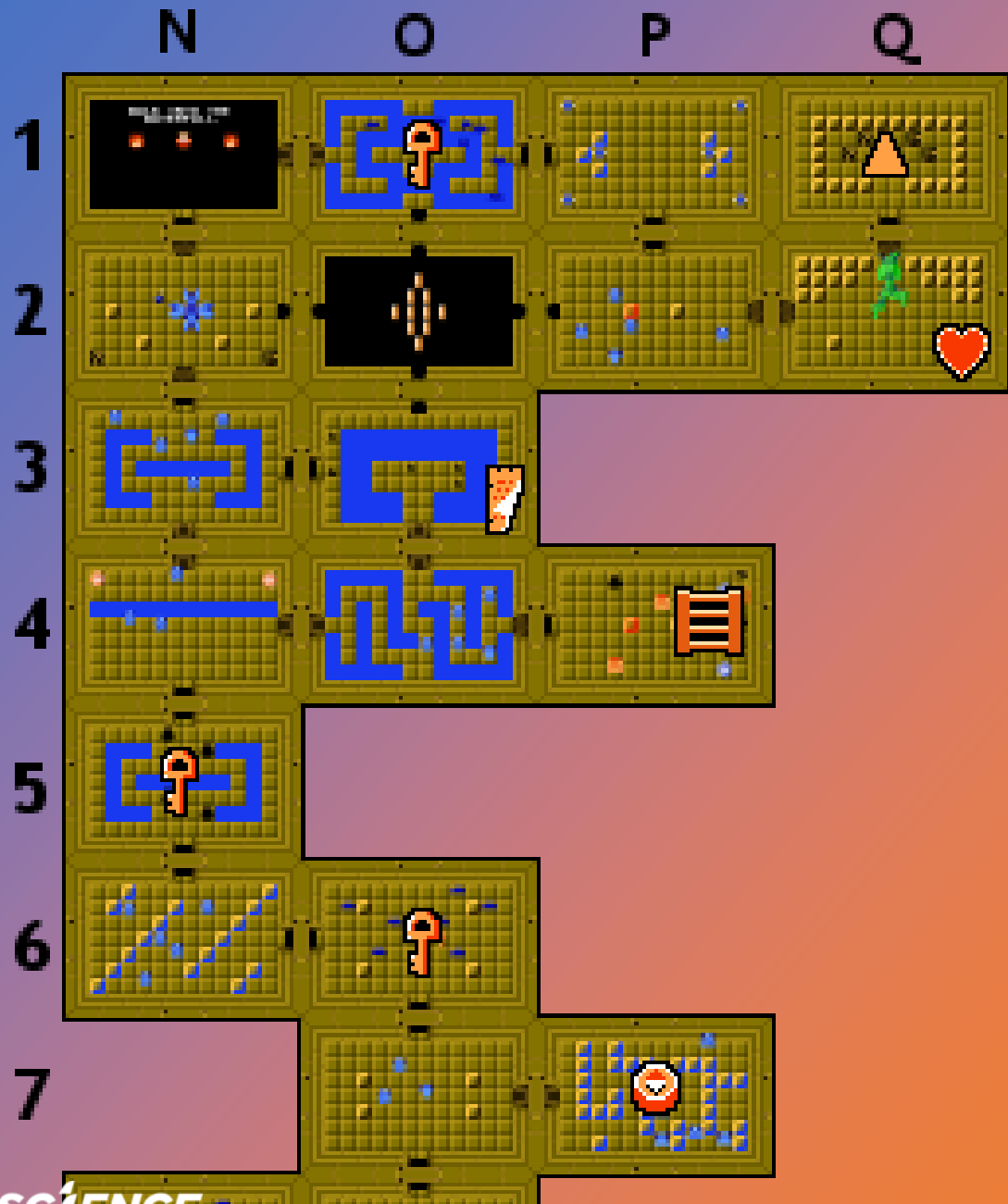
Cultural Metadata, International Standards

(ICCD, ICAR, ICCU, EDM, etc.)

Metadata related to other domains (tourism, botany)

Annotating Images: the Digital Library as an educational, study and research tool

In DSpace-GLAM each digital object and each concept (Person, Event, Place, Path, etc.) is a node in a single semantic network and IIF is perfectly integrated in it



Problem: preserving
from mere
decomposition of
information

This should be precisely only a starting point
toward its re-composition and subsequent
enrichment, in order to produce new
knowledge.

