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## From paper to digits

Roxanne Wyns

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**KU LEUVEN**



From paper to digits.

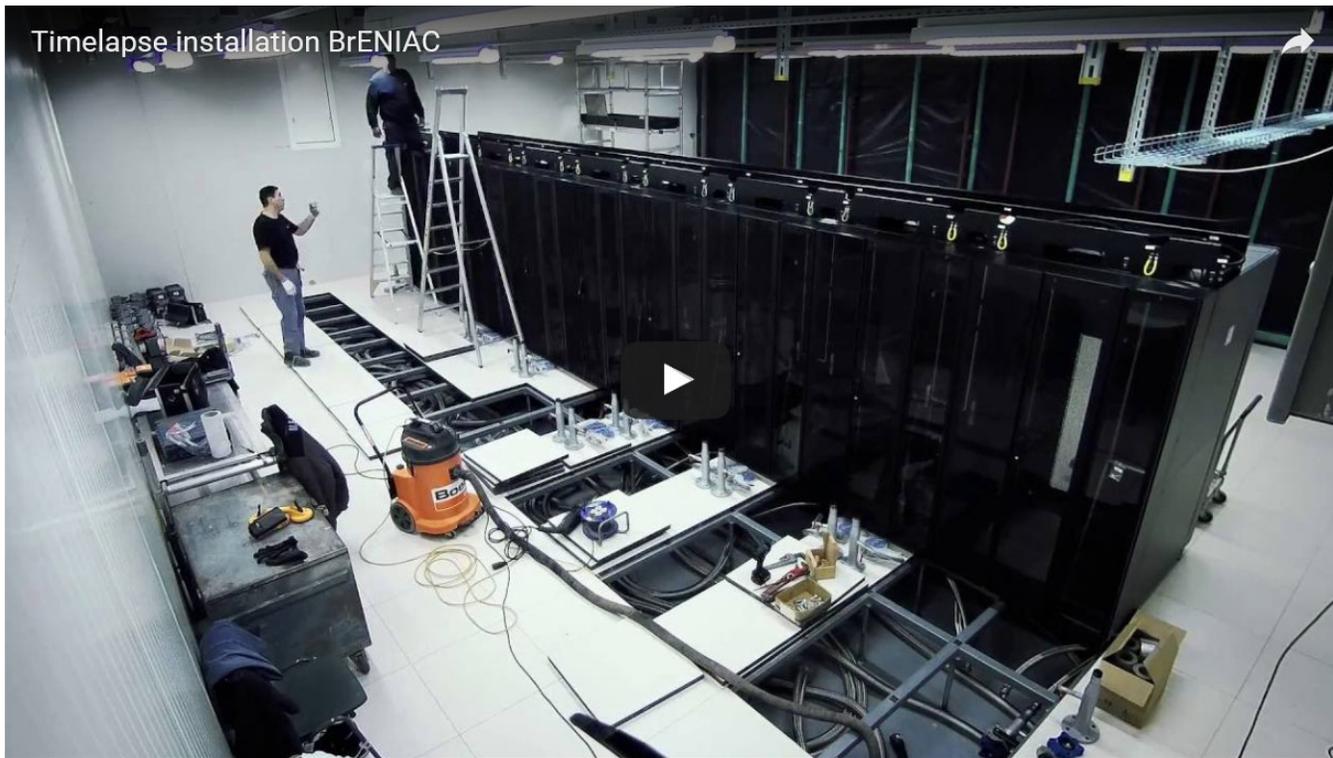
*Challenges and opportunities of Digital research*

