UNIVERSITÀ DEGLI STUDI DI PADOVA | SBA SISTEMA BIBLIOTECARIO DI ATENEO

Metadata as Semantic Palimpsests
The case of PHAIDRA@unipd

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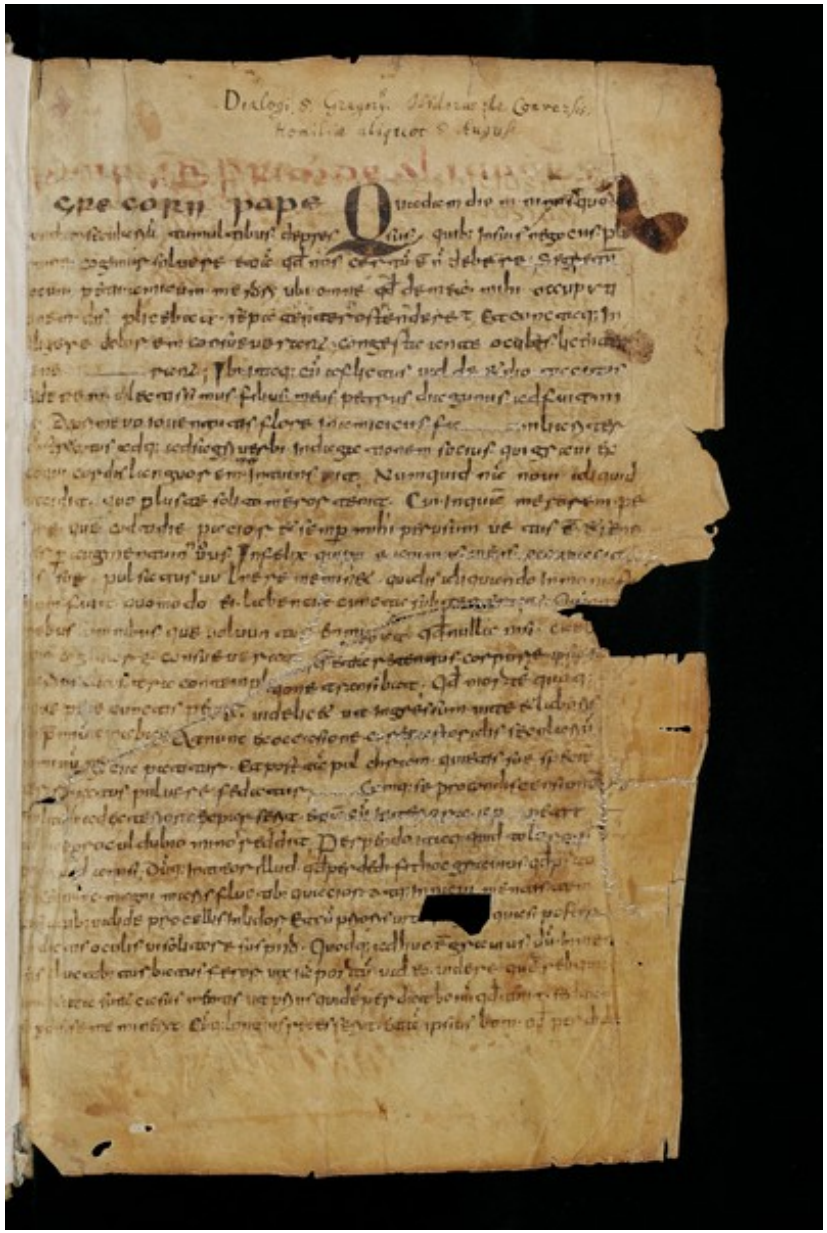
Table of Contents

PHAIDRA@unipd,

Metadata as semantic palimpsests: why?



Originally the term referred to a type of medieval manuscript in which new text was written over previous text that had been partly erased

Latin *palimpsēstu(m)*, from Greek *palímpsēstos* scraped again, from *pálin* + psân to rub, scrape

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Metadata as semantic palimpsests: why?

In the context of this presentation, palimpsest is the metaphorical key to a conceptual model of a data schema (place) meant as a multilayered structure which emphasizes the coexistence of multiple data models (and visions)

PHAIDRA@unipd,
Identity card

PHAIDRA stands for **Permanent Hosting, Archiving and Indexing of Digital Resources and Assets**

It is the platform of the University Library System of Padova for the **long-term archiving** of digital objects and collections

Designed and developed by the **University of Vienna** beginning in **2008** based on the digital architecture of the Fedora open source system, Phaidra was adopted by the University of Padova in **2010**