But the context of a document should be
explored in relation to other related
documents: historical, geographical, and
cultural information.

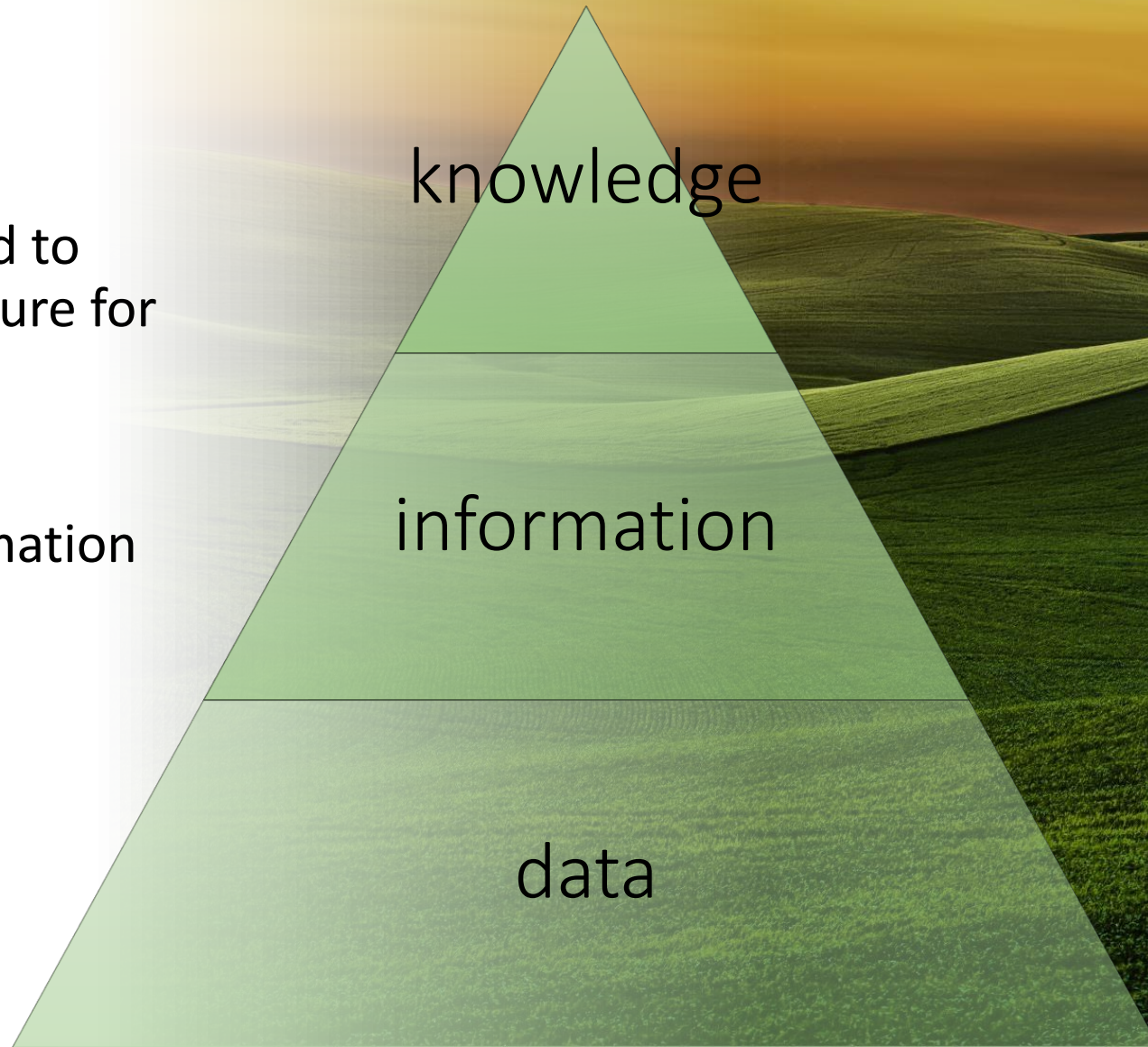
What are digital cultural landscapes?

In a Digital Library environment, we can define Digital cultural landscapes as “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 a pluralism generating new knowledge and opening up new perspectives.