**Roxanne Wyns**

*Roxanne.Wyns@kuleuven.be*



# ●●●● Innovation through collaboration



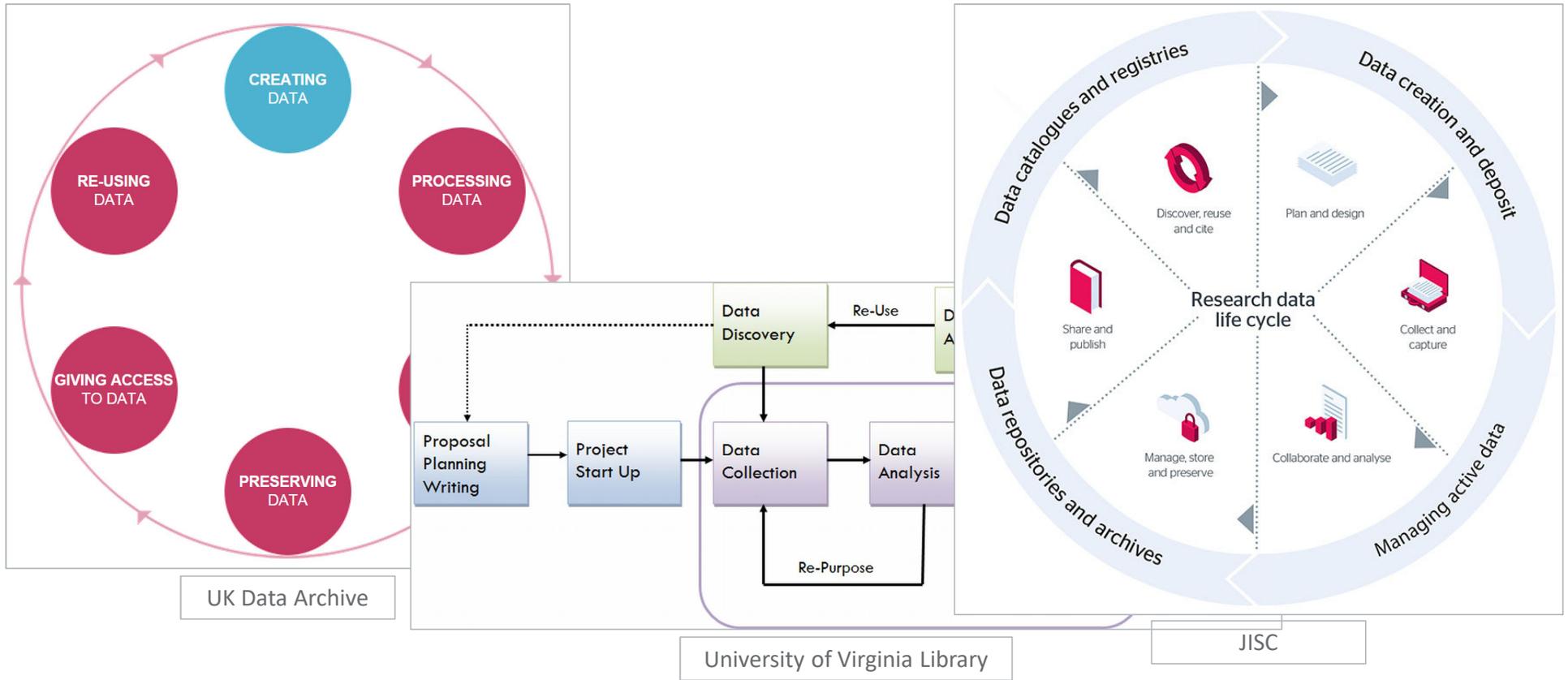
PEAK PERFORMANCE <b>600+</b> TERAFLOPS	<b>EDR</b>	<b>GPFS</b> 600+ TB
	<b>16,240 cores</b> Intel E5-2680 V4	<b>128 GB</b> Memory per node <small>256 GB</small>

