

International Image Interoperability Framework (IIIF)

Sharing high resolution images across institutional boundaries



Roxanne Wyns

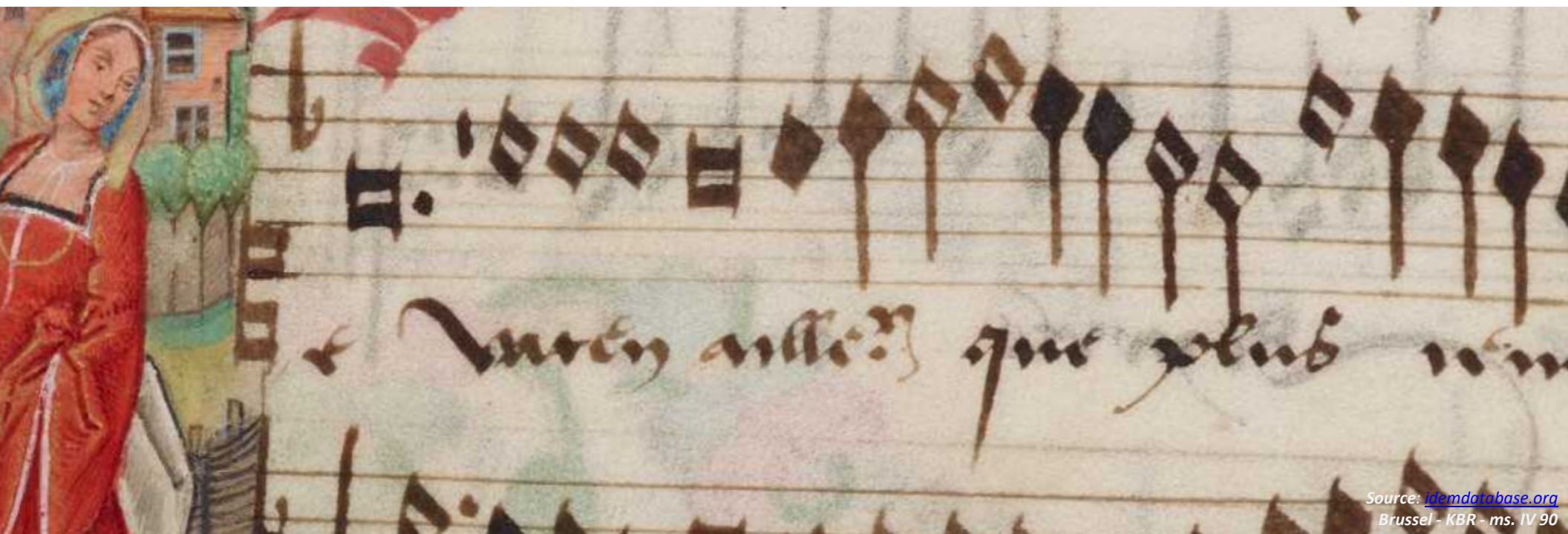
Roxanne.Wyns@libis.kuleuven.be

- | Digital systems and services for GLAM and digitally supported research
- | Part of the University Library of KU Leuven
- | Division of Leuven Research & Development (LRD)
- | Internal and external partnerships



Top: 1st DOBIS/LIBIS user group meeting

Bottom: Campus library Arenberg / KU Leuven ([instagram.com/kuleuven](https://www.instagram.com/kuleuven))



Source: demdatabase.org
Brussel - KBR - ms. IV 90

Digital research and the need for high quality access to digital resources





*Lot's of data is unique and can
only be captured once*

Dr. Lynda Sayce prepares a manuscript in
the Alamire Digital Lab in Vatican City.
© Veerle Francke - Alamire

Platform DH - IIIF (2018-04-23, Antwerp)

Integrated Database for Early Music



Alamire Foundation

- International Centre for the Study of Music in the Low Countries
- Research on medieval music manuscripts

Hercules call 2013

- Flemish investment fund for research infrastructures
- Proposal accepted, budget heavily reduced
- Project kick-off May 2014

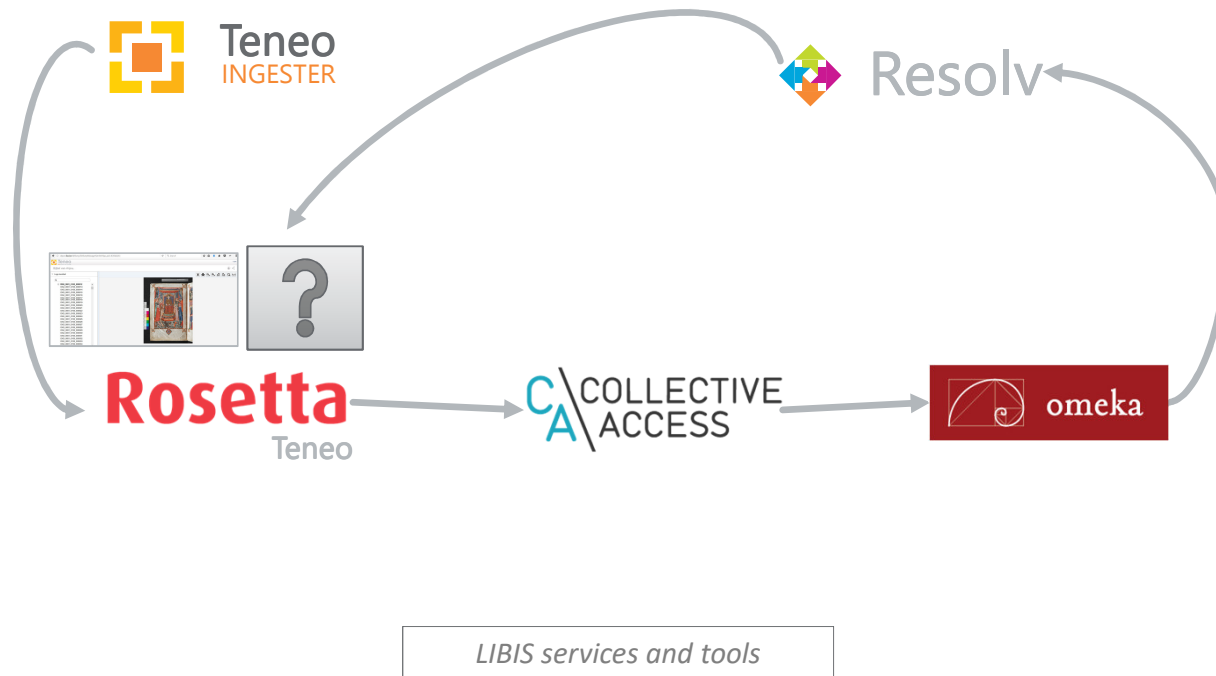


*Manuscript illumination.
Probably created by the workshop of Petrus Alamire for the Illustrious
Brotherhood of Our Lady in 's-Hertogenbosch (around 1530's).
Source: idemdatabase.org*



IDEM research infrastructure

In search of a new data visualisation solution





[ABOUT](#)

[TECHNICAL DETAILS](#)

[APPS & DEMOS](#)

[COMMUNITY](#)

[NEWS](#)

International Image Interoperability Framework™

Enabling Richer Access to the World's Images

[Learn how to get started](#)

IIIF Community Newsletter, Volume 1 Issue 4, Now Online



Community Focused

The IIIF is driven by a community of



Defined APIs

The IIIF is anchored by well defined



Plug 'n' Play Software



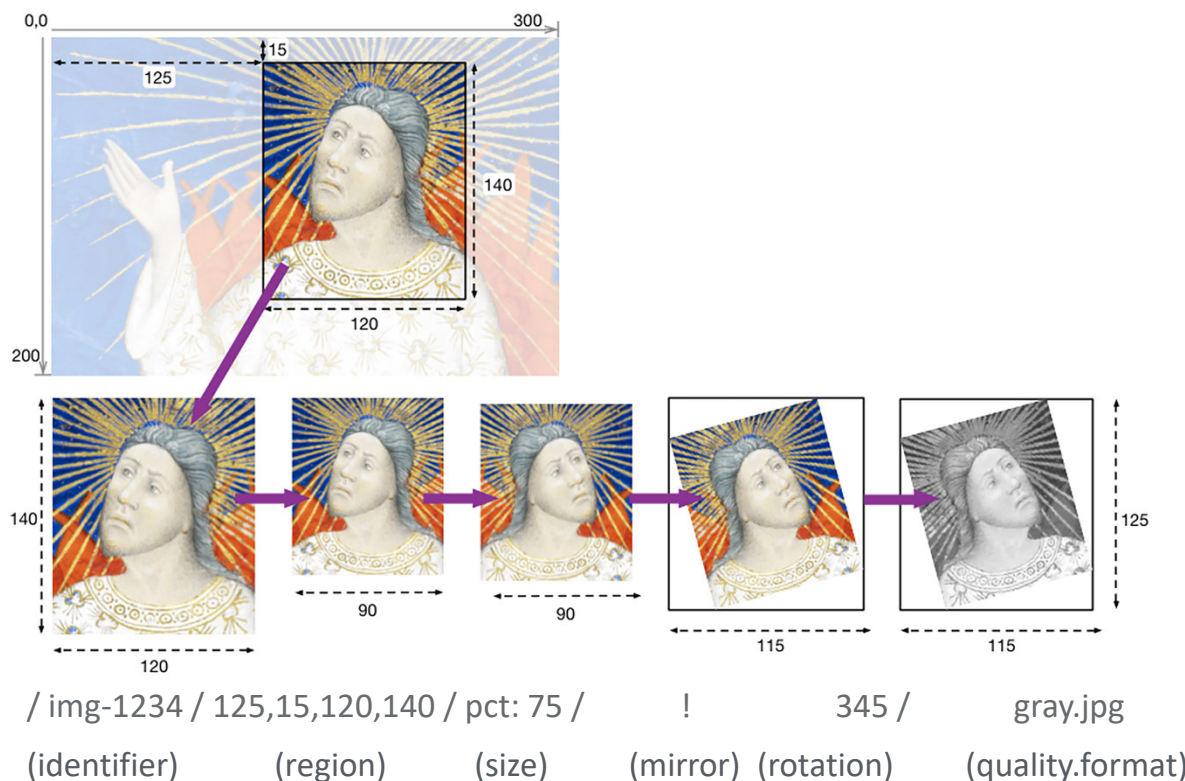
What does IIIF Provide?