https://phaidra.cab.unipd.it/

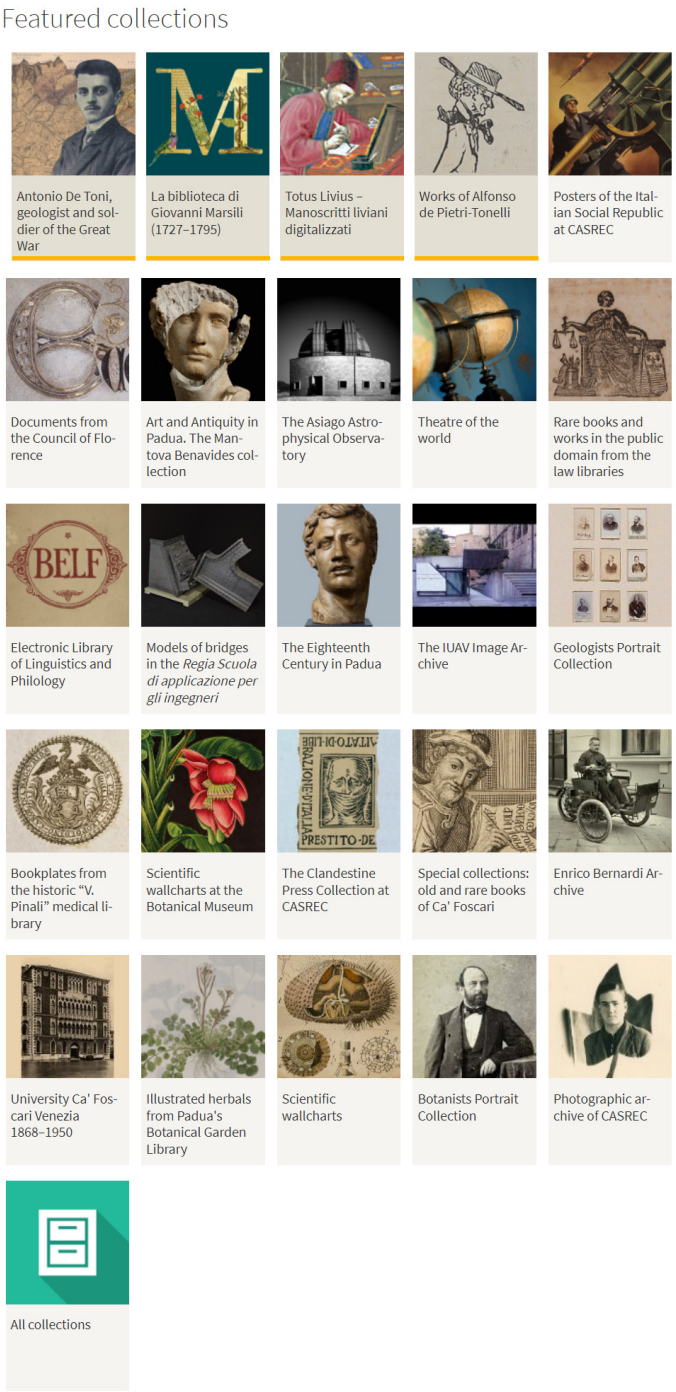
PHAIDRA@unipd,

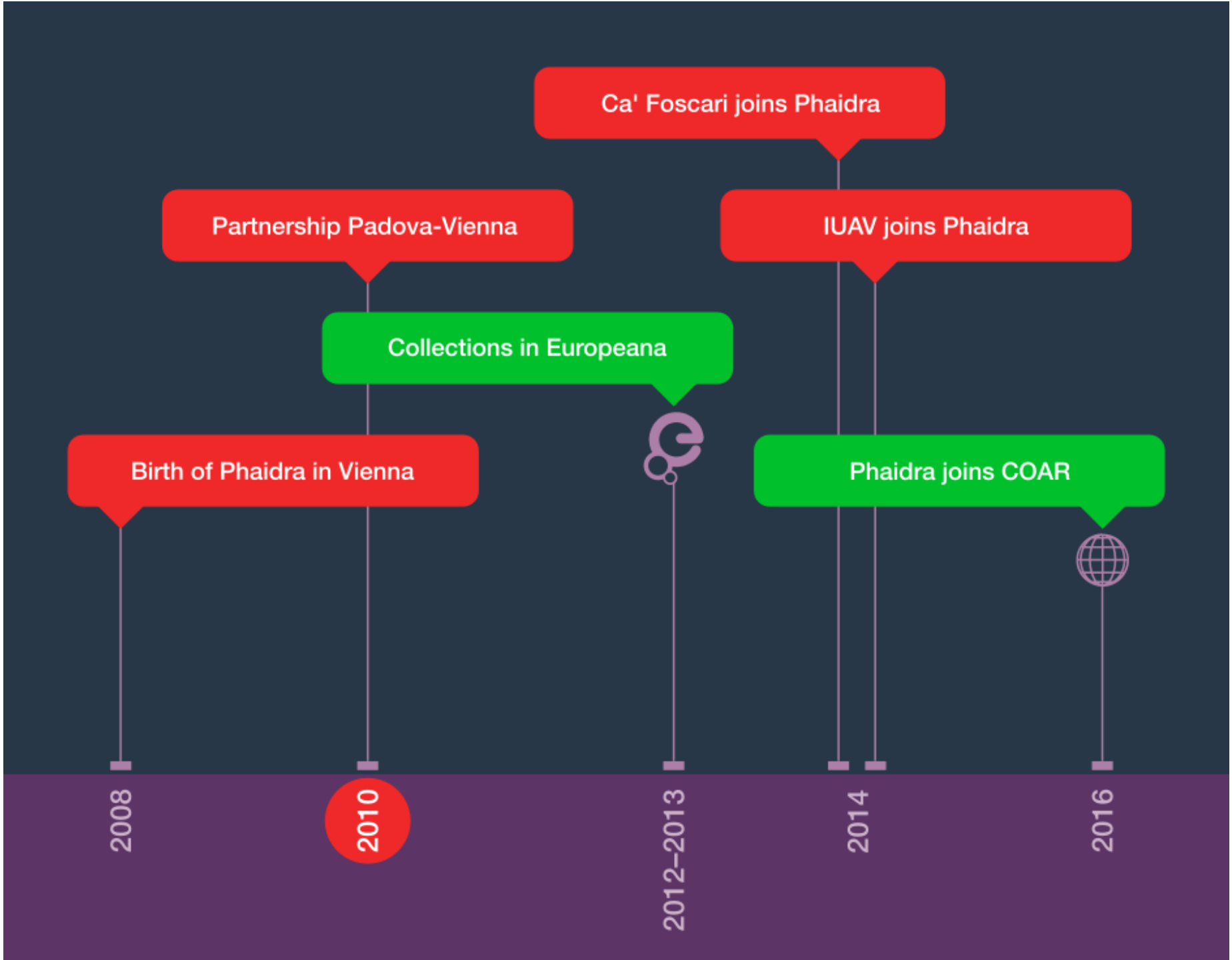
Cultural heritage objects and collections

Phaidra currently hosts a vast range of **over 390,000 digital objects**

including antiquarian books, manuscripts, photographs, wall charts, maps, learning objects, films, archival material and museum objects,

informing the **heterogeneous richness** of the University's digital collections of cultural heritage




Ca' Foscari joins Phaidra
Partnership Padova-Vienna
IUAV joins Phaidra
Collections in Europeana
Birth of Phaidra in Vienna
Phaidra joins COAR
2008
2010
2012–2013
2014
2016

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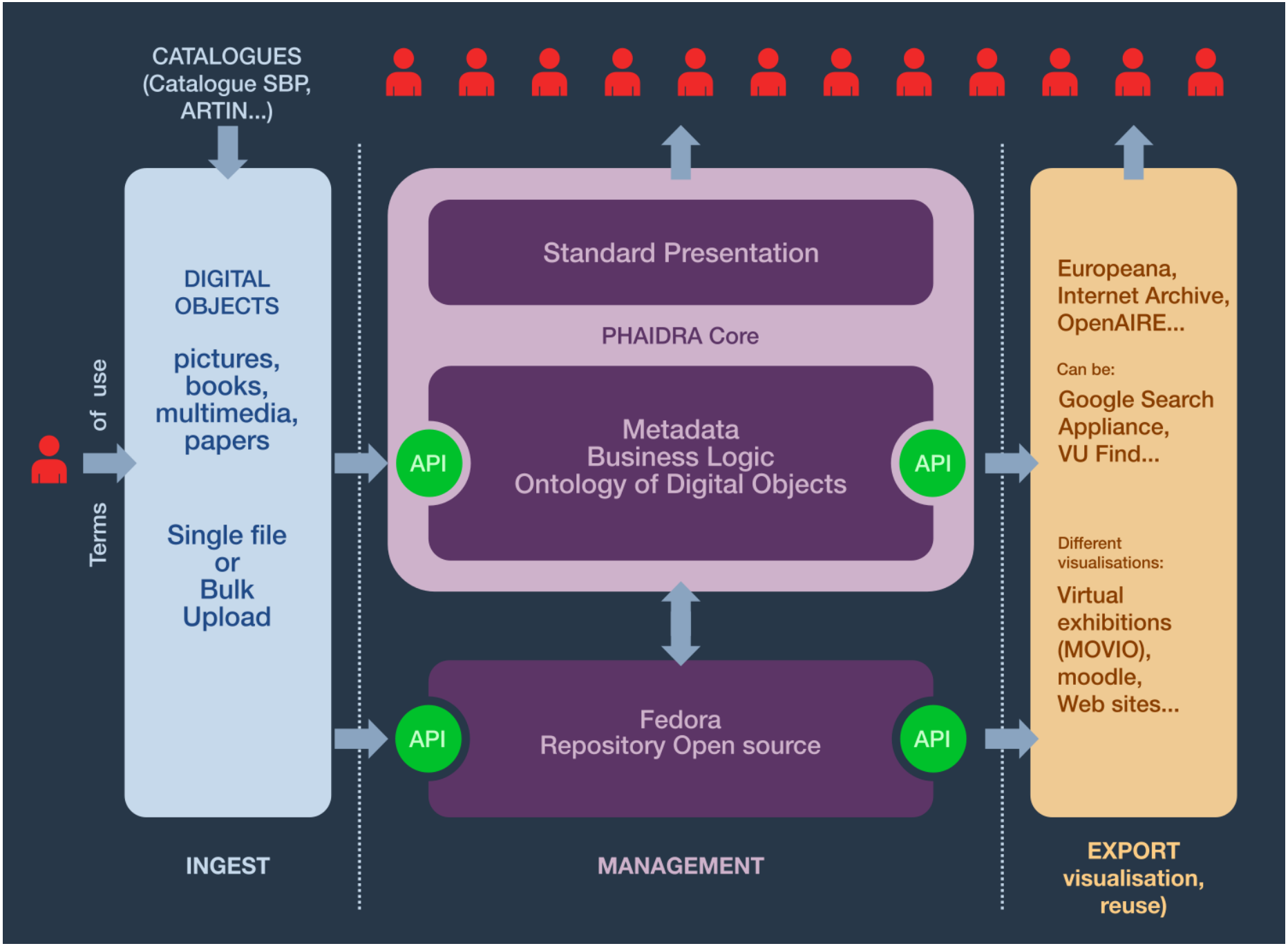
Discrete features

data heterogeneity in terms of kind of data content as well as of data provenance coming from departments and research centres, archives and museums as well as from libraries' digitisation projects

data aggregation by acting as an attraction for other cultural heritage institutions of the region, PHAIDRA@unipd has a function of institutional

data aggregator, that is an organisation that collects and aggregates, creates and administers metadata from multiple content providers, serving as

data service through its Portal and Web-API, as well as **data provider** by exposing data through the OAI-PMH Protocol


CATALOGUES
(Catalogue SBP,
ARTIN...)
Terms of use
DIGITAL
OBJECTS
pictures,
books,
multimedia,
papers
Single file
or
Bulk
Upload
INGEST
Standard Presentation
PHAIDRA Core
API
Metadata
Business Logic
Ontology of Digital Objects
API
API
Fedora
Repository Open source
API
MANAGEMENT
Europeana,
Internet Archive,
OpenAIRE...
Can be:
Google Search
Appliance,
VU Find...
Different
visualisations:
Virtual
exhibitions
(MOVIO),
moodle,
Web sites...
EXPORT
visualisation,
reuse)

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The data model and the reasons for a revision urge

The expansion of this aggregative and meta-aggregative function of heterogeneous metadata from similarly heterogeneous origins has raised the urgent need for a critical analysis of the foundational data model of Phaidra, both from the point of view of its mapping and conversion into the Dublin Core metadata scheme (Dublin Core Metadata Element Set 1.1) aimed at its publication in the OAI-PMH Phaidra data provider, as well as the visualisation and presentation of data in the Phaidra web interface

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The data model and the reasons for a revision urge

The crucial issue was how
to model, expose,
and visualise
data heterogeneity
without losing
the intrinsic richness
of data sources

making heterogeneity
interoperable preserving and
exploiting metadata quality
and display

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UWmetadata data model

Universität Wien metadata, abridged to UWmetadata, is the the foundational data model of Phaidra

It informs the design of Phaidra metadata, both in terms of representation of the values as well as the description of the contents

It is an example of application profile being the result of the expansion of the IEEE Learning Object Metadata (LOM) standard (IEEE 1484.12.1 – 2002) and the combination of elements of different metadata namespaces

LOM schema is a data model used to describe learning objects or digital resources for educational purposes such as learning supports