Source: <https://admin.kuleuven.be/icts/nieuws/breniac>

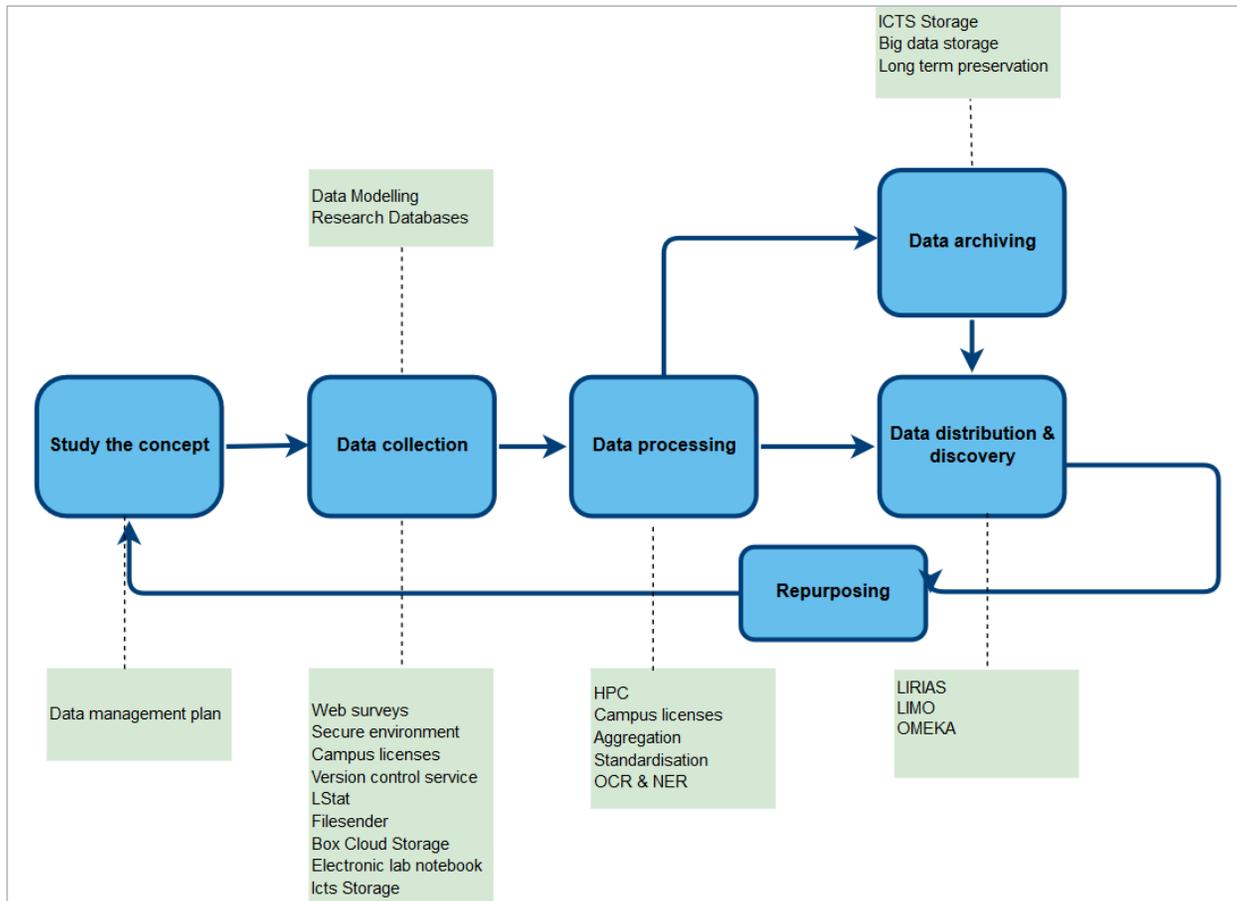
[Timelapse installation BrENIAC - YouTube](#)