IIIF APIs – iiif.io/technical-details



- Image API 2.1

- Transfer of image pixels
- Facilitates systematic re-use of images
- HTTP(S) Requests – URI specifies region, size, rotation, quality, and format of image for image manipulation

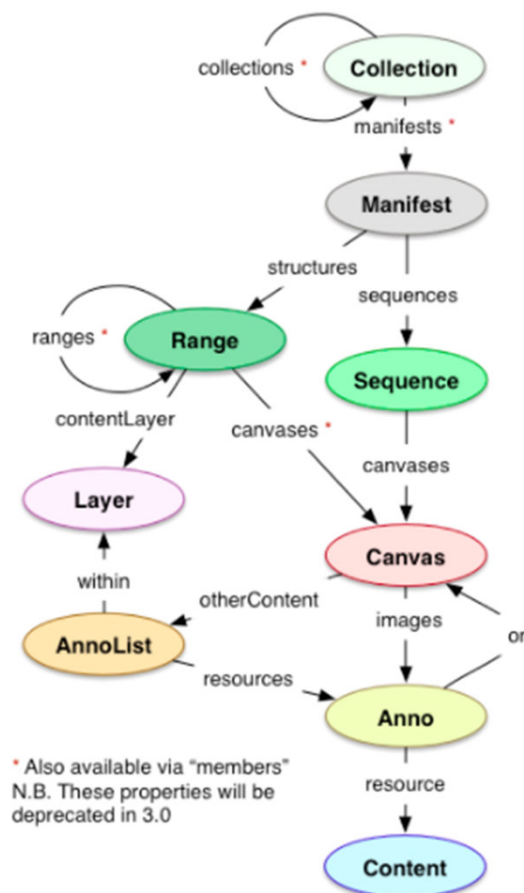


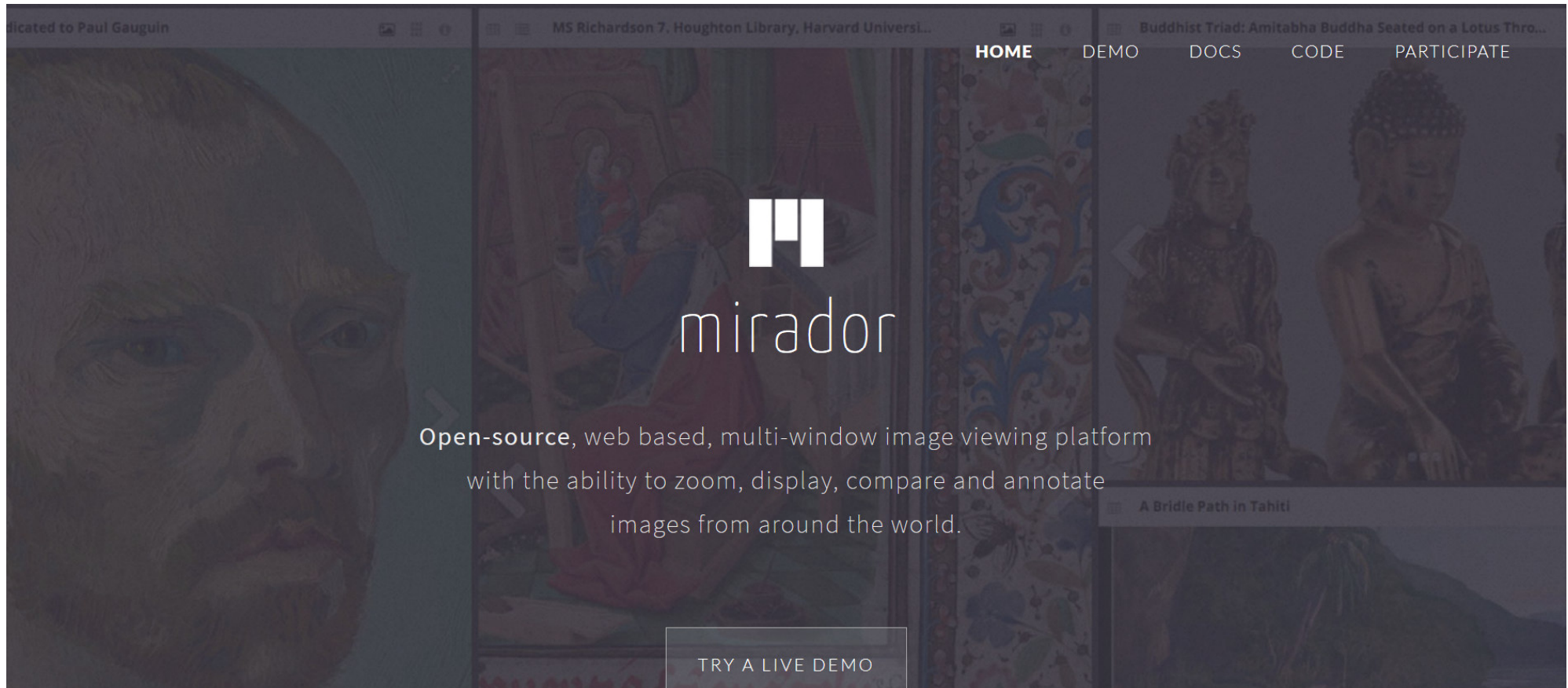
What does IIIF Provide?

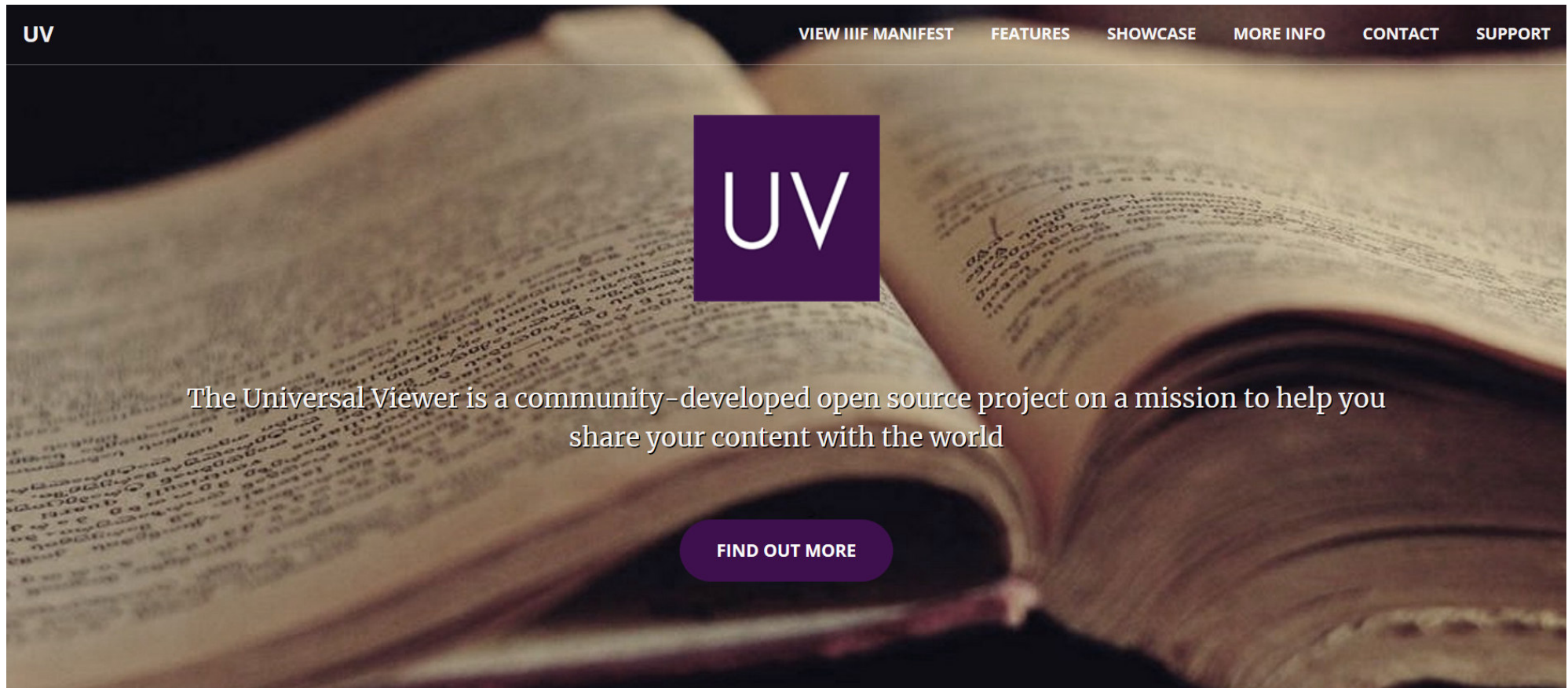
IIIF APIs – iiif.io/technical-details



- Presentation API 2.1
 - Provides descriptive info, annotation layer, structure/navigation for complex objects
 - Utilizes JSON.LD and Shared Canvas model
 - Easily share and re-use, mix and match content
- Search API 1.0
 - Allows for searching within annotations
- Authentication API 0.9
 - Provide interoperability for access-restricted content
- A/V API – coming soon...