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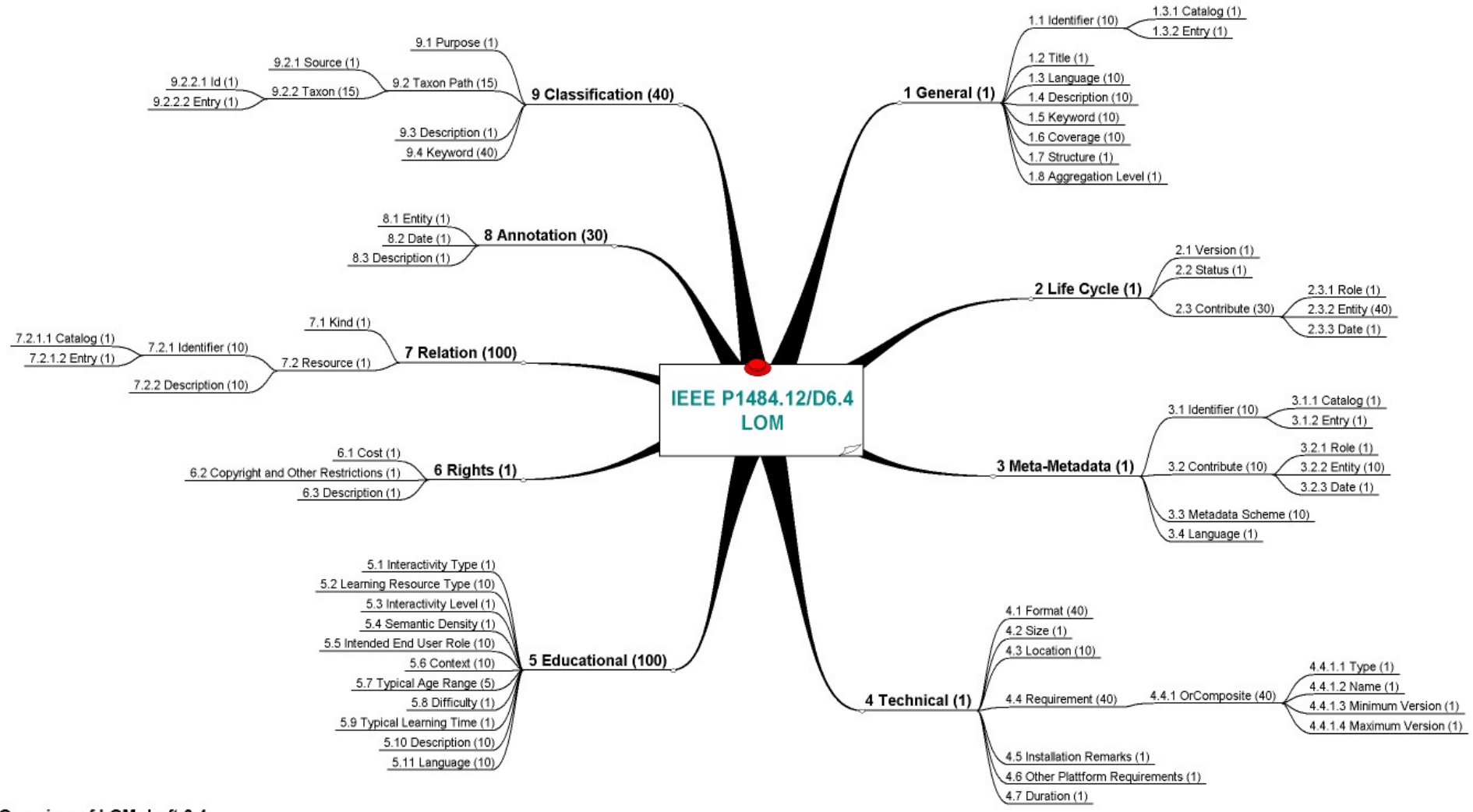
LOM conceptual map by T. Herrmann



Overview of LOM draft 6.4

The numbers in parenthesis show the multiplicity of the element. Numbers greater than 1 indicate the smallest permitted maximum of entries an implementation must allow. This mind map was prepared by Thomas Herrmann, Teleteach GmbH, Germany. Please send any comments to th@teleteach.de

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UWmetadata: a LOM application profile

UWmetadata	Explanation
Contextual allegation	This category defines the physical description of primary data
Provenience	This category defines the provenance of primary data
Digital Book	This category describes the bibliographic information of digital books

UWmetadata extends the LOM schema with further additional top level categories aiming to represent primary data stored in Phaidra (Contextual allegation and Provenience respectively), digital books (Digital book), and electronic thesis (eThesis, not implemented at PHAIDRA@unipd.it)

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UWmetadata data model

```
<ns0:uwmetadata xmlns:ns0="http://phaidra.univie.ac.at/XML/metadata/V1.0" xmlns:ns1="http://phaidra.univie.ac.at/XML/metadata/l
  <ns1:general>
    <ns1:identifier>o:404705</ns1:identifier>
    <ns1:title language="la">Amorum emblemata, figuris aeneis incisa studio Othonis Vaeni Batauo-Lugdunensis</ns1:title>
    <ns1:language>la</ns1:language>
    <ns1:language>it</ns1:language>
    <ns1:language>fr</ns1:language>
    <ns1:description language="it">Antverpiae : Venalia apud Auctorem, 1608 (Typis Henrici Suuingenii)
    <ns1:keyword language="it">Marsili; Biblioteca Universitaria Padova</ns1:keyword>
    <ns1:coverage language="it">Anversa</ns1:coverage>
    <ns1:coverage language="it">1608</ns1:coverage>
    <ns2:irdata>no</ns2:irdata>
    <ns2:identifiers>
      <ns2:resource>1552151</ns2:resource>
      <ns2:identifier>BA1E012307</ns2:identifier>
    </ns2:identifiers>
    <ns2:identifiers>
      <ns2:resource>1552151</ns2:resource>
      <ns2:identifier>001983851</ns2:identifier>
    </ns2:identifiers>
  </ns1:general>
  <ns1:lifecycle>
  <ns1:technical>
  <ns1:rights>
  <ns1:classification>
  <ns1:organization>
  <ns9:histkult>
  <ns10:provenience>
  <ns12:digitalbook>
</ns0:uwmetadata>
```

UWmetadata structures the metadata in accordance with a hierarchy of elements defined in nine top-level categories, containing groups of attributes in a tree structure

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UWmetadata2Dublin Core:
crosswalk activities

Aimed to establish an inter-schema correspondence of elements, the syntax and semantics of the two schemas involved, adopting a relative translation mode, namely trying to map each source element into at least one of the target elements, in order to avoid as much as possible any loss of information recorded in the source schema

Es.: Title → many-to-one:

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UWmetadata2Dublin Core: crosswalk activities

Title → many-to-one:

```
<ns1:general>
    <ns1:title language="en">Title</ns1:title>
    <ns2:subtitle language="en">Subtitle</ns2:subtitle>
    <ns2:alt_title language="fre">Alternative title
    </ns2:alt_title>
</ns1:general>

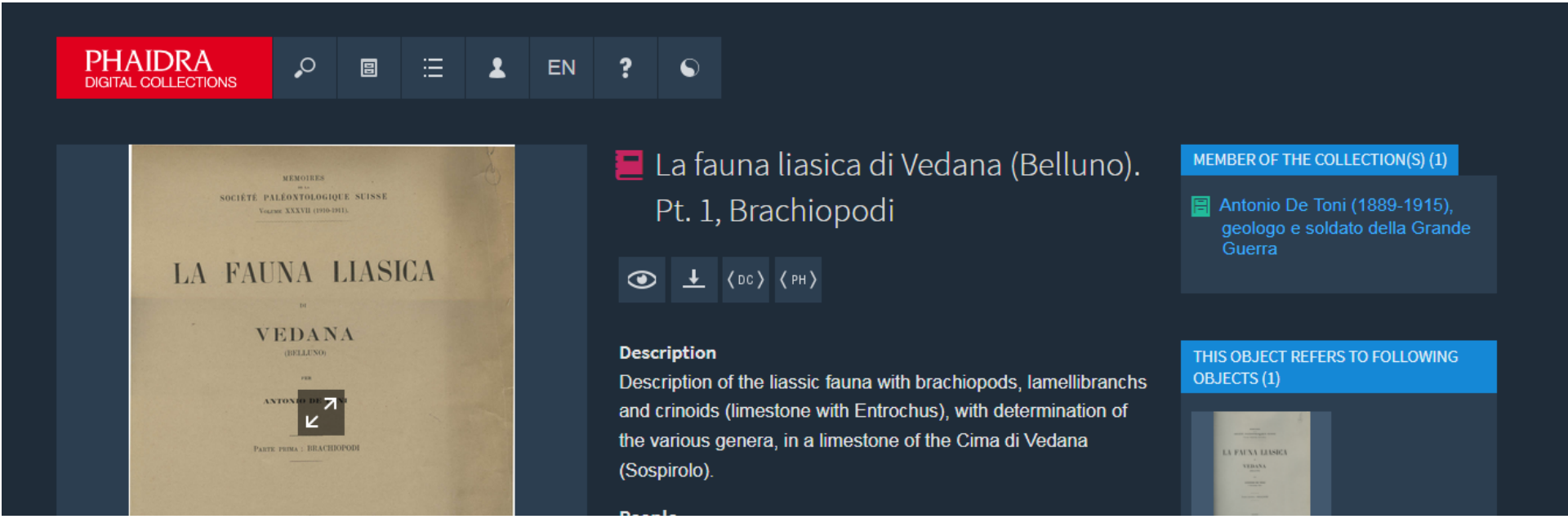
<dc:title xml:lang="en">ns1:title. ns2:subtitle</dc:title>

Alternative title
<dcterms:alternative>ns2:alt_title</dcterms:alternative>

<mods:titleInfo type="alternative" displayLabel="">
   <mods:title>ns2:alt_title</mods:title>
</mods:titleInfo>
```

```
<ns1:general>
<ns1:title language="it">La fauna liasica di Vedana
(Belluno)</ns1:title>
<ns2:subtitle language="it">Pt. 1, Brachiopidi</ns2:subtitle>
</ns1:general>
```

```
<dc:title xml:lang="ita">La fauna liasica di Vedana
(Belluno). Pt. 1, Brachiopidi</dc:title>
```



UWmetadata2Dublin Core,

Working with entities: Actors

The authorial entity → *Person*, *Institution* has been defined from the point of view of the intellectual level of contribution in the creation of Phaidra CHO → *Creator*, *Contributor*, and role → *Phaidra Roles Vocabulary*, as well as from that of the mode and form of data value recorded in the source elements

In the context of PHAIDRA_DC profile, the elements *Creator*, *Contributor* define entities who are responsible for making or for making contributions to the resource, both born-digital and digitised

By the updated version 1.1 2018, the UWmetadata actor elements embedded also specific subelements to host the international standards codes for author identification such as from ORCID, VIAF, ISNI, LCNAF… etc.