Digital Cultural Landscapes

Should be designed to
enable a better future for
research

by enriching information
from the past!

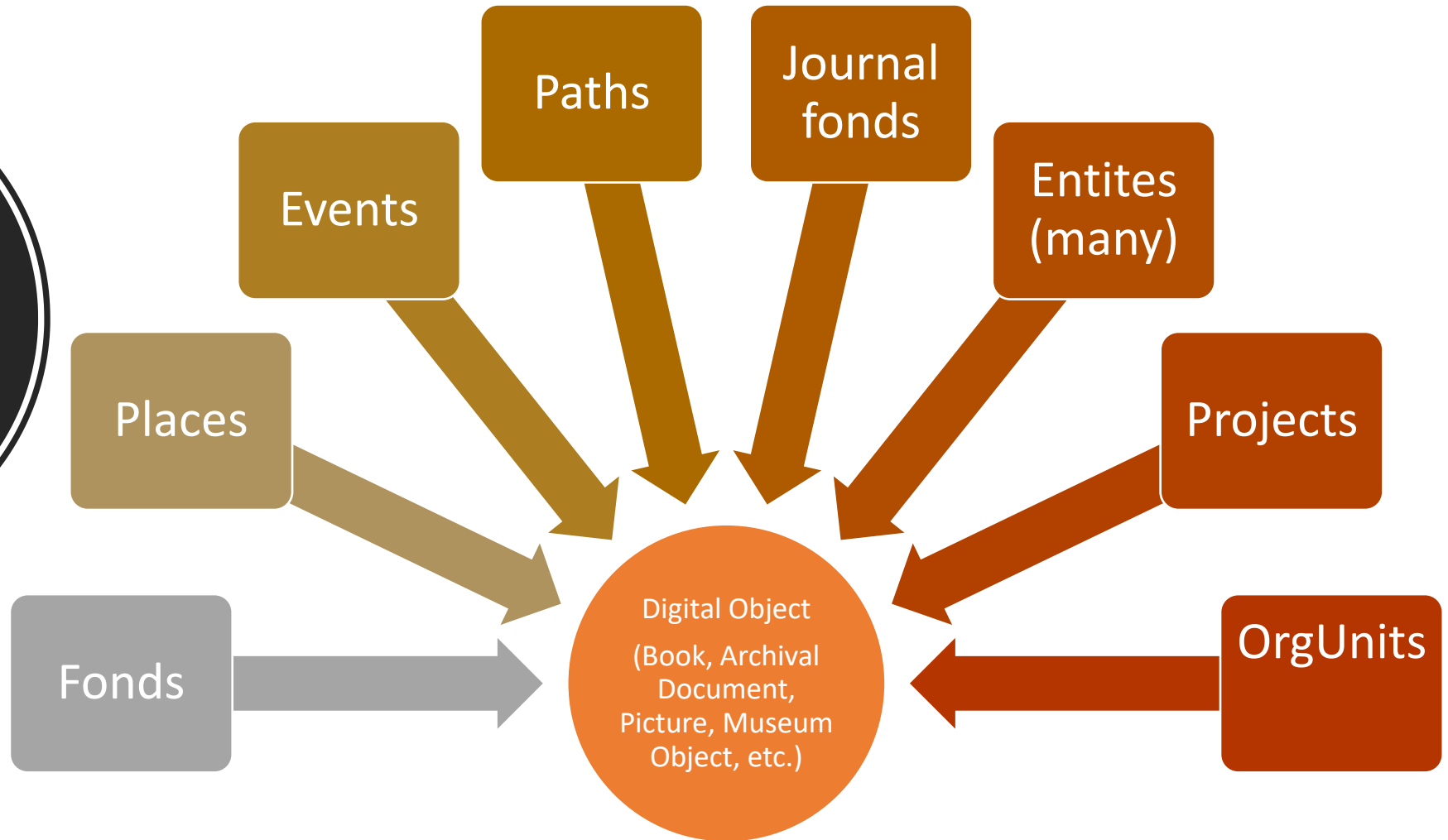


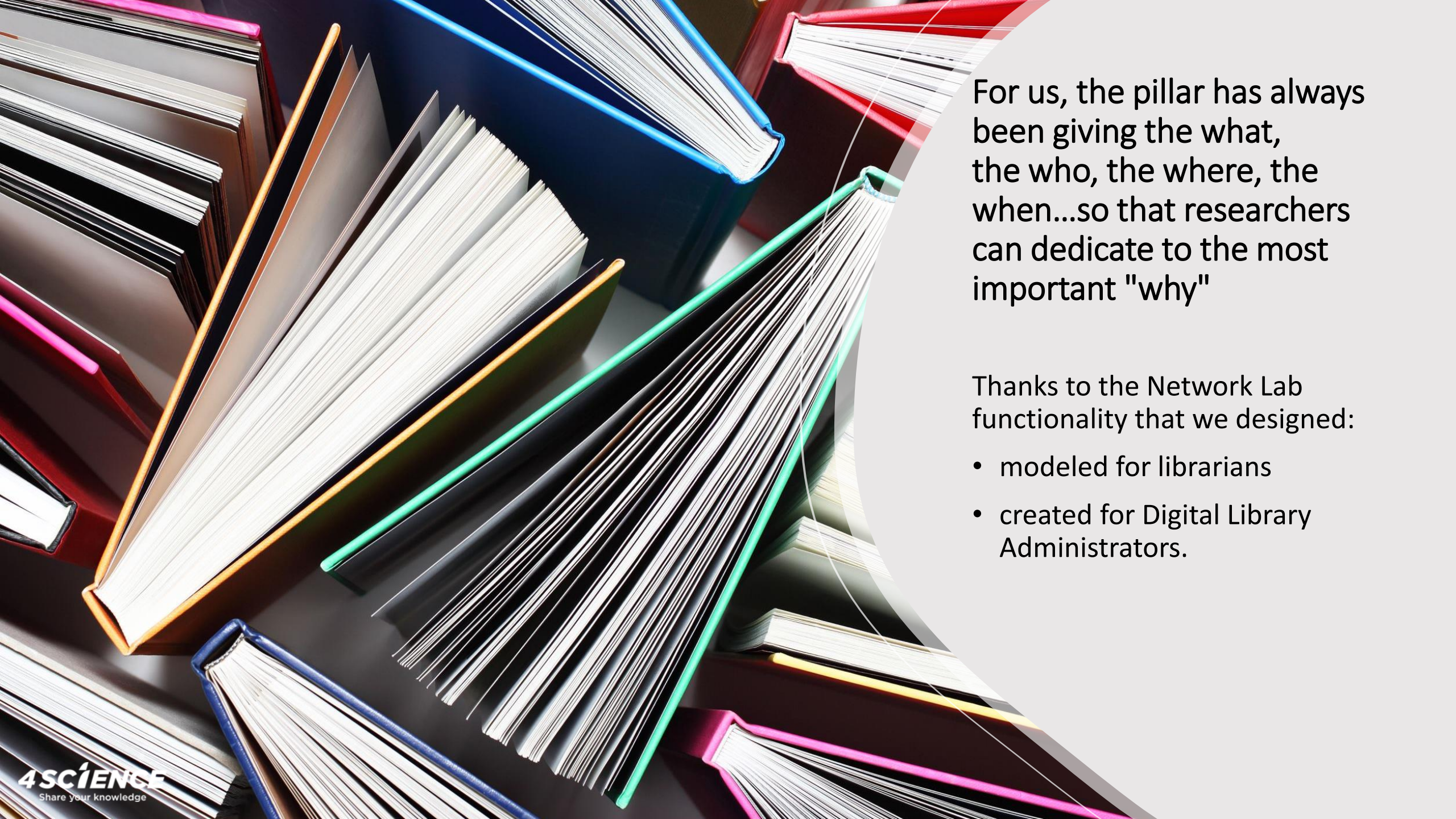
...enriching research, and the future of it

Our goal is to enrich DSpace with a flexible, customizable, and extensible data model for contextual relationships, in order to structure digital cultural landscapes to go beyond repository boundaries.



An extended data model





For us, the pillar has always been giving the what, the who, the where, the when...so that researchers can dedicate to the most important "why"

Thanks to the Network Lab functionality that we designed:

- modeled for librarians
- created for Digital Library Administrators.