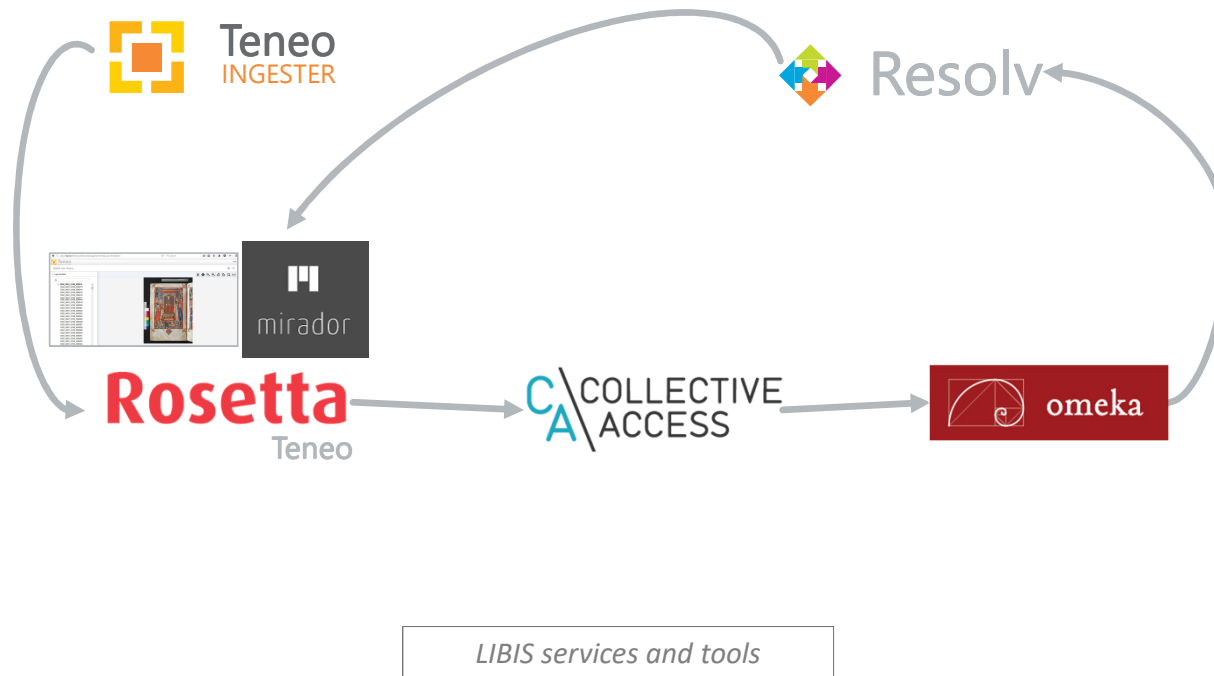






IDEM research infrastructure

Integration of IIF and Mirador in Rosetta





IDEM – Live in august 2015



Public access to metadata and direct link to images in Mirador via Omeka



HOME
BROWSE & SEARCH
CONTACT & CREDITS
ALAMIRE FOUNDATION



IDEM INTEGRATED DATABASE FOR EARLY MUSIC

Manuscript label	B-Br-ms-9126	VIEW IMAGES
Holding institution	Brussels - Koninklijke Bibliotheek van België / Bibliothèque royale de Belgique [B-Br]	
Shelfmark	ms. 9126	
Format (general)	codex	
Format (specific)	choirbook	
Category	polyphony	
Content	Choirbook containing masses, motets and magnificats	
Authors / composers	Josquin des Prez La Rue, Pierre de Agricola, Alexander Orto, Marbrianus de Barbireau, Jacobus	
Language	Latin; French (notes / titels); Dutch (notes / titels)	
Origin (country / region)	Southern Low Countries; Habsburg-Burgundian Netherlands	
Origin (city / location)	workshop of Petrus Alamire [documented 1496-1534]	
Date range	between 1504 and 1506	

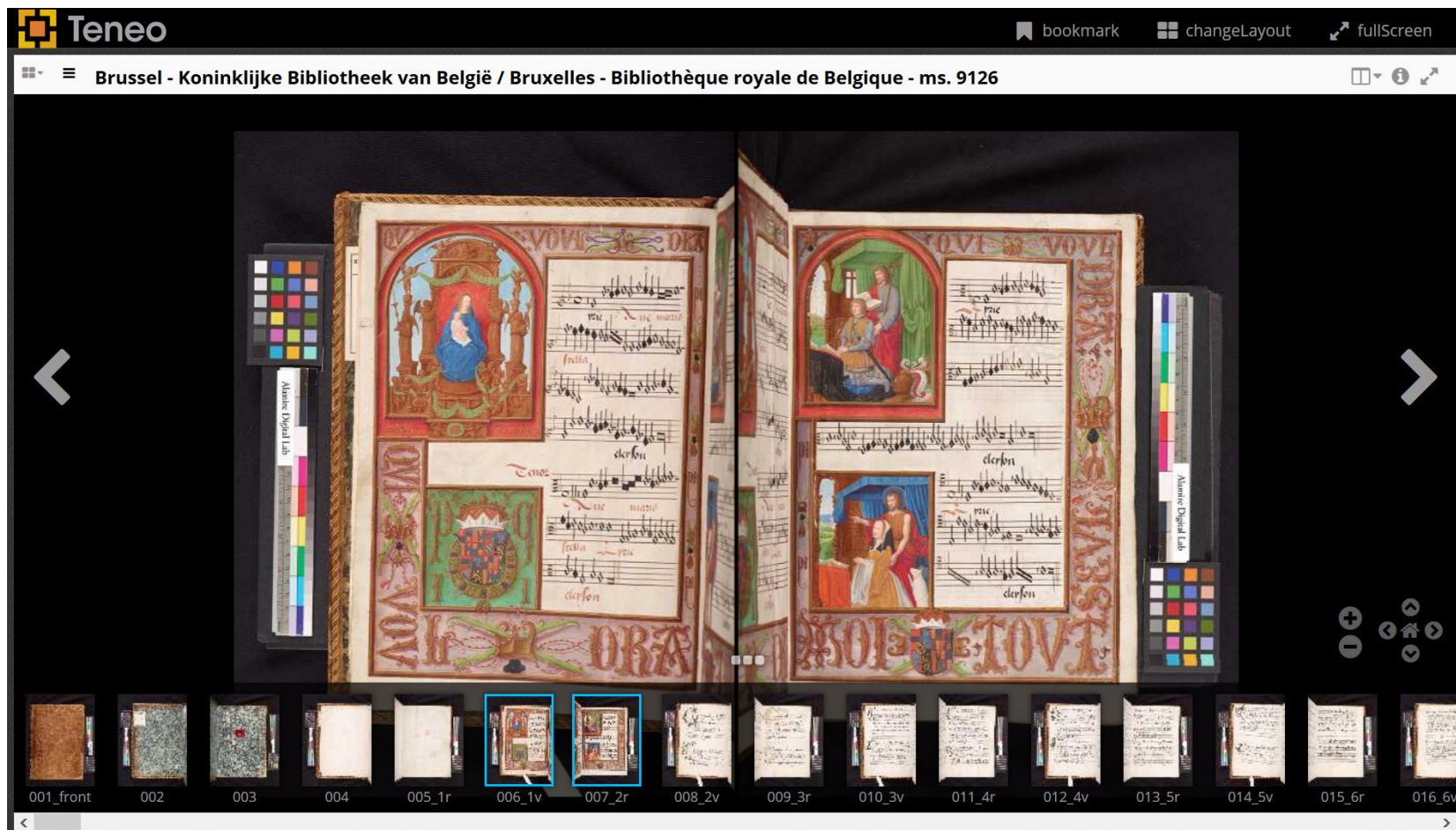
Integrated Database for Early Music: <http://www.idemdatabase.org/>
Resolvable ULRs refer to image representations (JPEG2000) in Mirador viewer



IDEM – Anno 2017

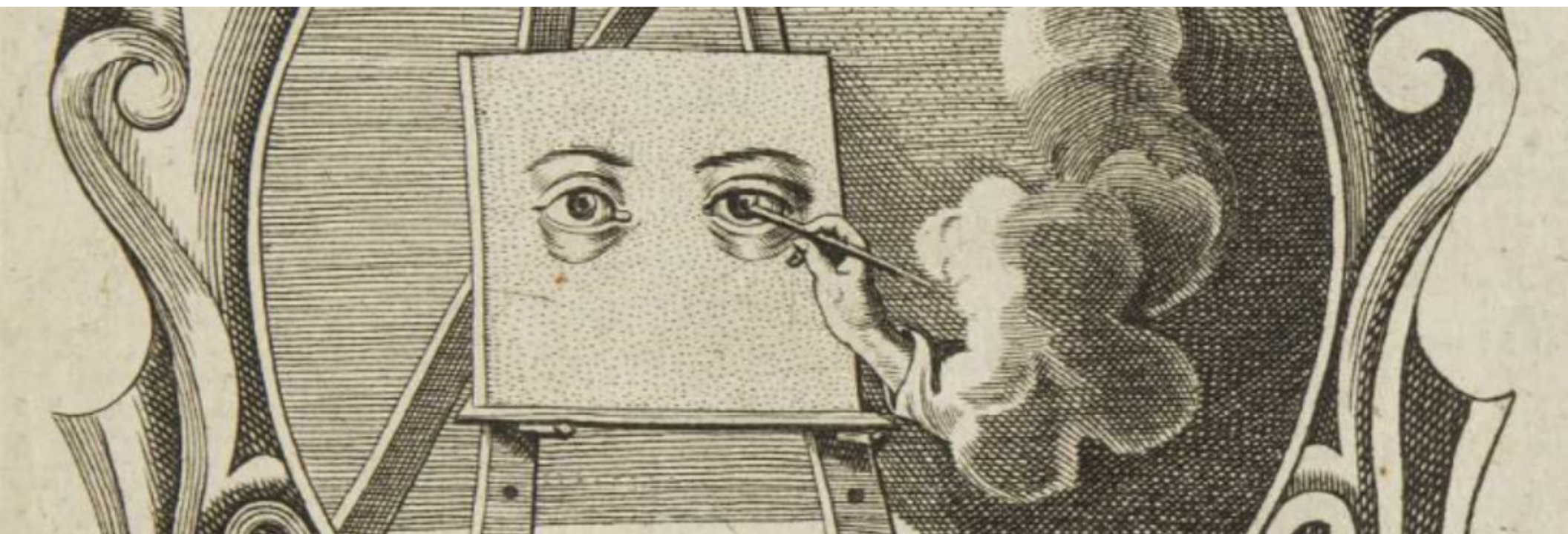


35 polyphonic music manuscripts online



Access to all publicly available manuscripts via IDEM : <http://www.idemdatabase.org/>

Platform DH - IIF (2018-04-23, Antwerp)