UWmetadata2Dublin Core,
Working with entities: Actors

```
<ns1:lifecycle>
     <ns1:contribute seq="0">
      <ns1:role>1552095</ns1:role>
      <ns1:entity seq="0">
        <ns3:firstname>Otto</ns3:firstname>
        <ns3:lastname>van Veen</ns3:lastname>
        <ns3:type>person</ns3:type>
      </ns1:entity>
    </ns1:contribute>
</ns1:lifecycle>
```

Phaidra Roles
Vocabulary → **Author**

Phaidra entity
Type → **Person**

```
<dc:creator>van Veen, Otto</dc:creator>
```

People
van Veen, Otto (Author)

```
<ns1:lifecycle>
    <ns1:contribute seq="">
        <ns1:role>PHAIDRA role code for Creator,
        Contributor, person</ns1:role>
        <ns1:entity seq="">
            <ns3:firstname>Firstname</ns3:firstname>
            <ns3:lastname>Lastname</ns3:lastname>
            <ns3:type>person</ns3:type>
        </ns1:entity>
        <ns1:date>Date expressed as YYYY</ns1:date>
    </ns1:contribute>
</ns1:lifecycle>
```

```
        <dc:creator>ns3:firstname, ns3:lastname</dc:creator>
        <dc:creator>van Veen, Otto</dc:creator>

        <dc:contributor>
        ns3:firstname,ns3:lastname(ns1:role)<dc:contributor>
        <dc:contributor>Bol, Cornelis (Engraver)</dc:contributor>
```

People
Lastname, Firstname (Role)
van Veen, Otto (Author)
Bol, Cornelis (Engraver)

```
<ns1:lifecycle>
    <ns1:contribute seq="">
        <ns1:role>PHAIDRA role code for Creator, Contributor,
        institution</ns1:role>
        <ns1:entity seq="">
            <ns3:institution>Institution</ns3:institution>
            <ns3:type>institution</ns3:type>
        </ns1:entity>
        <ns1:date>Date expressed as YYYY</ns1:date>
    </ns1:contribute>
</ns1:lifecycle>
```

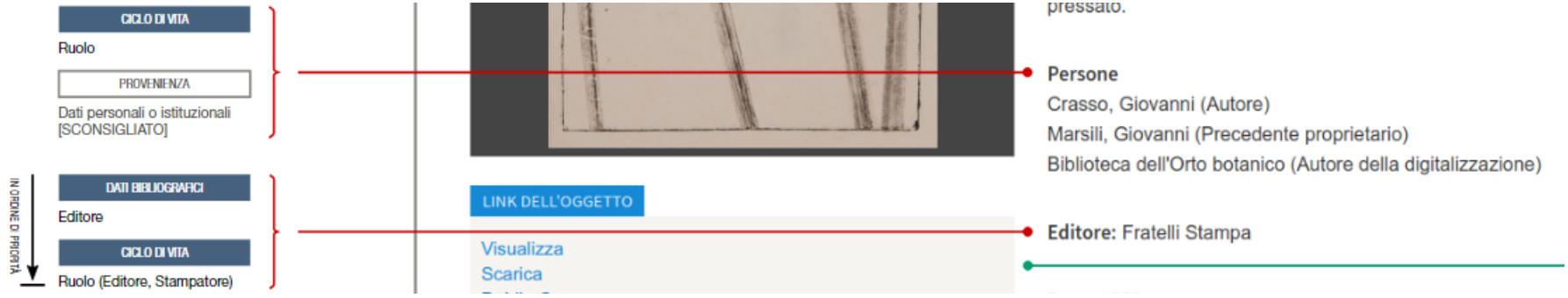
```
<dc:creator>n3:institution</dc:creator>
<dc:creator>Germania : Wehrmacht : Propaganda
Staffel</dc:creator>

<dc:contributor>ns3:institution(ns1:role)</dc:contrib
utor>
<dc:contributor>Biblioteca dell'Orto Botanico di
Padova (Former owner)</dc:contributor>
```

People
Institution (Role)
Germania : Wehrmacht : Propaganda Staffel (Author)
Biblioteca dell'Orto Botanico (Former Owner)

UWmetadata2Dublin Core,
Working with entities: Actors

UWmetadata	Dublin Core	Label	Visualised as	Comments
LifeCycle				
Role **Person, Institution**	dc:creator dc:contributor dc:publisher	People Publisher	Surname, Name (Role) Institution (Role)	dc:creator IF role ISA Author dc:publisher IF role ISA Publisher dc:contributor IF role ISA role differ-ent from Author or Publisher
Provenience → *discouraged*				
Role **Person, Institution**	dc:creator dc:contributor dc:publisher	People Publisher	Surname, Name (Role) Institution (Role)	dc:creator IF role ISA Author dc:publisher IF role ISA Publisher dc:contributor IF role ISA role differ-ent from Author or Publisher
Digital Book → Bibliographic Data in PHAIDRA@unipd.it				
Publisher	dc:publisher	Publisher		



UWmetadata2Dublin Core,

Working with entities: Date

In the context of PHAIDRA_DC profile, the Date element <dc:date> translates a temporal event related to the lifecycle of the resource, certain or inferred, in terms of the date of publication (dateIssued) or creation (Created), which can be expressed either in exact form or as a time interval, open or closed, according to the formats that conform to the ISO 8601 Date and time format standard

UWmetadata2Dublin Core,
Working with entities: Date

UWmetadata sources

1. sub-element <ns1:date> of Contribute <ns1:contribute> in Lifecycle <ns1:lifecycle>
2. sub-elements <ns10:date_from><ns10:date_to> of Contribute <ns10:contribute> in Provenience <ns10:provenience>
3. the element <ns12:releaseyear> in Digitalbook <ns12:digitalbook>

Encoding of the Date element <dc:date> not only translates the values of heterogeneous source elements, but also if, and only if, there are the predetermined conditions as follows:

UWmetadata2Dublin Core,

Working with entities: Date

1. <ns12:releaseyear> of <ns12:digitalbook>. IF <ns12:releaseyear> is not filled, then:

2. <ns1:date> of <ns1:contribute> in <ns1:lifecycle> with role equal to Publisher OR with Printer. If these elements are not populated, then:

3. the first occurrence <ns1:date> of <ns1:contribute> in <ns1:lifecycle> with role Author, whether the entity is a person or an institution. If these elements are not populated, then:

4. the first occurrence of <ns1:date> of <ns1:contribute> of <ns1:lifecycle> if the value of <ns1:role> has different code than Publisher, and from Printer to code Author of the digitisation, whether the entity is a person or an institution

UWmetadata2Dublin Core,
Working with entities: Date

If the conditions 1-4 are not met, then they take the values of the sub-elements Date of Contribute in Provenience, which can represent an uncertain or inferred date of the resource, according to the following modes and forms:

5a) `<ns10: date_from>` and `<ns10: date_to>` in `<ns10:provenience>`, where the two dates are equivalent if precise dates are being attributed (eg .: 1950)
5b) `<ns10: date_from>` and `<ns10: date_to>` in `<ns10:provenience>`, where the two dates differ if it intends to assign a set interval of dates (eg .: 1950-1960)
5c) `<ns10: date_from>` in `<ns10:provenience>` if an open date interval (eg .: 1950-) are being attributed.

If the conditions set out in paragraphs 1-5 are not met, the element `<dc:date>` is omitted

UWmetadata2Dublin Core,
Working with entities: Date

DC_Target	<dc:date>ns12:releaseyear</dc:date> If not then: <dc:date>ns1:date</dc:date> → *as expressed by conditions 2) and 3)* If not then: <dc:date>ns10:date_from=ns10:date_to</dc:date> → *as expressed by conditions 5a)* If not then: <dc:date>ns10:date_from-ns10:date_to</dc:date> → *as expressed by conditions 5b)* If not then: <dc:date>ns10:date_from-</dc:date> → *as expressed by conditions 5c)*

Example	Date 1822 1820-1830 1822-

MODS2Dublin Core,
Working with entities: Date

The conversion to <dc:date> of sub-elements `<ns10:date_from><ns10:date_to>` from Contribute in Provenience was introduced in version 1.1 2018 of PHAIDRA_DC profile, on the basis of the encoding example of Metadata Object Description Schema (MODS) temporal sub-elements, in order to permit the allocation of uncertain or inferred dating to the described resource

MODS provides granular and distinctive representation about the temporalisation of the resource by hosting in the upper element `<originInfo>` the sub-elements specific to each type of dating: `<dateIssued>, <dateCreated>, <dateValid>, <dateModified>, <copyrightDate>, <dateOther>,` partially also represented by qualified terms of the Dublin Core vocabulary

Phaidra@unipd.it,

Heterotopias, heterochronies

The inter-schema translation of temporal elements is a luminous example of the attempt to represent the heterochronies – this kind of "heterotopias of indefinitely accumulating time" echoing the words of Michel Foucault referring to museums and libraries, which, in a certain sense, can also be informed by Phaidra cultural heritage objects