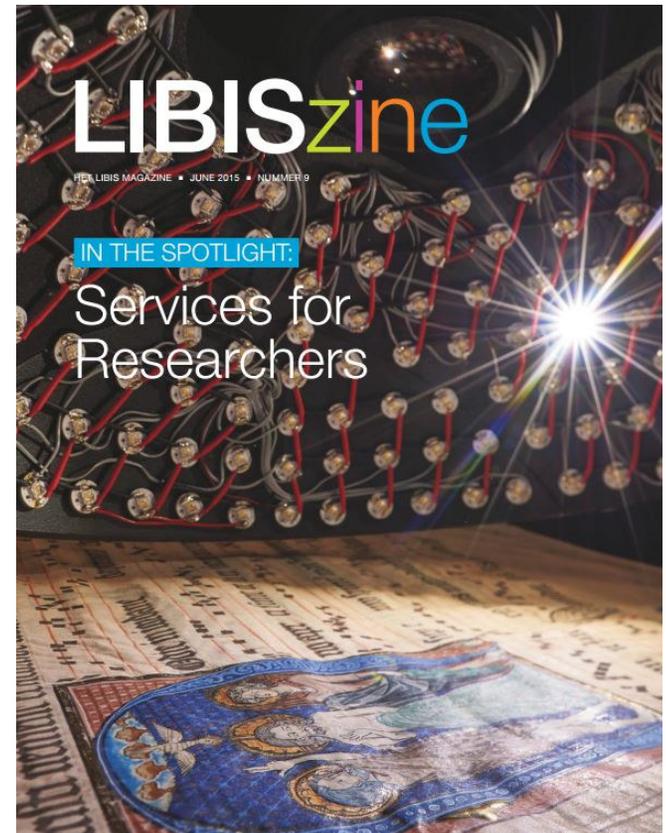
# Digital transformation of research

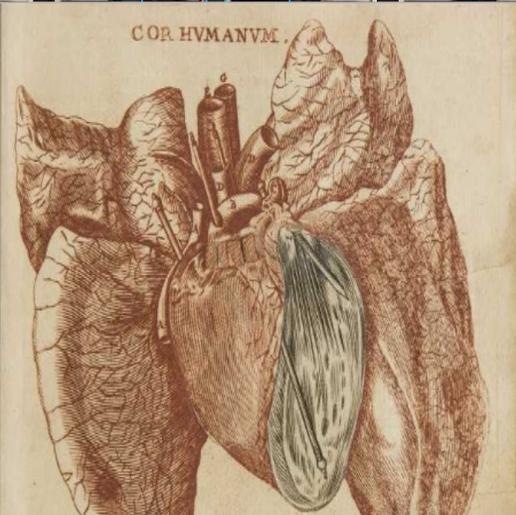


# Services for researchers @ KU Leuven



KU Leuven





Ji Jianxun 紀建勛  
Cheng si yu kai xin: Cong "Sh  
承嗣与开心: 从“沙勿略方针”到  
05.03.02 Missionaries: Jesuit  
14.04 Cultural exchange betw  
In: 晚明以来的天主教研究, pp  
chapter  
CCT Secondary sources