Source: <http://lectio.ghum.kuleuven.be/>

IIIF and Mirador @ KU Leuven

Growing interest from research groups and heritage professionals





Magister Dixit project

Lectio research group, KU Leuven University Libraries, UCL, KBR, LIBIS



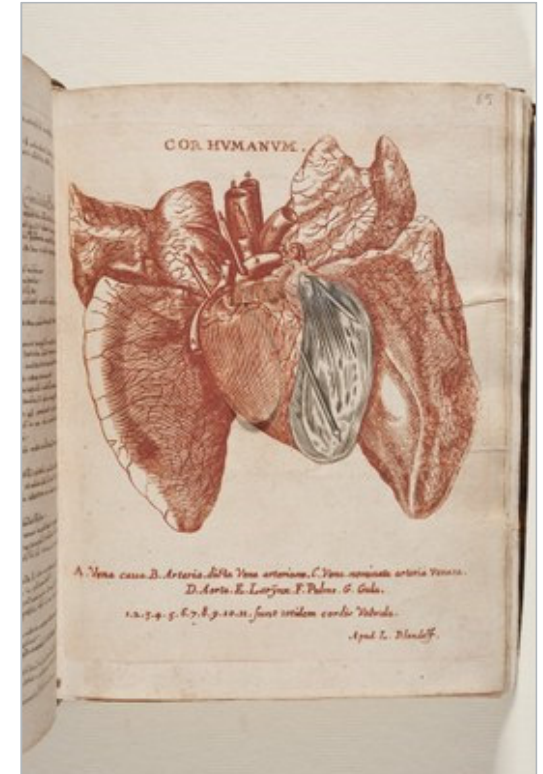
Digitization & virtual reconstruction of Lecture notes (1425-1797)

Phase I (live March 2016)

- KU Leuven & UCL collections
- 331 complex objects
- > 110.000 images, 4 TB

Phase II (2017)

- + 4 TB
- + Royal Library of Belgium



*An engraving of the human heart by Lambert Blendeff, from the elaborately illustrated lecture notes 'Physica' (1686-1687) by Balthasar Cox.
© KU Leuven - Dieter Daemen and Bruno Vandermeulen*



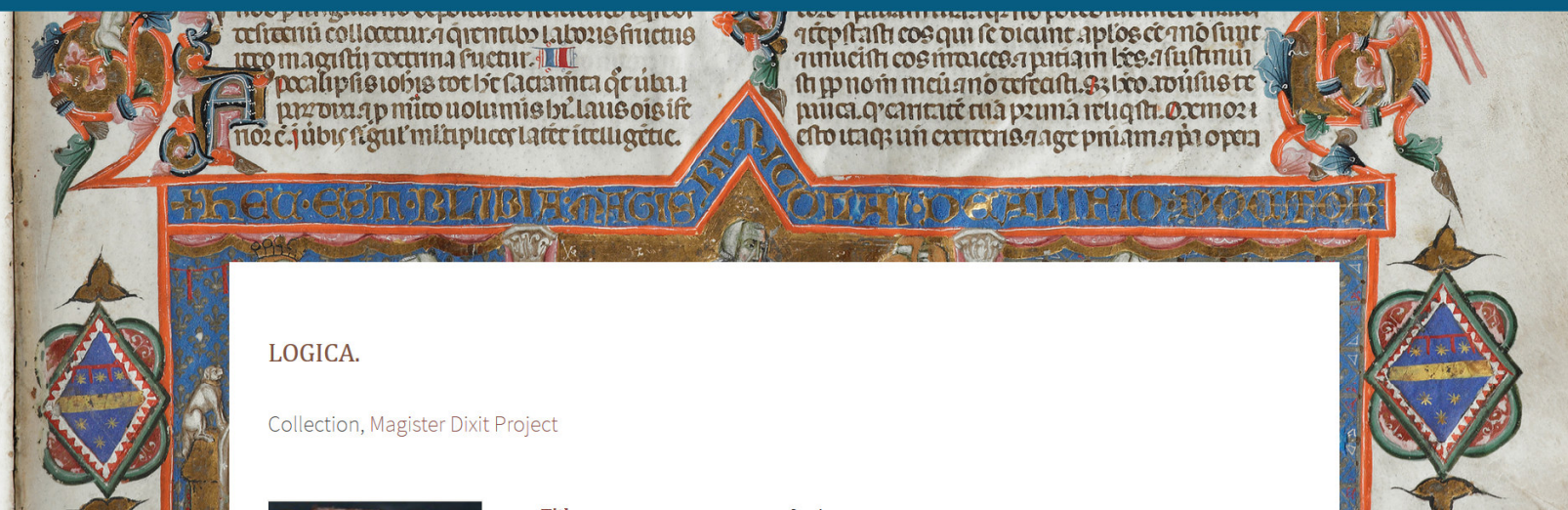
Magister Dixit

314 lecture notes in Omeka



LECTIO

Home | About us | Research | Events | Magister Dixit Project | Lectio Series



LOGICA.

Collection, Magister Dixit Project



Title	Logica.
Source	KU Leuven. Division of Heritage & Culture
Call number	Ms. 201
Date	1636
Student	de Laudnoys, Nicolaus
Provenance	Leuven (Louvain); Faculty of Arts, Paedagogium Lili
Content	Topica Sophistici elenchi Praedicamenta Analytica posteriora

resolver.libis.be/IE4923148/representation

Website: <http://lectio.ghum.kuleuven.be/>

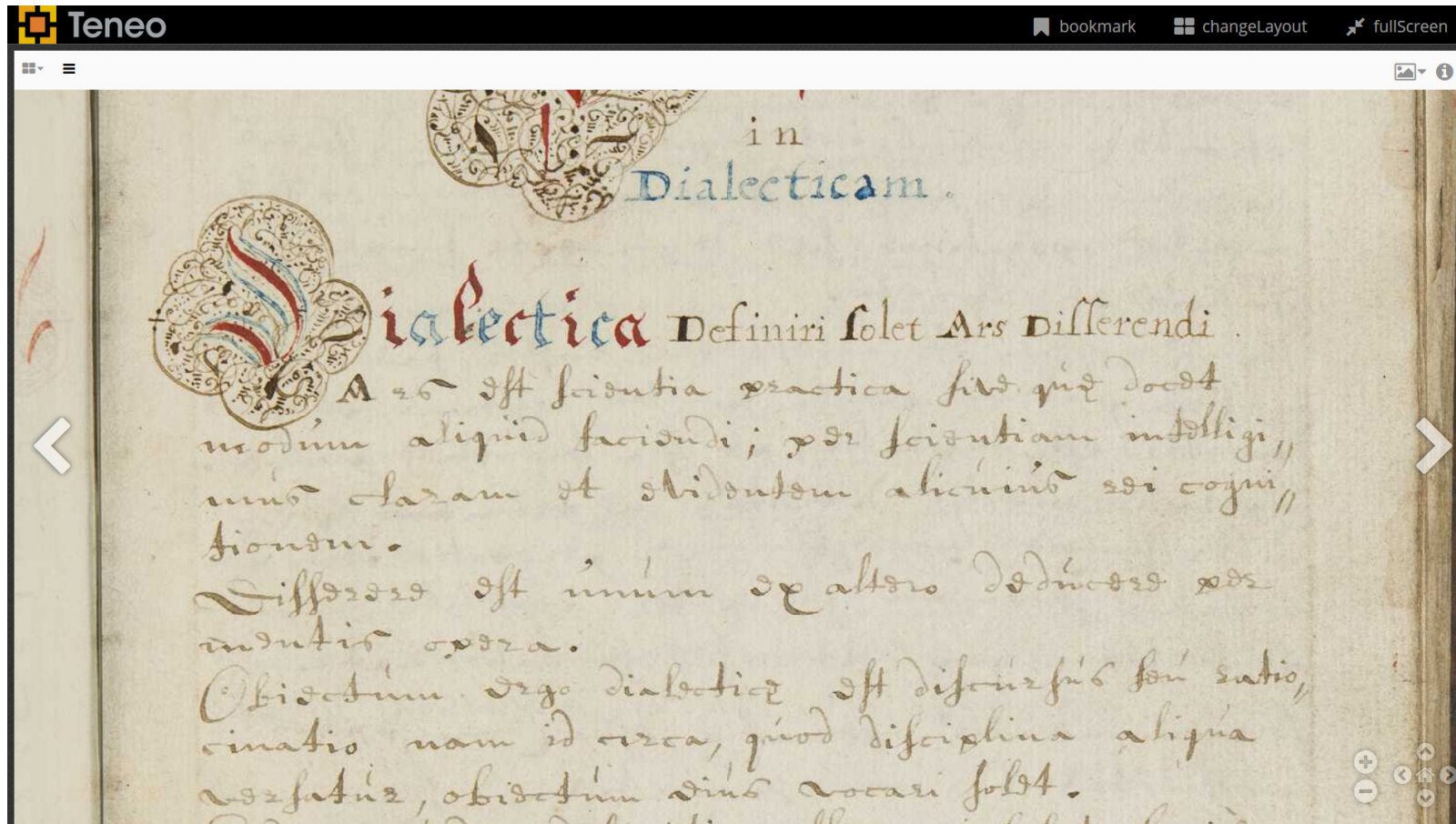
Resolver URL: <http://resolver.libis.be/IE5126528/representation>

Platform DH - IIF (2018-04-23, Antwerp)