Phaidra@unipd.it,

Some remarks in the margins

The work that has been done provided evidence of the identified solutions and their outcomes, aimed on the one hand at the distinctive valorisation of the dual analogue-digital identity of the Phaidra cultural heritage object, highlighting its profile from

the authorial point of view
(people → Who)

the physical-digital materiality of the work being described
(works → What)

the space-time dimension
(Where and When)

the traceability of the provenance

Phaidra@unipd.it,

Some remarks in the margins

Aiming, on the other hand, at metadata reuse as a visual function and for accessibility to content, used in the conception of the new graphic design of the web interface, which is being done in order to encourage discovery, even serendipitously, of the content found in Phaidra by digital researchers and browsers:

http://phaidra.cab.unipd/static/campi-di-phaidra.pdf

Discovering PHAIDRA@unipd,
post data model revision

OBJECT LINKS

View in browser
Download
Dublin Core
University of Vienna Metadata
EXIF Viewer

BOOKMARK

Add to new bookmark list
Add to pitture anatomia
Add to ex libris

Mollusca. Cephalopoda. Tetrabranchiata

DC PH EXIF

Description
Tavola 24
La tavola parietale contiene 10 figure con didascalia

People
Zittel, Karl Alfred (Author)
Castelli, Stefano (Digitiser)
Michelon, Nicola (Digitiser)

Location/Time
Cassel, [1879-1901]

Format
image/jpeg (1.29 MB)
wallchart (height: 142 cm, width: 111 cm)

Subject
• Paleontologia, Molluschi, Cefalopodi, Tavola didattica

Object languages: Latin

Sources
• Biblioteca di Geoscienze. Cassettiera TVP

Rights: © All rights reserved
Per il file master dell'immagine (file TIFF), rivolgersi a biblio.geoscienze@unipd.it

Contact institution or person: Università di Padova - Biblioteca di Geoscienze

Permanent Link: http://phaidra.cab.unipd.it/o:12566
Handle: 11168/11.12566

Show full metadata

MEMBER OF THE COLLECTION(S) (1)

Palaeontologische Wandtafeln

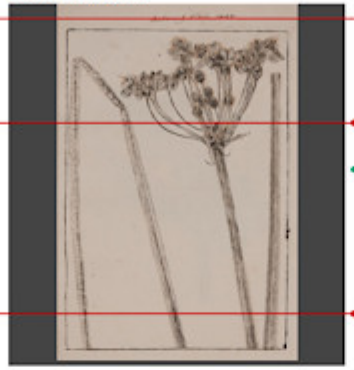
PHAIDRA – DALL'EDITOR DEI METADATI ALLA VISUALIZZAZIONE WEB

Dati inseriti via Editor dei metadati (SCHEDE e Campi)

Dati generati da Phaidra

PHAIDRA COLLEZIONI DIGITALI

« Torna al risultato della ricerca



Butomus flore roseo. Tavola impressa a fumo

FA PARTE DELLA COLLEZIONE (1)

Erbario impresso a fumo

DETTAGLI DELL'OGGETTO

Descrizione
Erbario impresso a fumo, contenente 218 tavole raffiguranti 199 piante coltivate all'orto botanico di Padova nella seconda metà del Settecento, suddivise secondo le classi individuate da Tournefort, con relativa nomenclatura.
Le tavole furono riunite in un volume nel 1789 da Giovanni Marsili, che aggiunse un ulteriore indice.
Legatura di restauro (anni Duemila), in pelle su cartone pressato.

Persone
Crasso, Giovanni (Autore)
Marsili, Giovanni (Precedente proprietario)
Biblioteca dell'Orto botanico (Autore della digitalizzazione)

QUESTO OGGETTO È IN RELAZIONE CON ALTRI OGGETTI (1)

Althaea dioscoridis. Tavola impressa a fumo

LINK DELL'OGGETTO

Visualizza
Scarica
Dublin Core
Metadati di Phaidra
Visualizzatore EXIF

Editore: Fratelli Stampa

Data: 1852

Luogo/Tempo
Padova
Seconda metà del sec. XIX

Formato
image/jpeg (92.65 kB)
libro (altezza: 32 cm, larghezza: 16 cm)

Soggetto
• Erbario, Illustrazione, Botanica
• Dewey Decimal Classification, Plants (Botany)

Lingua: Italiano

Fonti
• Biblioteca dell'Orto botanico - PUV46.APL.541.A
• Crasso, Giovanni, Butomus flore roseo. Padova, Fratelli Stampa, 1852.
• OPAC URL: http://catalogo.unipd.it/F?func=find-c&ccl_term=IDN=PUVE007218&local_base=SBP01

Diritti:
Quest'opera è distribuita con Licenza Creative Commons Attribuzione - Non commerciale - Condividi allo stesso modo 4.0 Internazionale.

Ente o persona di riferimento: Università di Padova - Biblioteca dell'Orto botanico

Link permanente: http://phaidra.cab.unipd.it/o:267135
Handle: 11168/11.267135

Mostra i metadati completi

Tipo di oggetto
Collezioni di appartenenza
Visualizzazione, scaricamento dell'oggetto e accesso ai diversi schemi di metadati
Dettagli dell'oggetto (relazione Recto/Verso)
Anteprima dell'oggetto
Relazioni generiche
Visualizzazione, scaricamento dell'oggetto e accesso ai diversi schemi di metadati
Formato e dimensione del file
Ente o Persona di riferimento
Link permanente
Handle (identificatore permanente)

DATI GENERALI
Titolo, Sottotitolo

DATI GENERALI
Descrizione
PROVENIENZA
Note (SCONSIGLIATO)
DATI DELL'OGGETTO ORIGINALE
Descrizione (SCONSIGLIATO)

CICLO DI VITA
Ruolo
PROVENIENZA
Dati personali o istituzionali (SCONSIGLIATO)

LIBRO DIGITALE
Editore
CICLO DI VITA
Ruolo (Editore, Stampatore)

LIBRO DIGITALE
Data di pubblicazione
CICLO DI VITA
Ruolo: Data
PROVENIENZA
Date a partire da, Date fino a

DATI GENERALI
Copertura (spaziale, temporale)

DATI DELL'OGGETTO ORIGINALE
Tipo di materiale
DATI DELL'OGGETTO ORIGINALE
Dimensioni
DATI TECNICI
Durata (video)

DATI GENERALI
Parole chiave
CLASSIFICAZIONE
Classificazioni (Classi, Sottoclassi)

DATI GENERALI
Lingua

CICLO DI VITA
Ruolo (Autore)
DATI GENERALI
Titolo, Sottotitolo
LIBRO DIGITALE
Luogo di pubblicazione, Editore, Data

PROVENIENZA
Collocazione

LIBRO DIGITALE
URL Catalogo

DIRITTI & LICENZE
Diritti, Descrizione

Phaidra@unipd.it,

Some remarks in the margins

The mapping and conversion of UWmetadata to Dublin Core has enhanced precision in the representation of data and information content of Phaidra by disclosing and formalising its core elements

It also encouraged reflection in evolutionary terms of its ontological structure, outlining where possible the classes of Persons, Works, Space, and Time

It has clarified and characterized the different levels and the interdependence of the dimensional combination of physically and digitally of the information content conveyed by the Phaidra CH object

It has, in particular, made it possible to experience and evaluate the vital importance of standards, the adoption of which creates interoperability, leading to the decontextualisation of data from the scope of their original creation, accelerating their exposure and potential for reuse in different contexts and by different services, with the valorisation and development of the informative and cognitive value of which they are a memorial device

Phaidra@unipd.it,

Some remarks in the margins

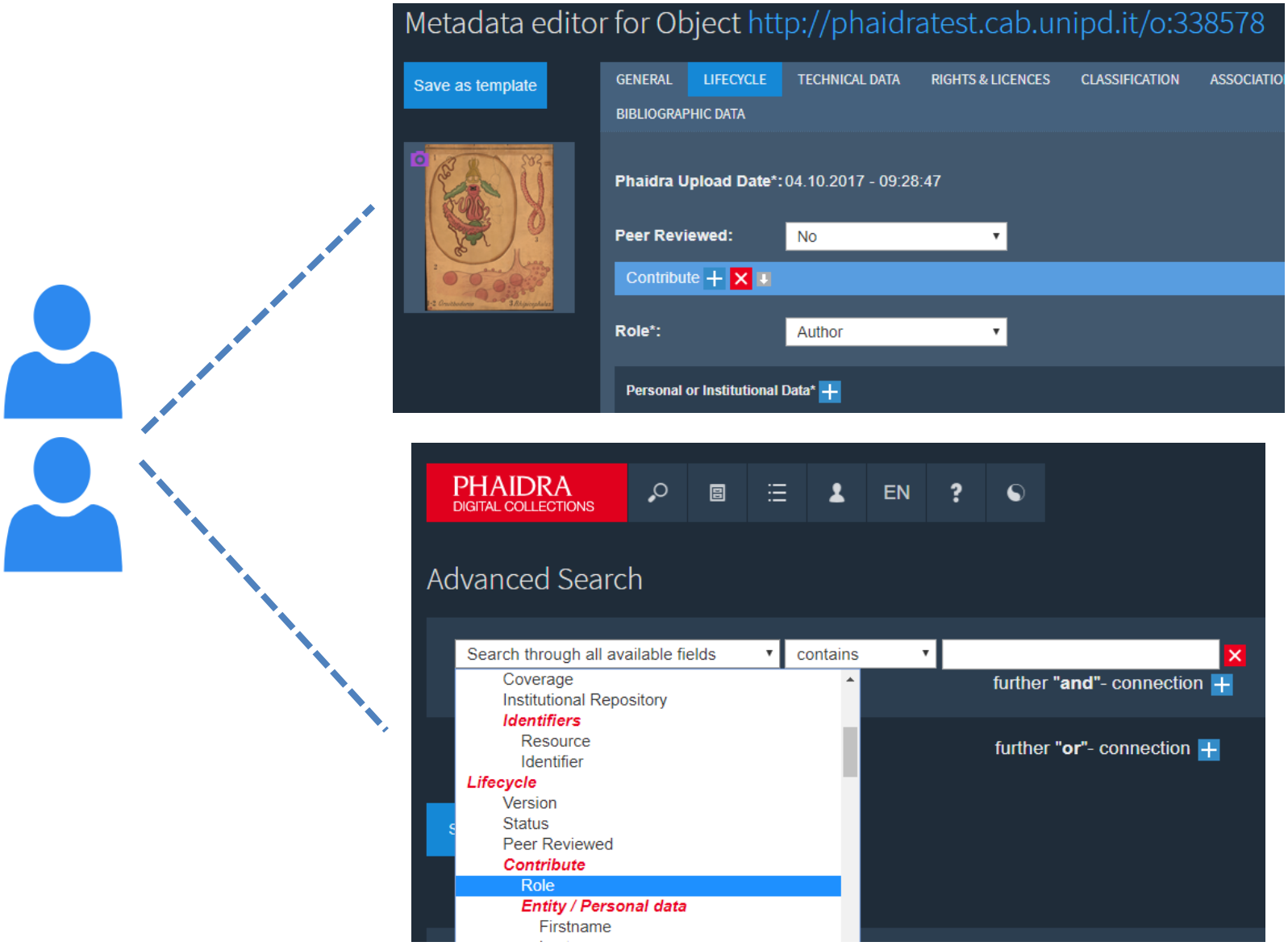
It has helped to strengthen the methodological attitude for a correct reading of the data, or of reading of the data as “semantic palimpsests” given the stratified and permanent coexistence of heterogeneous data models, and their evolutionary and generative function in terms of schema, structure, profile, model, in aggregate form and as corpora of data, stressing the knowledge that each mapping activity is an inter-data conceptual negotiation which implies, more than anything else, a mutual understanding and compromise