Person



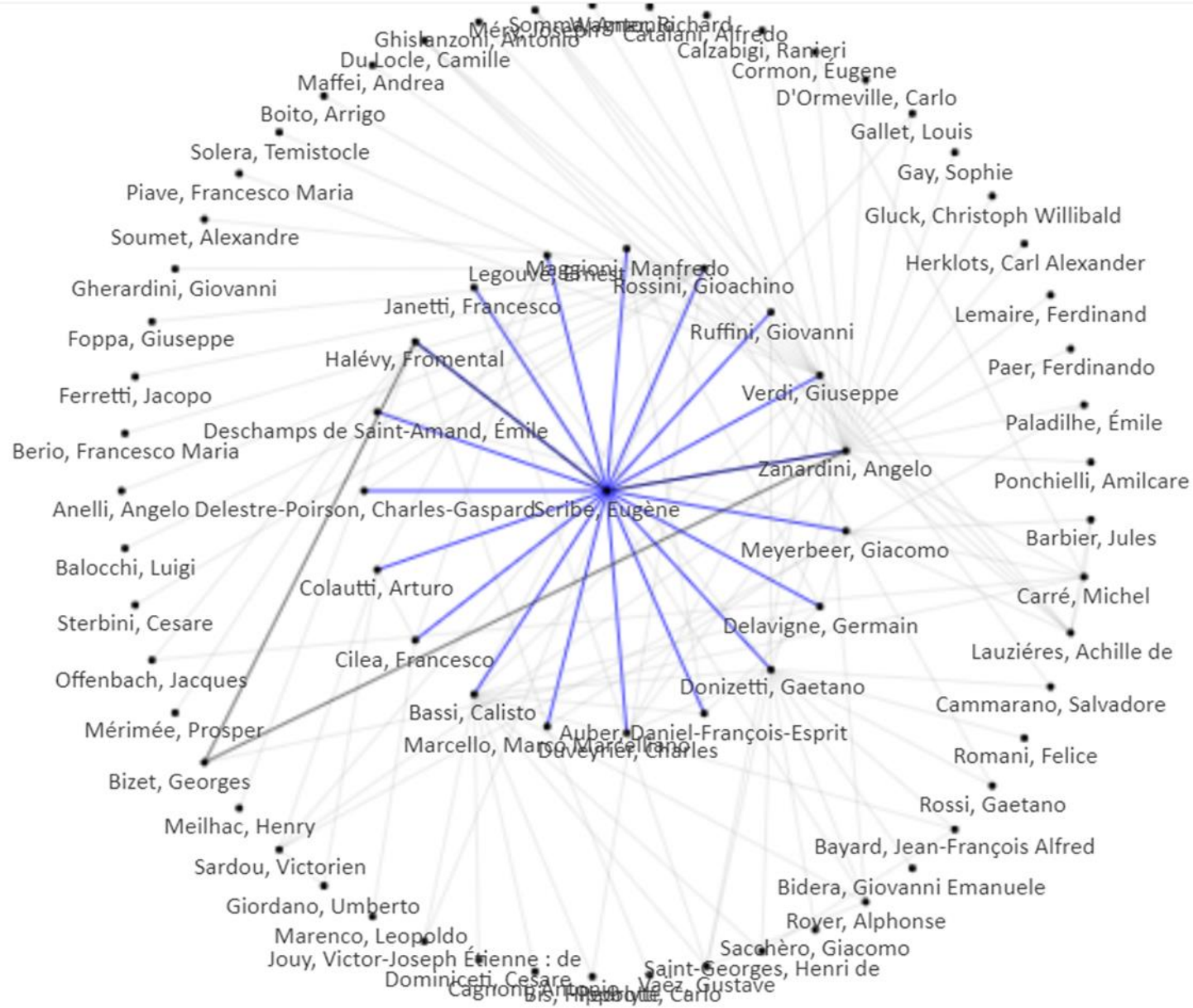
Scribe, Eugène

AND

Cognate Person



Bizet, Georges

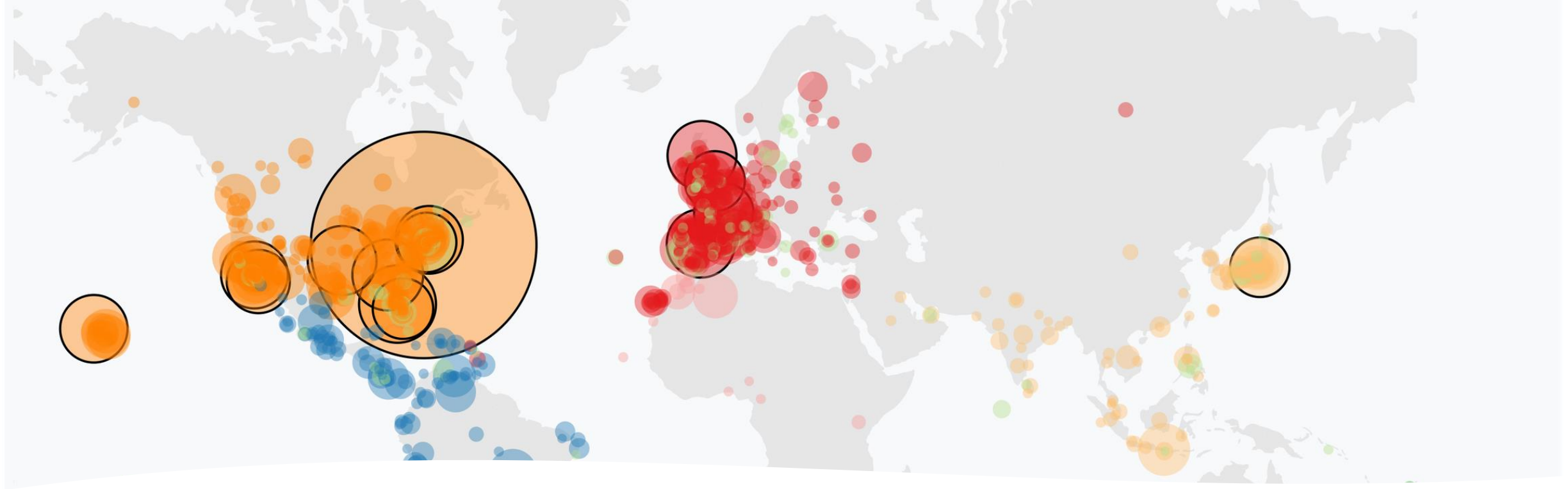




How does Network Lab module works?

simple graph mode: the graph is focused on a specific entity, e.g. researchers. Each node in the graph is an instance of the same entity, linked with the other ones through shared relationships with other entities:

- researchers who are co-authors of the same publications
- researchers participating in the same events
- researchers participating in the same projects
- organizations involved in the same projects
- etc.



How does Network Lab module works?

map mode: the graph is displayed on a world map or country/region map where each node is a geolocated entity instance with which the focus instance is connected through shared relationships with other entities (e.g. collaborations at institutional level through projects, partnerships, publications, etc.).

Each node will be presented as a bubble of different size according to the intensity of the collaboration with the location of the entity on focus (i.e. the university owner of the CRIS or a specific unit).

The connection among partner universities will help to understand which are the common partnership clusters.

Different colors will be used when multiple types of collaboration are explored simultaneously (i.e. co-publishing, co-investigation, etc.).

How does Network Lab module works?

Valuing the same metadata with multiple authors enables the automatic creation of the "Network lab," the network of collaborations.

If the same metadata is not used to enter the different authors of an item, the "Network lab" cannot be activated.

By configuring the relationship type as a virtual relationship (such as IS_COAUTHOR_OF can be) then a special service can be used to compose a particular query that results in nodes linked together by virtual relationships.

All of these virtual relationships can be navigated and selected.

Browsing graphs from UI!

- The graphs can be managed from the UI, choosing the relationships to be visualized and defining the degrees of separation from the focus to be displayed.
- It is possible to configure detailed maps going down to the country level (e.g. for Switzerland, Italy, France, etc.).
- It is possible to hide specific relationships from the graph as well as enable/disable nodes or connections.
- It is possible to normalize the graph (e.g. radial with equidistant nodes).



A possible solution:
networks, paths, lists:
explore relationships in
a holistic environment

Fully Open - to ensure connected
culture is our common heritage,
and access to it is not a privilege.





How much is worth the time saved
in exploring connections?