Magister Dixit

540 lecture notes in Mirador



Website: <http://lectio.ghum.kuleuven.be/>

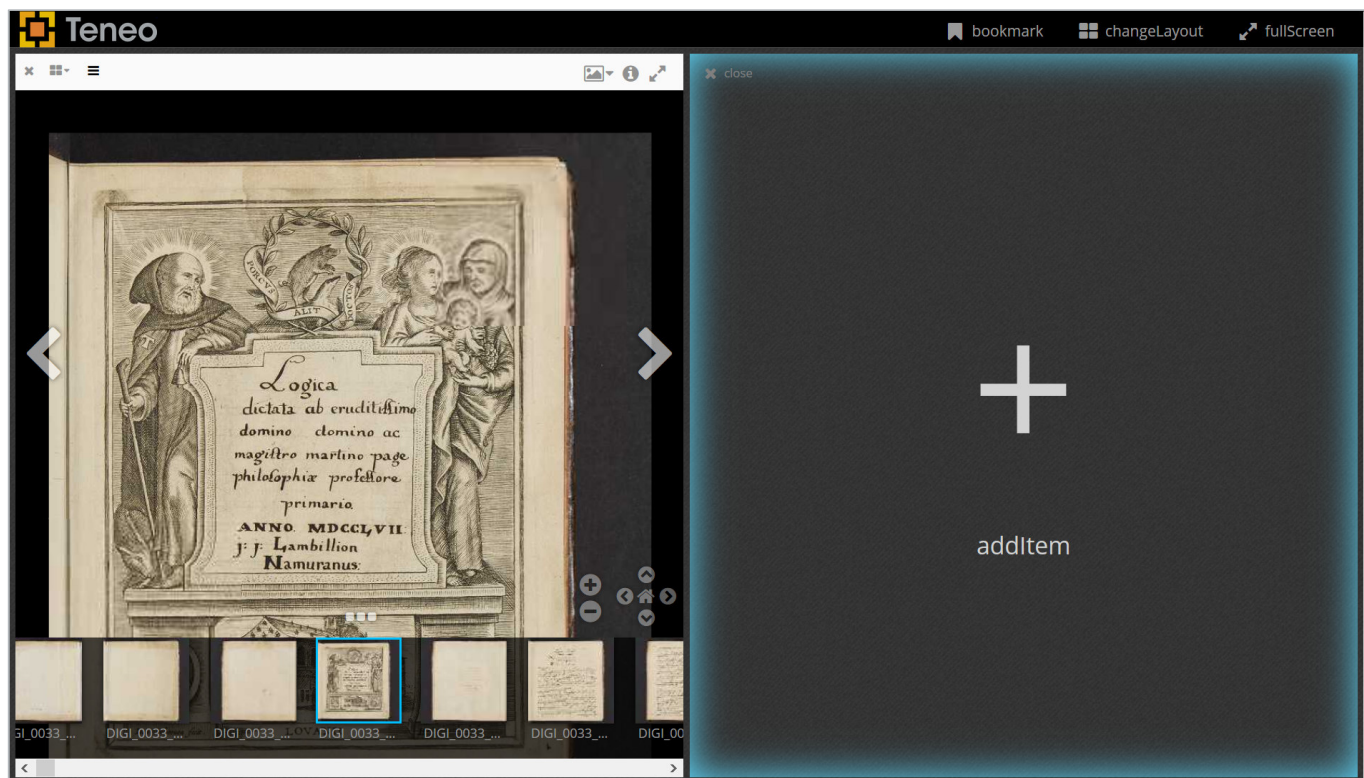
Resolver URL: <http://resolver.libis.be/IE5126528/representation>

Platform DH - IIF (2018-04-23, Antwerp)

Magister Dixit project Small changes to Mirador implementation



- Slow loading of library overview
- Difficult to find manuscripts in large collection





Magister Dixit project

Changes to Mirador implementation



Query: IE.internalIdentifier.internalIdentifierType.PID=IE5113283

Search on: Add term... Clear query Search

Previous page Next page

bookmark changeLayout fullScreen

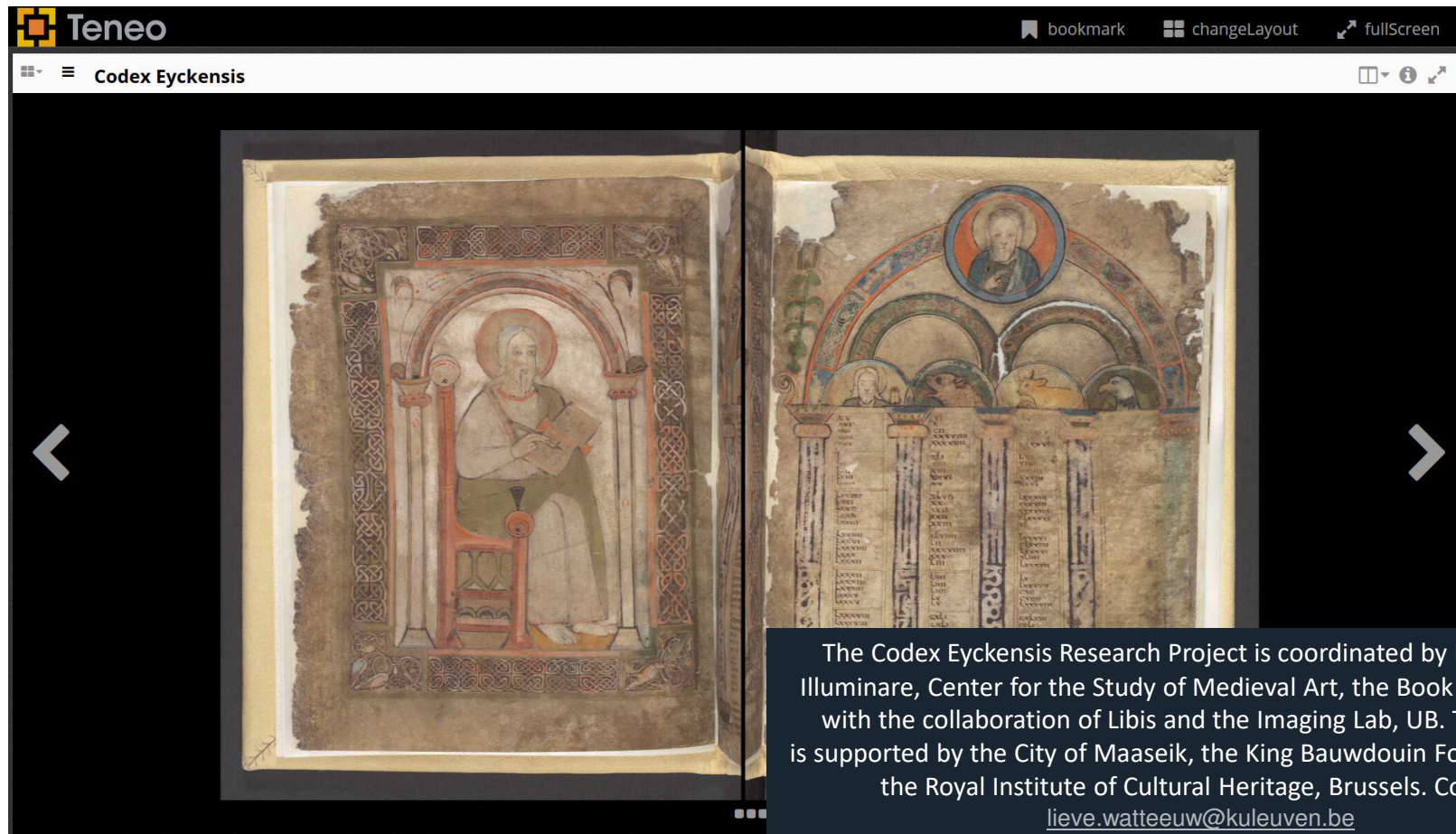
close title PID

filterObjects: addNewObject: http://... load

	Physica	528 items								...
	Physica	799 items								...
	Dialectica	358 items								...
	Logica. Physica	804 items								...
	Physica. Metaphysica	753 items								...
	Physica									...

Codex Eyckensis

Eighth-century Gospel Book from the treasury of Saint Catherine's church in Maaseik



The Codex Eyckensis Research Project is coordinated by KU Leuven, Illuminare, Center for the Study of Medieval Art, the Book Heritage Lab with the collaboration of Libis and the Imaging Lab, UB. The project is supported by the City of Maaseik, the King Bauwdouin Foundation and the Royal Institute of Cultural Heritage, Brussels. Contact lieve.watteeuw@kuleuven.be

Website: <http://www.codexeyckensis.be/>

Codex: <http://resolver.libis.be/IE5258806/representation> ; Evangelium: <http://resolver.libis.be/IE5356092/representation>

Platform DH - IIF (2018-04-23, Antwerp)



Codex Eyckensis

Extensive metadata, including manifest URL



bookmark changeLayout fullScreen

Codex Eyckensis

"Book of Lindisfarne" and the insular pointed minuscule used in non-scriptural texts. Major sections of the text (though not the capitula) are completed with horizontal lines preceded by (and in some cases also followed by) red dots. In addition every sentence was accentuated with a graceful black initial letter. On some of the folios yellow or red dots were placed around these letters as a finishing touch and to enhance readability. Lastly, the initial letter of each paragraph is also outlined by applying yellow or red dots. The Gospel text is a version of the Vulgate, the Latin translation of the Bible by Saint Jerome (Hieronymus of Stridon, 347–420 CE). However, the text of the Codex Eyckensis deviates from the 4th-century Vulgate: the scribe has introduced a number of additions and transpositions. Comparable versions of the Gospel texts can be found in the "Book of Kells", the "Book of Armagh" and the "Echternach Gospels".

manifest URL:
<http://services.libis.be/m2/manifest/IE5258806manifest.json>

creator:
According to the legend, as reported in the "Vita Harlindis et Reinulae" which was written down between 860 and 880 CE), the "Codex Eyckensis" was written and illuminated by Saints Harlindis and Relindis—sisters, founders and abbesses of the Frankish Benedictine Abbey of Aldeneik. Research has shown, however, that the Codex Eyckensis was written by a single scribe working in a scriptorium on the continent, presumably in the first Anglo-Saxon abbey on the continent: the Abbey of Echternach which was founded by Saint Willibrord in 698 CE. The scribe concludes the text of the manuscript with the sentence "Finito volumine deposco ut quicumque ista legerint pro labore huius operis depraecentur", which means "Having concluded this book, I now beg all who read this to pray for the worker ("laborator") who produced this manuscript". The fact that he uses the masculine term "laborator" confirms the fact that the scribe was a man.

type:
Museum, Maaseik

date:
8th century

A_010_Fron... A_011_001R A_012_001V A_013_002R A_014_002V A_015_003R A_016_003V A_017_004R A_018_004V A_019_005R A_020_005V A_021_Back... A_022_Back... A_023_Back...