## Sustainable service portfolio



## Sustainable RI



# Integrated Database for Early Music

IDEM project



## 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

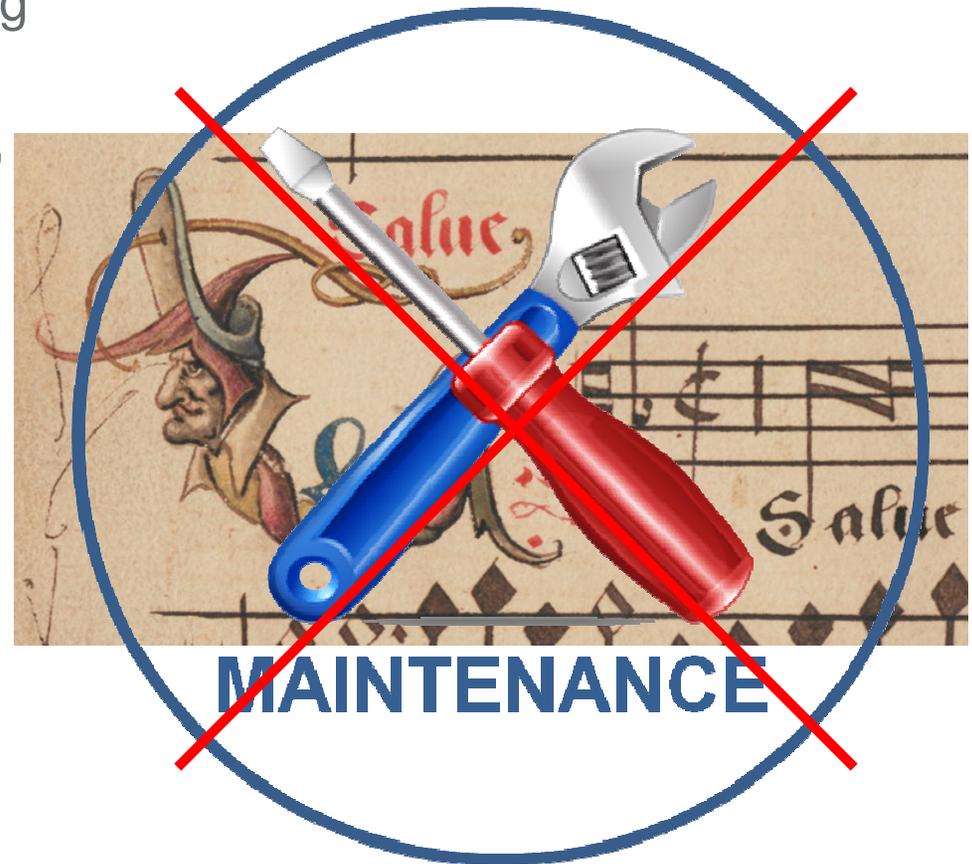


*Manuscript illumination.  
Probably created by the workshop of Petrus Alamire for the  
Illustrious Brotherhood of Our Lady in 's-Hertogenbosch  
(around 1530's).*

*Source: [idemdatabase.org](http://idemdatabase.org)*

# ●●●● IDEM project – Budget limitations

- Main budget preserved for storage & long term preservation
- Limited resources for database, website, and viewer
- No budget for post-project maintenance and support



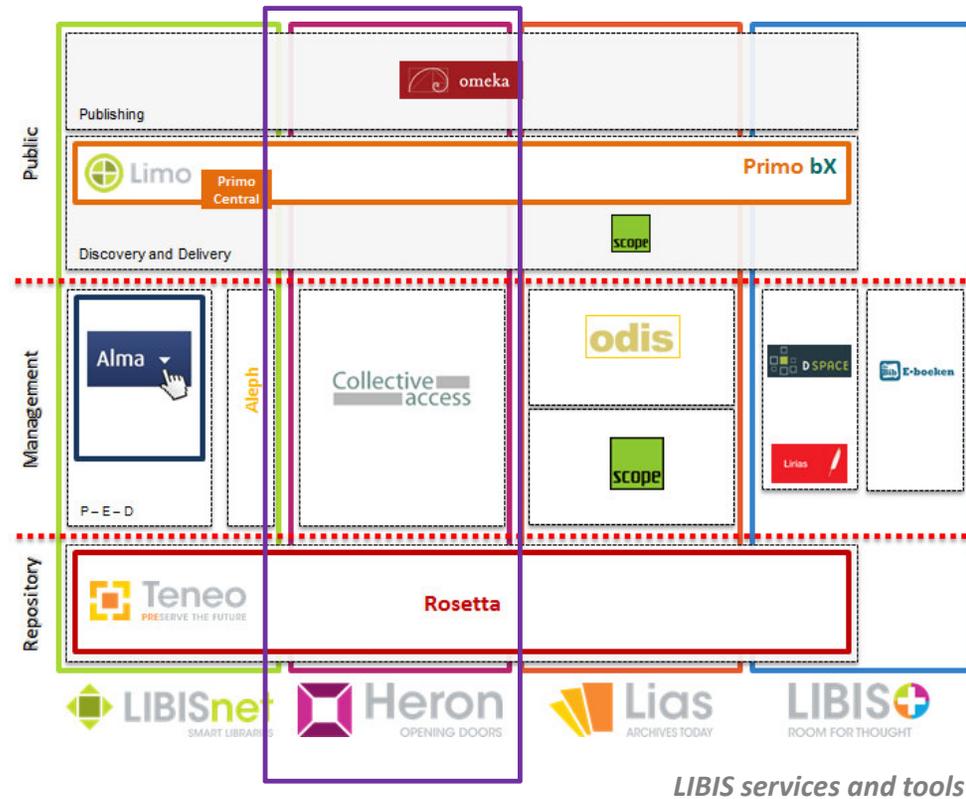
*Budget cut on post-project maintenance influenced the selection of tools*