...events

...related places



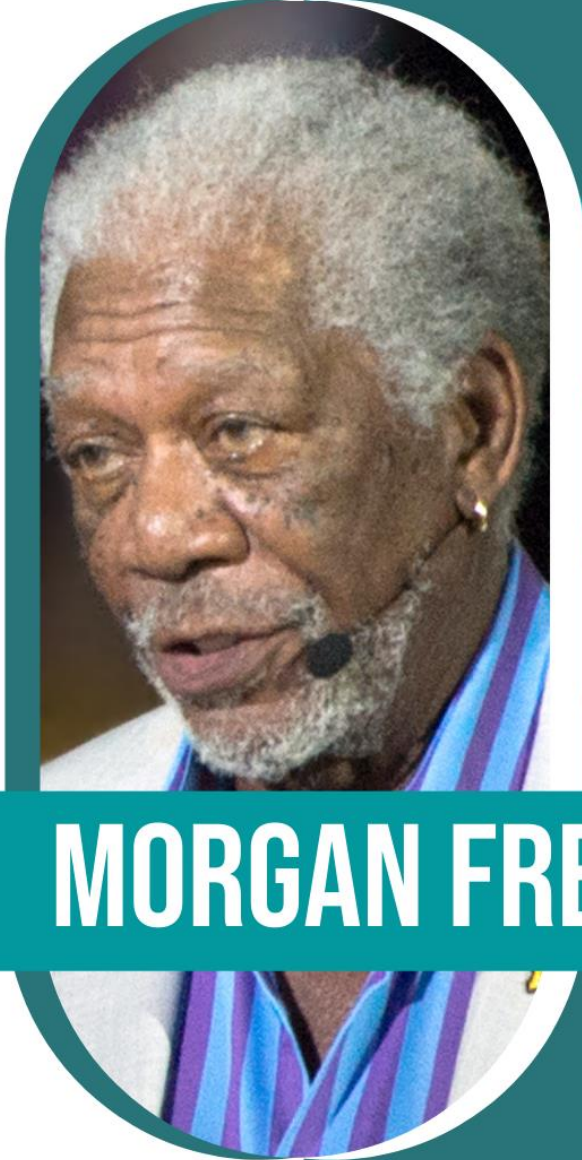
...related people



multi-level and
indirect relationships
that could tell a story



...that could
really open up
unexpected
research
perspectives.





MORGAN FREEMAN

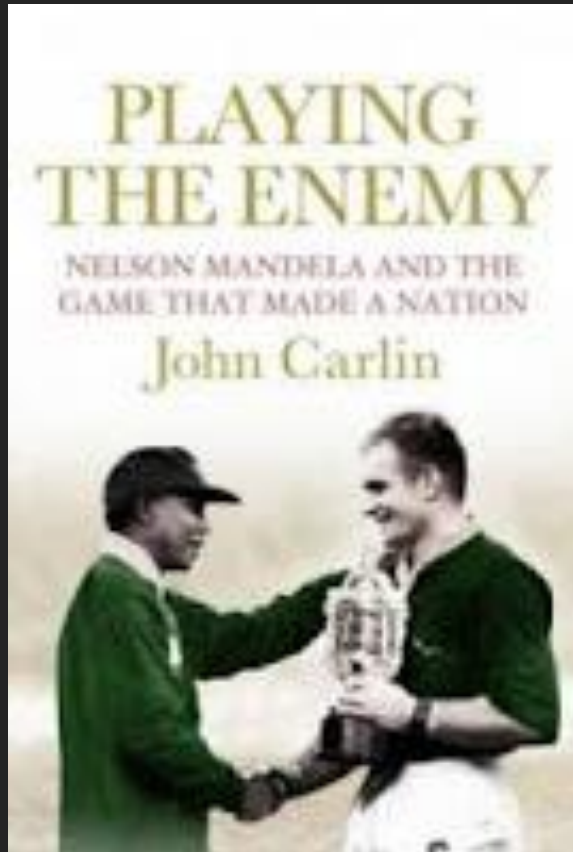
Born
June 1, 1937
Memphis,
Tennessee, U.S.

Education
Broad Street High
School

Occupation
Actor | Director |
Producer | Narrator

Years active
From 1964





...through their source(s) of origin



GLAM: an immersive journey through a comprehensive platform

that enables to exploit an hermeneutic approach with data analysis and visualization tools.

Re-composing knowledge
of the past to lead the way
towards a better future



4Science



4Science International



4ScienceIT



4ScienceDSpace

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