Website: <http://www.codexeyckensis.be/>

Codex: <http://resolver.libis.be/IE5258806/representation> ; Evangelium: <http://resolver.libis.be/IE5356092/representation>

Platform DH - IIF (2018-04-23, Antwerp)



Codex Eyckenis manifest file



JSONRaw DataHeaders

SaveCopyFilter JSON

▼ metadata:

▼ 0:

label: "manifest URL"

▶ value: "http://services.libis.be/IE5258806manifest.json"

▼ 1:

label: "creator"

▼ value:

"According to the legend, as reported in the "Vita Harlindis et Reinulae" which was written down between 860 and 880 CE), the "Codex Eyckensis" was written and illuminated by Saints Harlindis and Relindis—sisters, founders and abbesses of the Frankish Benedictine Abbey of Aldeneik. Research has shown, however, that the Codex Eyckensis was written by a single scribe working in a scriptorium on the continent, presumably in the first Anglo-Saxon abbey on the continent: the Abbey of Echternach which was founded by Saint Willibrord in 698 CE. The scribe concludes the text of the manuscript with the sentence "Finito volumine depono ut quicumque ista legerint pro labore huius operis deprecetur", which means "Having concluded this book, I now beg all who read this to pray for the worker ("laborator") who produced this manuscript". The fact that he uses the masculine term "laborator" confirms the fact that the scribe was a man."

▶ 2: {...}

▶ 3: {...}

▶ 4: {...}

@type: "sc:Manifest"

▼ structures:

▶ 0: {...}

▼ 1:

▶ canvases: [...]

within: "http://services.libis.be/m2/range/range-0.json"

@type: "sc:Range"

@id: "http://services.libis.be/m2/range/range-0-0.json"

label: "A_001_FrontCover"

▶ 2: {...}

▶ 3: {...}

▶ 4: {...}

▶ 5: {...}

▶ 6: {...}

▶ 7: {...}

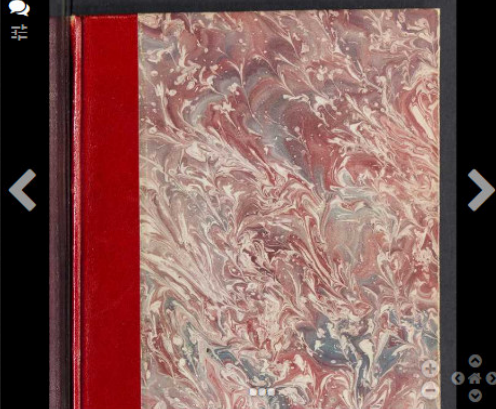
▶ 8: {...}

- Bringing together the *Collectio academica antiqua* of the KU Leuven Libraries and the Bibliothèques de l'Université catholique de Louvain in a virtual environment

Home > Collection > Ennarationes in primos quatvor libros Aeneidos

Teneo

bookmark changeLayout fullScreen



CaaA1331_f CaaA1331_f CaaA1331_f CaaA1331_f CaaA1331_f CaaA1331_f

Home > Collection > Rerum gestarum a Brabantiae ducibus historia :

Rerum gestarum a Brabantiae ducibus historia



ATTRIBUTION
UCL - Université catholique de Louvain

Ennarationes in primos quatvor libros Aeneidos Vergilij, quibus miro compendio tota ferè carminis cuiusq. sententia, & poëtæ consilium exponitur, nuper è vetusta quodem codice per Hadrianum Barlandum publicum Louaniensium rhetorem publicatæ & in lucem æditæ

CATALOGUE IMAGES

Creator
Barlandus, Adrianus (1486-1538)

Contributor
Vergilius Maro, Publius (70-19 BC)

Place
Antwerpen

Publisher
Hillenius Hoochstratanus, Michael

Date
1544

Language
Latin

Subject
Linguistics and literature: Latin

Description
A-14 ; [36] f. (4°)

Source
KU Leuven Libraries, Special Collections

Call number
CaaA1331

Rerum gestarum a Brabantiae ducibus historia : conscripta per Adrianum Barlandum, usq(ue) in annum vigesimum sextum, supra M.D. restituae Salutis. Imperante Carolo Quinto principe inuictissimo. Catalogus insignium oppidorum Germaniae inferioris

CATALOGUE IMAGES

Creator
Barlandus, Adrianus (1486-1538)

Place
Antwerpen

Publisher
de Grave, Joannes

Date
1551

Language
Latin

Subject
History: Low Countries

Description
[4], 108 f. 8° (16 cm) Papier

Source
Bibliothèques de l'Université catholique de Louvain. Réserve patrimoniale

Call number
RES Caa Barlandus H/5



Source: idemdatabase.org

IIIF in action



Try it yourself



- Online demo viewer: <http://projectmirador.org/demo/>
- Desktop viewer: <https://tinyurl.com/yazv83f2>
- KU Leuven viewer: <http://resolver.libis.be/IE2179693/representation>
- Mirador manual: http://services.libis.be/m2/Tutorial_Mirador.pdf
- Universal viewer:
https://universalviewer.io/uv.html?manifest=https://digi.vatlib.it/iiif/MSS_Vat.lat.3225/manifest.json



Try it yourself

A few IIIF resources



- KU Leuven resources:
 - Lovaniensia: <http://lovaniensia.be/> or collection manifest [http://services.libis.be/m2/manifest/BIBC Lovaniensia](http://services.libis.be/m2/manifest/BIBC_Lovaniensia)
 - Lectio - Magister Dixit: <http://lectio.ghum.kuleuven.be> or collection manifest [http://services.libis.be/m2/manifest/BIBC Lectio](http://services.libis.be/m2/manifest/BIBC_Lectio)
 - Idemdatabase.org: <http://idemdatabase.org/>
 - Codex Eyckenis: <http://resolver.libis.be/IE5258806/representation> or collection manifest [http://services.libis.be/m2/manifest/Musea Maaseik](http://services.libis.be/m2/manifest/Musea_Maaseik)
- Digital Bodleian: <http://digital.bodleian.ox.ac.uk>
- Digital Vatican Library: <https://digi.vatlib.it/>
- Harvard Library: <http://hollis.harvard.edu>, e.g. <https://iiif.lib.harvard.edu/manifests/drs:6135067>
- IIIF Universe: <https://graph.global/universes/iiif>

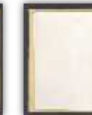


Loading manifests from different repositories in a single viewer

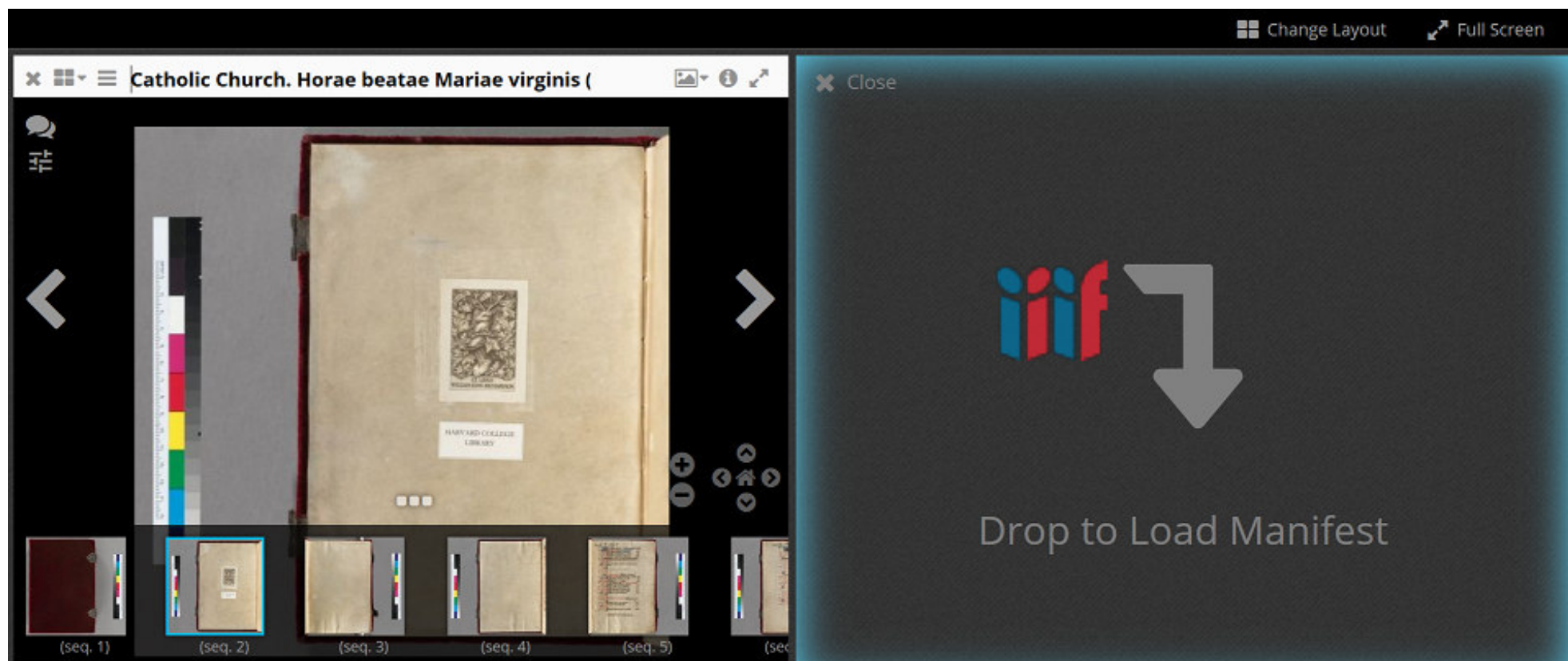
× Close

Filter objects:

Add new object from URL:

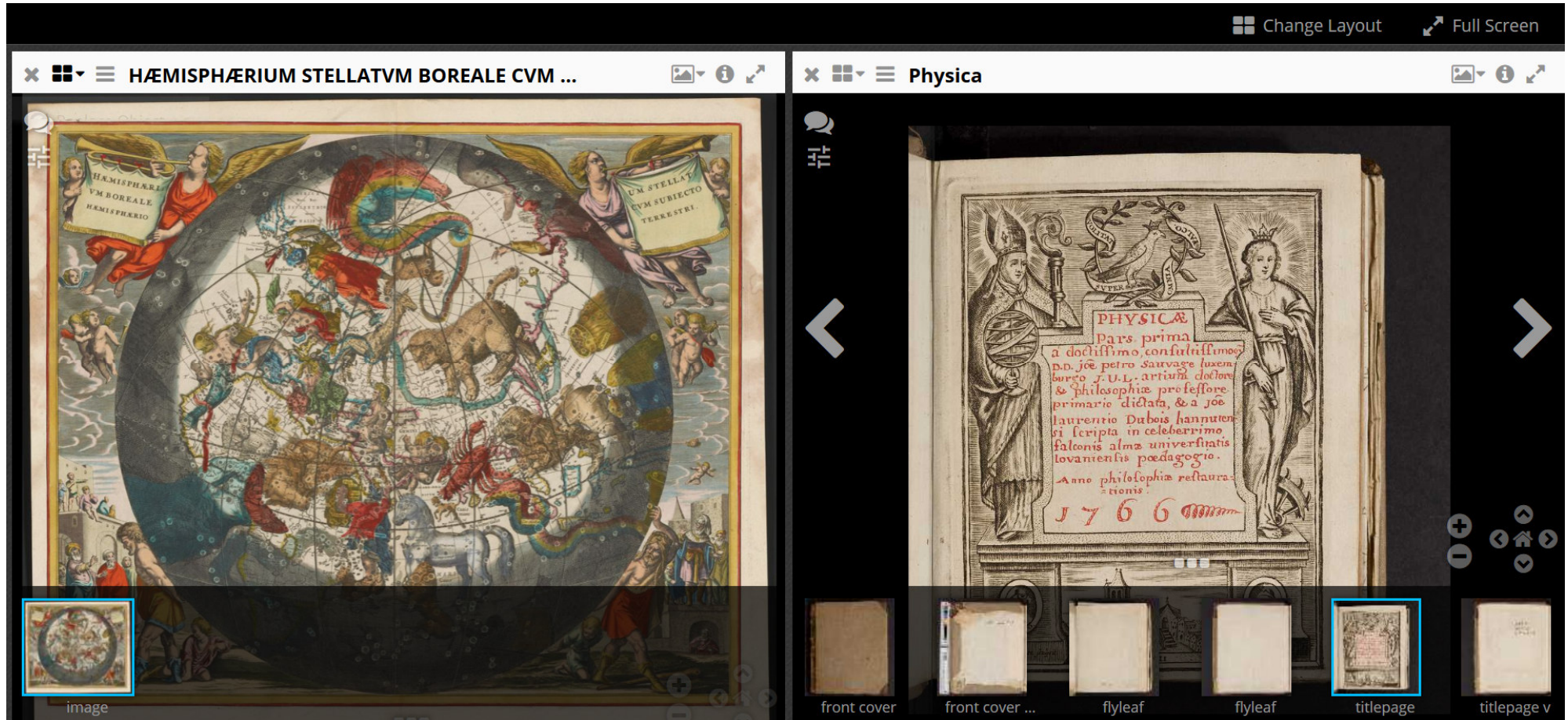
	Brussel - Koninklijke Bibliotheek van België / Bruxelles - Bibliothèque royale de Belgique - ms. 15075 (Added from URL) 278 items	        
	Codex Eyckensis (Added from URL) 308 items	        
	Physica (Added from URL) 622 items	        
	Housing Plans for Greater Dublin University College Dublin 1 item	
	A group of Irish Free State Army soldiers firing artillery on the Four Courts	

●●●● Loading manifests from different repositories in a single viewer



Interoperability of digital repositories

[Local Mirador instance](#)



Interoperability of digital repositories

Demo version of the Mirador viewer, Biblissima project



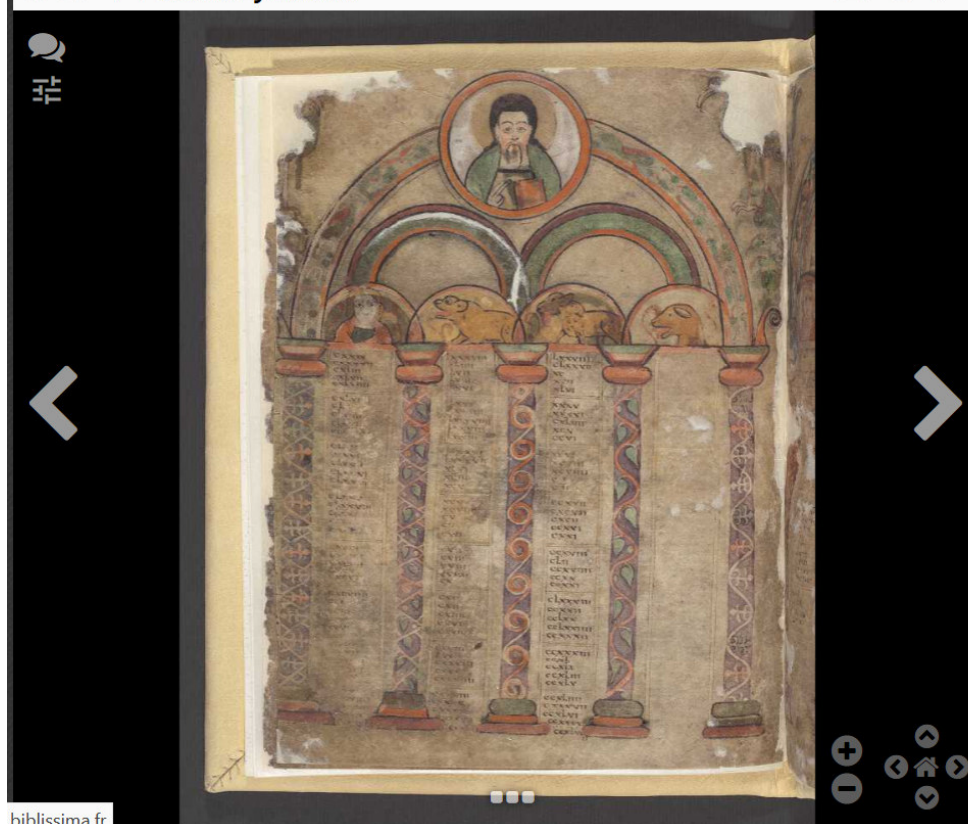
Biblissima

Change Layout

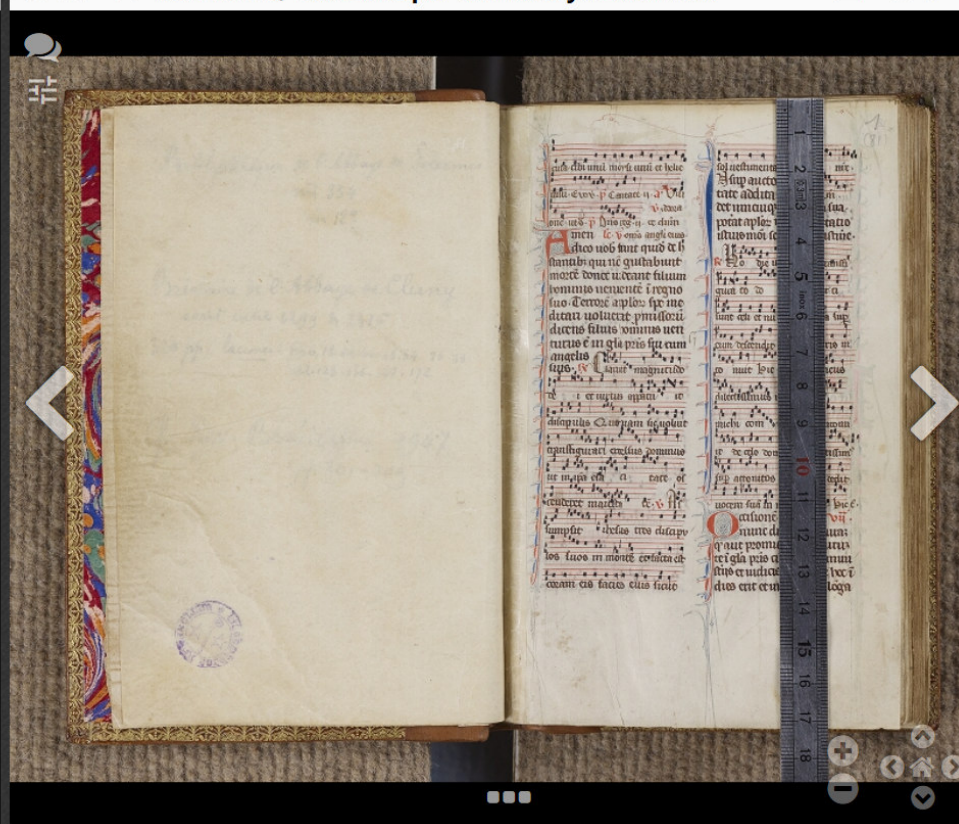
Full Screen

Codex Eyckensis

SOLESME, Bibliothèque de l'abbaye Saint-Pi...



biblissima.fr



demos.biblissima-condorcet.fr/mirador/

Platform DH - IIF (2018-04-23, Antwerp)

31



Source: <http://lectio.ghum.kuleuven.be/>

Exploring the IIIF universe



International Image Interoperability FrameworkTM



Community Focused

The IIIF is driven by a community of research, national and state libraries, museums, companies and image repositories committed to providing access to high quality image resources.



Community Focused

The IIIF is driven by a community of



Plug 'n' Play Software



Community groups

There are a number of [community and technical groups](#), open to participation from all interested parties, that focus on different areas of interest related to IIIF.