”In libraries, metadata is a first-class object. Metadata doesn’t just describe a library resource, it also connects that resource to entities such as people, places, events, and to other resources.”

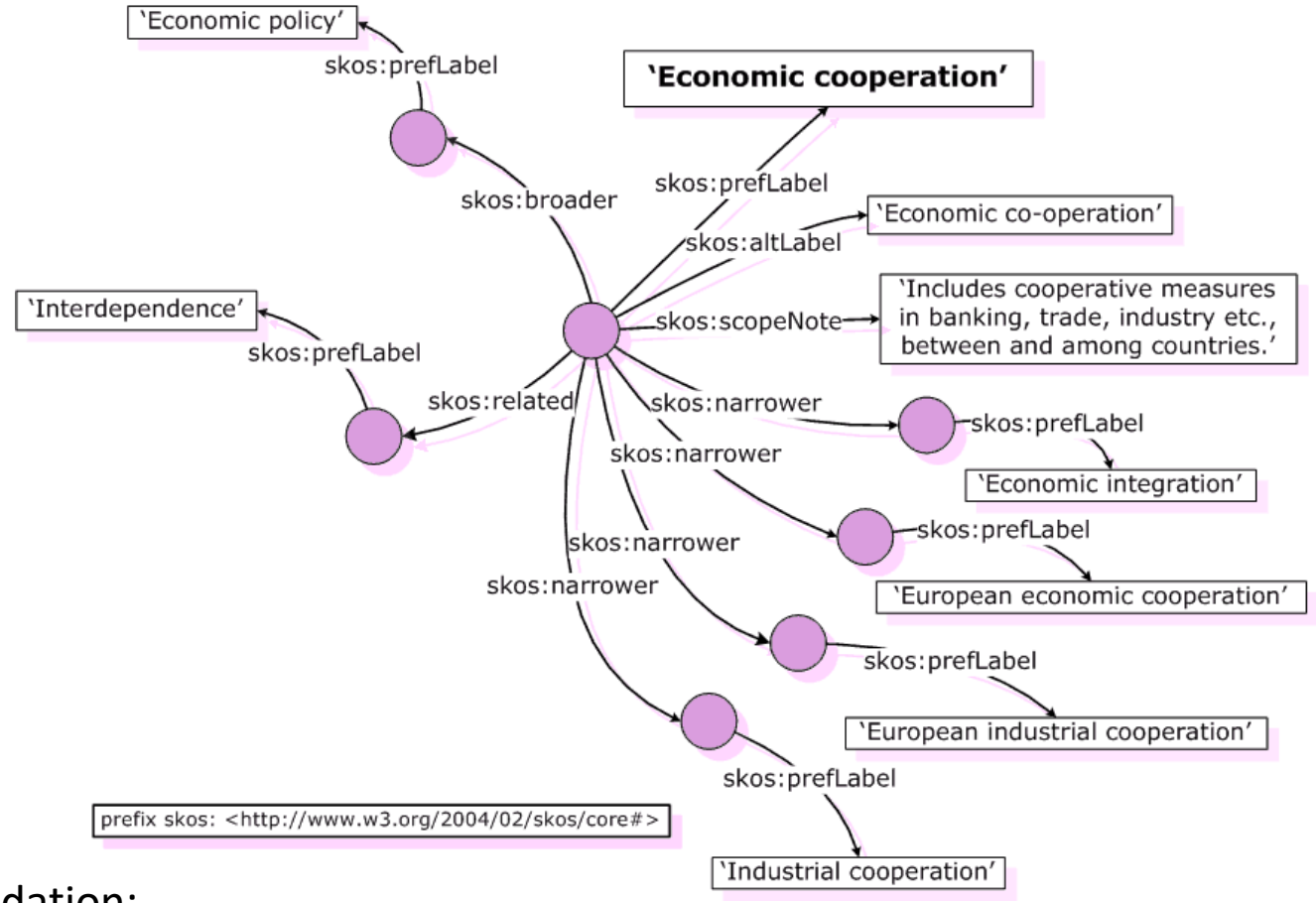
Powell, J., Hopkins, M.: A Librarian’s Guide to Graphs, Data and the Semantic Web, p. 130. Chandos Publishing, Waltham (2015)

Interoperability and interlinking,
The Classification Server

Interoperability and interlinking,
Enhanced usability



Interoperability and interlinking,
SKOS data model



SKOS W3C Recommendation:
https://www.w3.org/TR/skos-reference/

SKOS W3C Working Group Note:
https://www.w3.org/TR/skos-primer/

Interoperability and interlinking,
From data silos to a global network

SKOS allows to:

- render concepts machine-readable and publishable in the Web
- link and integrate different KOS and their inherent concepts (also in multiple languages)
- easily reference and reuse concepts in resource descriptions in a Semantic Web context

Interoperability and interlinking,
PHAIDRA local vocabularies

Phaidra archival system currently hosts two locally-implemented list of descriptors:

1) **Phaidra Type of Material Vocabulary**
   which relates to the **material** of the resource

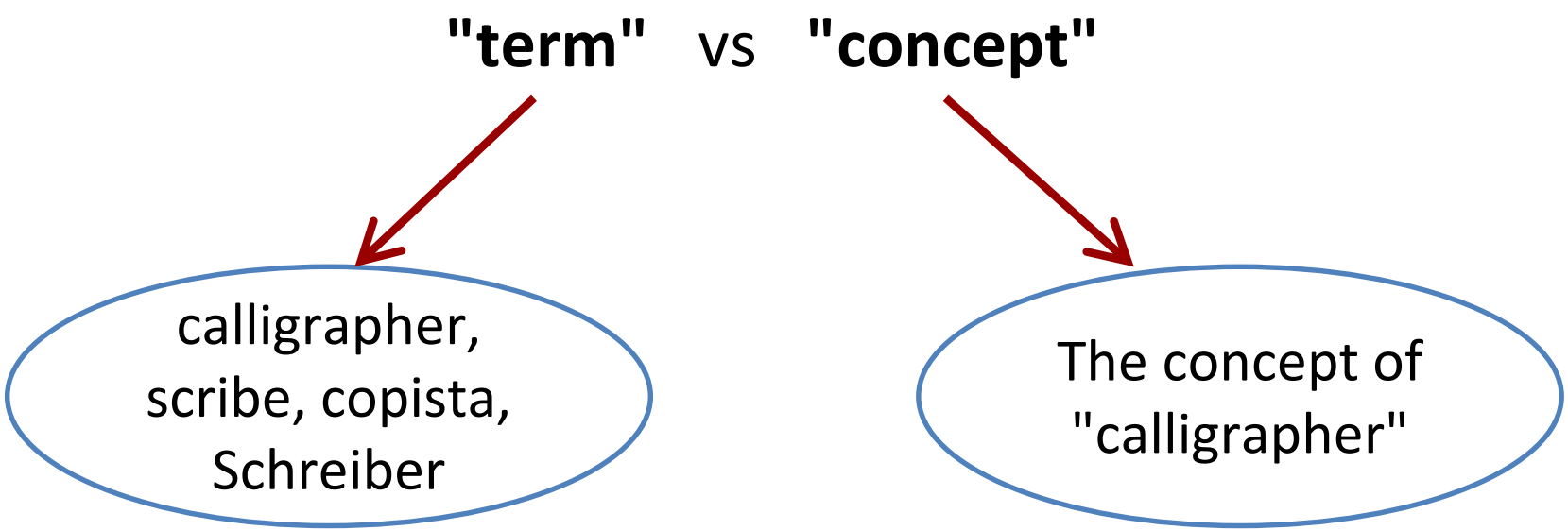
   e.g. Drawing, Letter, Manuscript, Painting, Periodical

2) **Phaidra Roles Vocabulary**
   which relates to the **role of the entities** contributing to the creation of the resource

   e.g. Architect, Calligrapher, Cartographer, Illustrator, Musician

Interoperability and interlinking,
Experimenting with SKOS data model

- Data interoperability:



Interoperability and interlinking,

Experimenting with SKOS data model

Concept "**calligrapher**" in Phaidra Roles Vocabulary:

```
<skos:Concept rdf:about="http://phaidra.org/vocabularies/roles/calligrapher">
  <skos:inScheme rdf:resource="http://phaidra.org/vocabularies/roles"/>
  <skos:topConceptOf rdf:resource="http://phaidra.org/vocabularies/roles"/>
  <skos:prefLabel xml:lang="en">calligrapher</skos:prefLabel>
  <skos:prefLabel xml:lang="it">copista</skos:prefLabel>
  <skos:altLabel xml:lang="en">scribe</skos:altLabel>
  <skos:altLabel xml:lang="it">scriba</skos:altLabel>
  <skos:definition xml:lang="en">A person who inscribe or copy texts, especially
    those who transcribed, copied, and edited manuscripts before mechanical printing
    technology was developed. </skos:definition>
  <skos:definition xml:lang="it">Una persona che copia testi; si riferisce
    in particolare a chi ha trascritto, copiato e curato un manoscritto prima
    dell'invenzione della stampa. </skos:definition>
</skos:Concept>
```

Interoperability and interlinking,
Experimenting with SKOS data model

```
<skos:Concept rdf:about="http://phaidra.org/vocabularies/roles/calligrapher">
  <skos:inScheme rdf:resource="http://phaidra.org/vocabularies/roles"/>
  <skos:topConceptOf rdf:resource="http://phaidra.org/vocabularies/roles"/>
  <skos:prefLabel xml:lang="en">calligrapher</skos:prefLabel>
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Interoperability and interlinking,
Experimenting with SKOS data model

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    in particolare a chi ha trascritto, copiato e curato un manoscritto prima
    dell'invenzione della stampa. </skos:definition>
</skos:Concept>
```

Interoperability and interlinking,
Experimenting with SKOS data model

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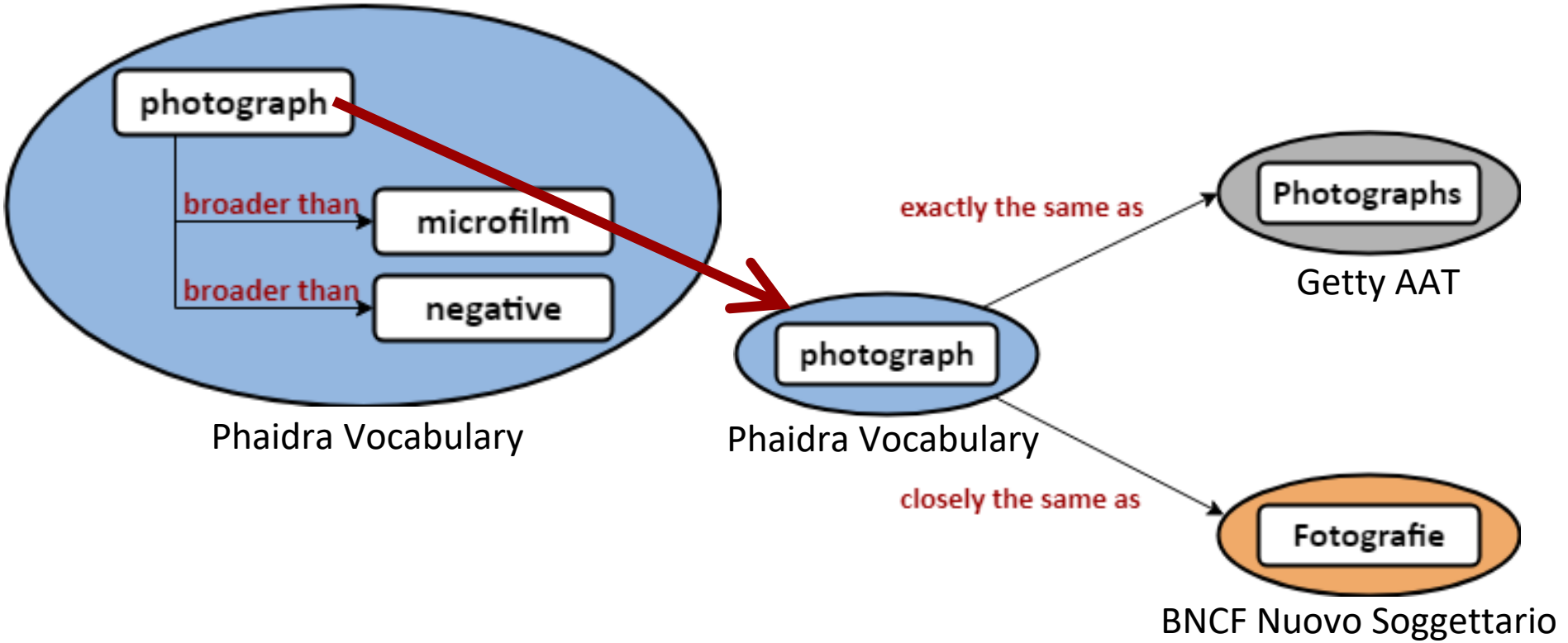
    dell'invenzione della stampa. </skos:definition>
</skos:Concept>
```

Interoperability and interlinking,
Experimenting with SKOS data model

- Data association and interlinking:

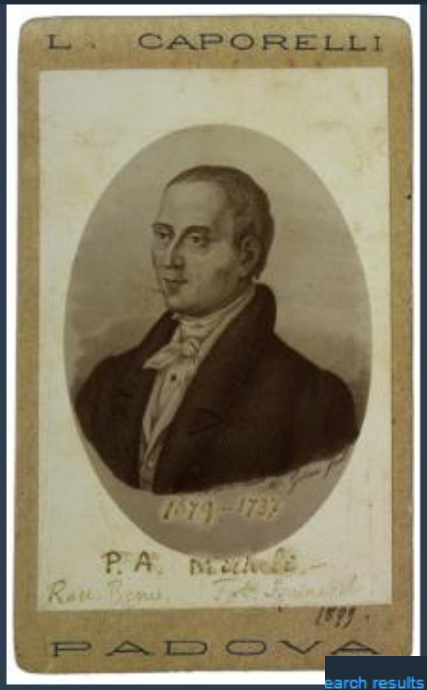
semantic relations
in a **single** KOS and between **different** KOS



Interoperability and interlinking,
Experimenting with SKOS data model

Concept "**photograph**" in Phaidra Type of Material Vocabulary:

```
<skos:Concept rdf:about="http://phaidra.org/vocabularies/typeofmaterial/photograph">
  <skos:inScheme rdf:resource="http://phaidra.org/vocabularies/typeofmaterial"/>
  <skos:topConceptOf rdf:resource="http://phaidra.org/vocabularies/typeofmaterial"/>
  <skos:prefLabel xml:lang="en">photograph</skos:prefLabel>
  <skos:prefLabel xml:lang="it">fotografia</skos:prefLabel>
  <skos:definition xml:lang="en">Still image produced from radiation-sensitive materials
    (sensitive to light, electron beams, or nuclear radiation), generally by means of the
    chemical action of light on a sensitive film, paper, glass, or metal. A photograph may
    be positive or negative, opaque or transparent. The concept includes photographs made by
    digital means. </skos:definition>
  <skos:definition xml:lang="it">Immagine prodotta da materiale sensibile alla radiazione
    (sensibile alla luce, fasci di elettroni, o radiazione nucleare), generalmente attraverso
    l'azione chimica della luce su una pellicola sensibile, carta, vetro, o metallo.
    Una fotografia potrebbe essere positiva o negativa, opaca o trasparente.
    Questo concetto include anche fotografie realizzate in modo digitale. </skos:definition>
  <skos:narrower rdf:resource="http://phaidra.org/vocabularies/typeofmaterial/microfilm"/>
  <skos:narrower rdf:resource="http://phaidra.org/vocabularies/typeofmaterial/negative"/>
  <skos:exactMatch rdf:resource="http://vocab.getty.edu/aat/300046300"/>
  <skos:exactMatch rdf:resource="http://rdaregistry.info/termList/RDACarrierEU/1025"/>
  <skos:closeMatch rdf:resource="http://purl.org/bncf/tid/1578"/>
</skos:Concept>
```



P. A. Micheli - recto

Description
Botanico: Micheli, Pietro Antonio (1679-1737).
Prefetto dell'Orto botanico di Firenze, fondatore della Società botanica fiorentina.
Titolo ed estremi cronologici (1679; 1737) manoscritti sul recto, dove compaiono anche le note: Foto Squinabol 1899; Racc. Benv. [Raccolta Benvenisti].
Montata su cartoncino 105 x 63 mm.
1 fotografia : aristotipo ; 86 x 56 mm.
Vai alla scheda bibliografica: http://catalogo.unipd.it/F?func=find-c&ccl_term=IDN=PUV1101258

People
Squinabol, Senofonte (Author)
Stabilimento fotografico L. Caporelli (Author)

earch results

Pier Antonio Micheli

Description
Botanico: Micheli, Pier Antonio (1679-1737).
Prefetto dell'Orto botanico di Firenze, fondatore della Società botanica fiorentina.
Titolo riportato sul negativo su vetro.
1 negativo su vetro : negativo ; 119 x 89 mm.
Vai alla scheda bibliografica: http://catalogo.unipd.it/F?func=find-c&ccl_term=IDN=PUV1096096

People
Non identificato (Author)

Location/Time
[dopo il 1871]

Format
image/jpeg (678.63 kB)

Interoperability and interlinking,
Experimenting with SKOS data model

Concept "**photograph**" in Phaidra Type of Material Vocabulary:

```
<skos:Concept rdf:about="http://phaidra.org/vocabularies/typeofmaterial/photograph">
  <skos:inScheme rdf:resource="http://phaidra.org/vocabularies/typeofmaterial"/>
  <skos:topConceptOf rdf:resource="http://phaidra.org/vocabularies/typeofmaterial"/>
  <skos:prefLabel xml:lang="en">photograph</skos:prefLabel>
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    (sensitive to light, electron beams, or nuclear radiation), generally by means of the
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    be positive or negative, opaque or transparent. The concept includes photographs made by
    digital means. </skos:definition>
  <skos:definition xml:lang="it">Immagine prodotta da materiale sensibile alla radiazione
    (sensibile alla luce, fasci di elettroni, o radiazione nucleare), generalmente attraverso
    l'azione chimica della luce su una pellicola sensibile, carta, vetro, o metallo.
    Una fotografia potrebbe essere positiva o negativa, opaca o trasparente.
    Questo concetto include anche fotografie realizzate in modo digitale. </skos:definition>
  <skos:narrower rdf:resource="http://phaidra.org/vocabularies/typeofmaterial/microfilm"/>
  <skos:narrower rdf:resource="http://phaidra.org/vocabularies/typeofmaterial/negative"/>
  <skos:exactMatch rdf:resource="http://vocab.getty.edu/aat/300046300"/>
  <skos:exactMatch rdf:resource="http://rdaregistry.info/termList/RDACarrierEU/1025"/>
  <skos:closeMatch rdf:resource="http://purl.org/bncf/tid/1578"/>
</skos:Concept>
```

→ **Getty AAT**

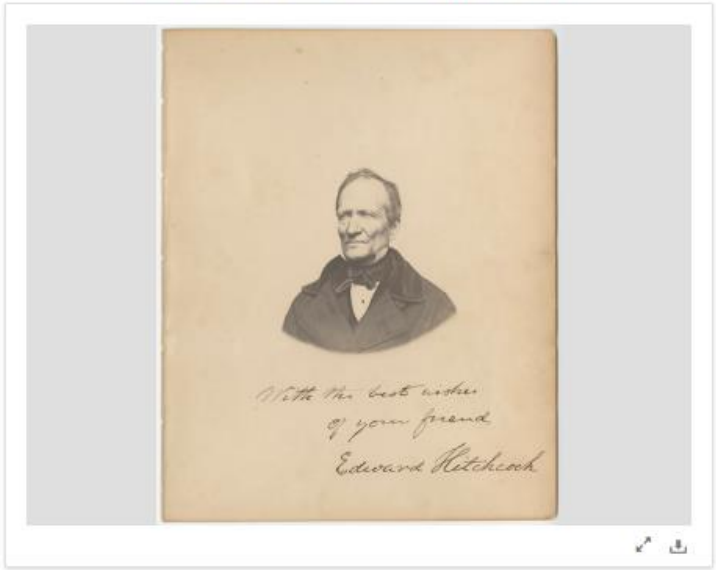
→ **BNCF Nuovo Soggettario**

Photographs, Dr. Henry R. Butler Jr., undated

Collection:	Auburn Avenue Research Library Historic African American Education Collections
Title:	Photographs, Dr. Henry R. Butler Jr., undated
Publisher:	Box 7, Folder 13, Selena Sloan Butler papers, Archives Division, Auburn Avenue Research Library on African-American Culture and History, Atlanta-Fulton Public Library System.
Date of Original:	1886/1893
Subject:	African American physicians Portraits Butler, Henry Rutherford, 1899-1988
Location:	United States, Georgia, Fulton County, Atlanta, 33.7489954, -84.3879824
Medium:	Photographs
Type:	StillImage

Digital Library of Georgia

Amherst College Digital Collections



Title	Edward Hitchcock, portrait, facing left, circa 1860
Dates	1860
Abstract	A head and shoulders photograph of Edward Hitchcock, facing left, signed by Hitchcock. This photograph was used in the Amherst College 1860 and 1861 Class Albums.
Physical Description	1 photograph ; sheet 21 x 17 cm
Languages	English
Genre	Photographs

PHAIDRA@unipd

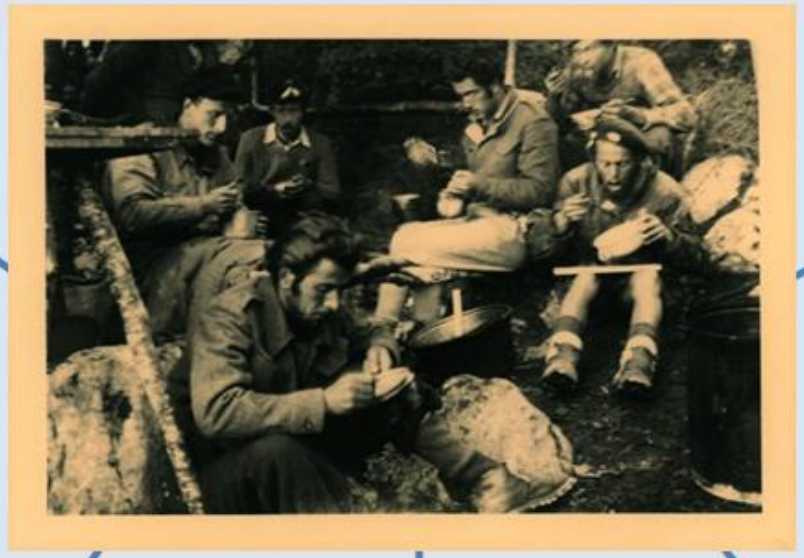
Future data visions

Both the working groups of Phaidra are currently involved in outlining a new foundational data model represented in RDF triples.

By the potential use of an arbitrary number of external vocabularies and ontologies, along with the possibility of RDF graphs to be extended with new nodes and new relationship types effortlessly, this new semantics-embedding model would be much more flexible, extendable to every future needs as well as highly interoperable.

In these terms, the forthcoming achievement of such a framework might thus exactly represent the most effective means to disclose the associative potential of metadata that was quoted at the opening slide of the second part of this presentation.

Resource URI: **La Resistenza italiana** (time period)



Objects **created** in this period

Related **persons**

Objects which have it as their **subject**

Related **places** (geolocations)

Historical events temporally located in this period

Thank you!

Image sources

s.3: St. Gallen, Stiftsbibliothek, Cod. Sang. 213: Palimpsest Manuscript: Divinae institutiones by Lucius Caelius Firmianus Lactantius; the Dialogs of Gregory the Great etc.
https://www.e-codices.ch/en/list/one/csg/0213

s.4: Castellani, E.: Spartito 1969 162x21x241 cm. In: Alfabeta2 (April 2011) © Archivio Enrico Castellani.
https://www.alfabeta2.it/2011/04/10/enrico-castellani-galleria-fotografica/

s.7: Phaidra timeline at the University of Padova
https://phaidra.cab.unipd.it/info/impressum

s.9: The Phaidra digital environment (Source: I dati della ricerca in ambito umanistico, symposium held in Padua, 24 November 2016)
https://phaidra.cab.unipd.it/info/impressum

s.11: JR [@jr]: … today In Paris (22nd, May 2016)
https://www.instagram.com/p/BFtrTw-RBNy/?utm_source=ig_embed

s.17: Hermann, T.: Overview of LOM. In: Budin, G, Mayer, W., Oberhuemer, P., Prillinger, H., Schinagl, K., Sestits, E., Winkler, J.: LOM Univie Schema, April 2006 (2006)

Image sources

s.37: From the Metadata editor to the web visualisation
http://phaidra.cab.unipd.it/static/campi-di-phaidra.pdf

s.41: Bettella, C., JR's Au Panthéon ! (2014)

s.42: PARTHENOS Portal, the Hub.
http://www.parthenos-project.eu/wp-content/uploads/2018/05/Sm-system-2660914-1024x683.jpeg

s.43: Skosmos Homepage.
http://vocab.phaidra.org/skosmos/en/?clang=en

s.45: Roussey, C.,: Graphe RDF utilisant le vocabulaire SKOS présentant les différents termes liés à "Economic Coopération". In: Roussey, C., Bernard, S. Annotation des Bulletins de Santé du Végétal. 7ème Atelier Recherche d'Information SEmantique, Jun 2015, Rennes, France (2015).
https://www.researchgate.net/figure/graphe-RDF-utilisant-le-vocabulaire-SKOS-presentant-les-differents-termes-lies-a_fig2_282066521

s.55: P. A. Micheli – recto.
http://phaidra.cab.unipd.it/o:2329

Image sources

s.55: Pier Antonio Micheli.
http://phaidra.cab.unipd.it/o:1210

s.57: P. A. Micheli – recto.
http://phaidra.cab.unipd.it/o:2329

s.57: Photographs, Dr. Henry R. Butler Jr., undated.
http://dlg.galileo.usg.edu/aaed/do:aarl09.002-007-013.

s.57: Edward Hitchcock, portrait, facing left, circa 1860.
https://acdc.amherst.edu/view/asc:642961