- A/V Technical Specification Group
- Discovery Technical Specification Group
- Manuscripts Community Group
- Museums Community Group
- Newspapers Community Group
- Software Developers Community Group
- Text Granularity Technical Specification Group

Participation



How to get involved

Join our discussion

<https://g>

Sign up to receive

<https://g>

Explore the IIIF community

<http://gi>

Share ideas in the

<http://bi>

Attend a IIIF Event

<http://ii>

Submit a news item

[IIIF News](http://ii)

Participate in bi-

<http://ii>

The schedule for

can be accessed

IIIF Community Calendar (Eastern Time)

Vandaag ◀ ▶ november 2017 Week Maand Agenda

zo	ma	di	wo	do	vr	za
	29	30	31	1. nov	2	3
	14:00 Mirador Deve					4
	5					
	14:00 Mirador Deve					
	12	1				
	14:00 Mirador Deve					
	19	2				
	14:00 Mirador Deve					
	26	2				
	14:00 Mirador Deve					

Evenementen worden weergegeven in tijdzo

Google Drive

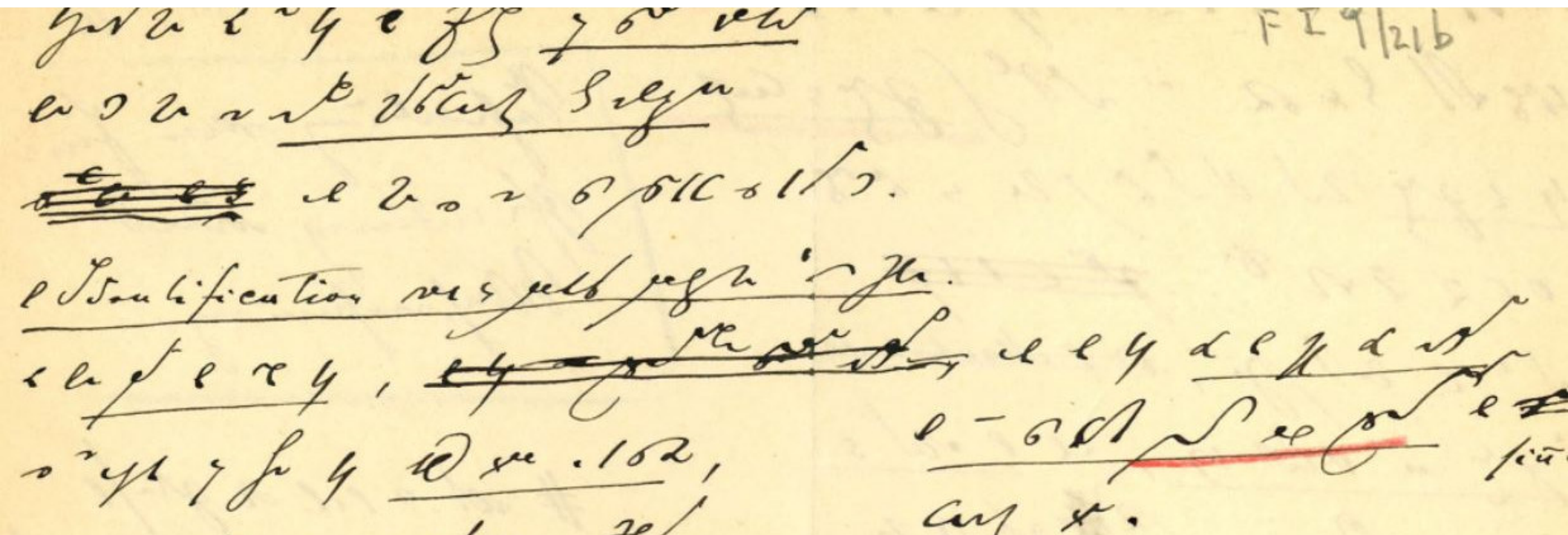
IIIF

Mappen

- IIIF CoCo
- IIIF Communit...
- IIIF Communit...
- IIIF Working D...

Bestanden

- Call for Comm...
- README



Further implementation of IIF

New projects, features and collections @ KU Leuven - LIBIS



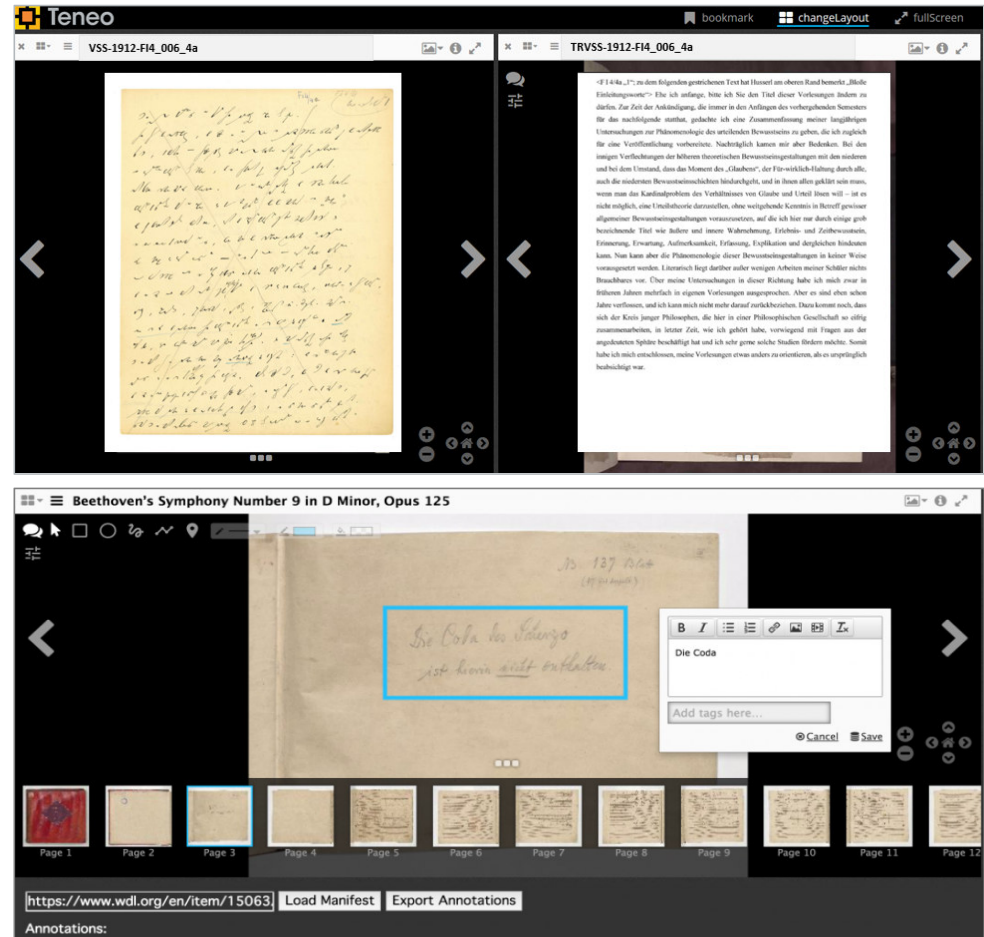


New collections and functions

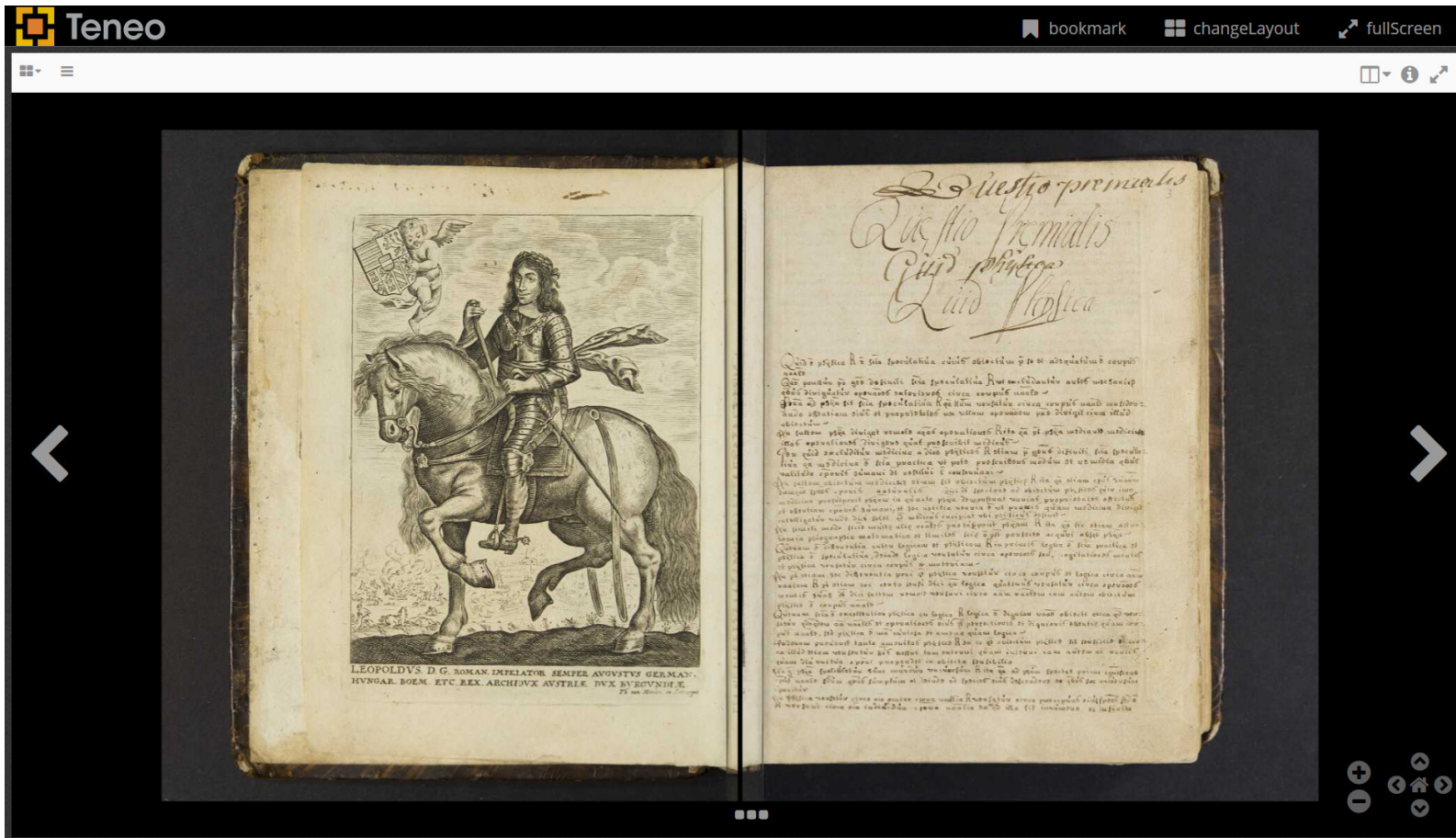
New budget for further implementation of IIIF and Mirador functionalities



- ✓ Proper IIIF manifest URI & collection URIs
- ✓ Persistent bookmarking
- ✓ Visualization of object metadata
- ✓ Table of contents
- ✓ New Collections
- ✓ Drag and drop
- Annotation function & search API
 - Authentication API
 - Other sources, viewers, media
 - Performance & IM
 - Authentication API
 - Multispectral images
 - ...



Thank you! Questions?



Source: <http://lectio.ghum.kuleuven.be/>

Roxanne Wyns - Roxanne.Wyns@kuleuven.be