# ●●●● IDEM project - Selection of tools

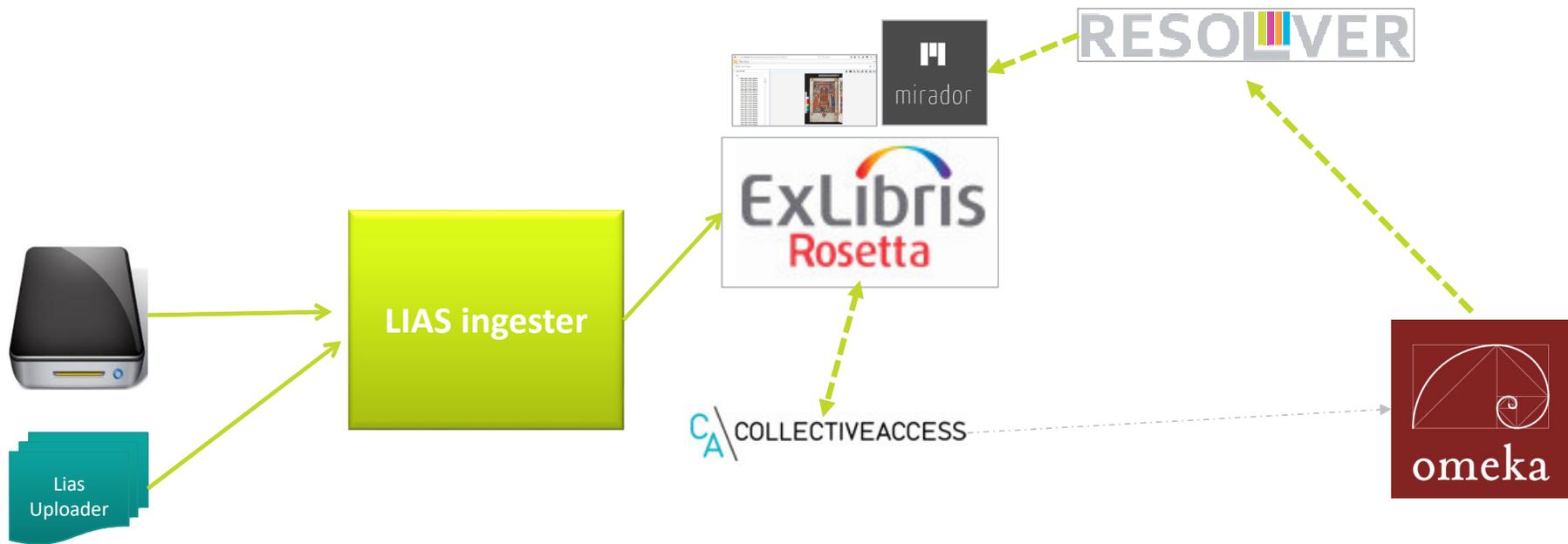


- Reuse a combination of existing tools in a flexible way
- Use open source where possible to limit the license costs
- Share the development costs with projects with similar interests

*Clear communication on pros & cons of offered tools and total cost of ownership*



# ●●●● IDEM project - Tools & infrastructure



# ●●●● IDEM project – Viewer requirements

- Quick, without loss of quality
- Easy navigation within manuscript
- Full screen, tool bars should take up limited space
- Extensive zooming options in a single and fluid movement, focused on selected area
- Easily compare folio's from different manuscripts in a single view
- ...

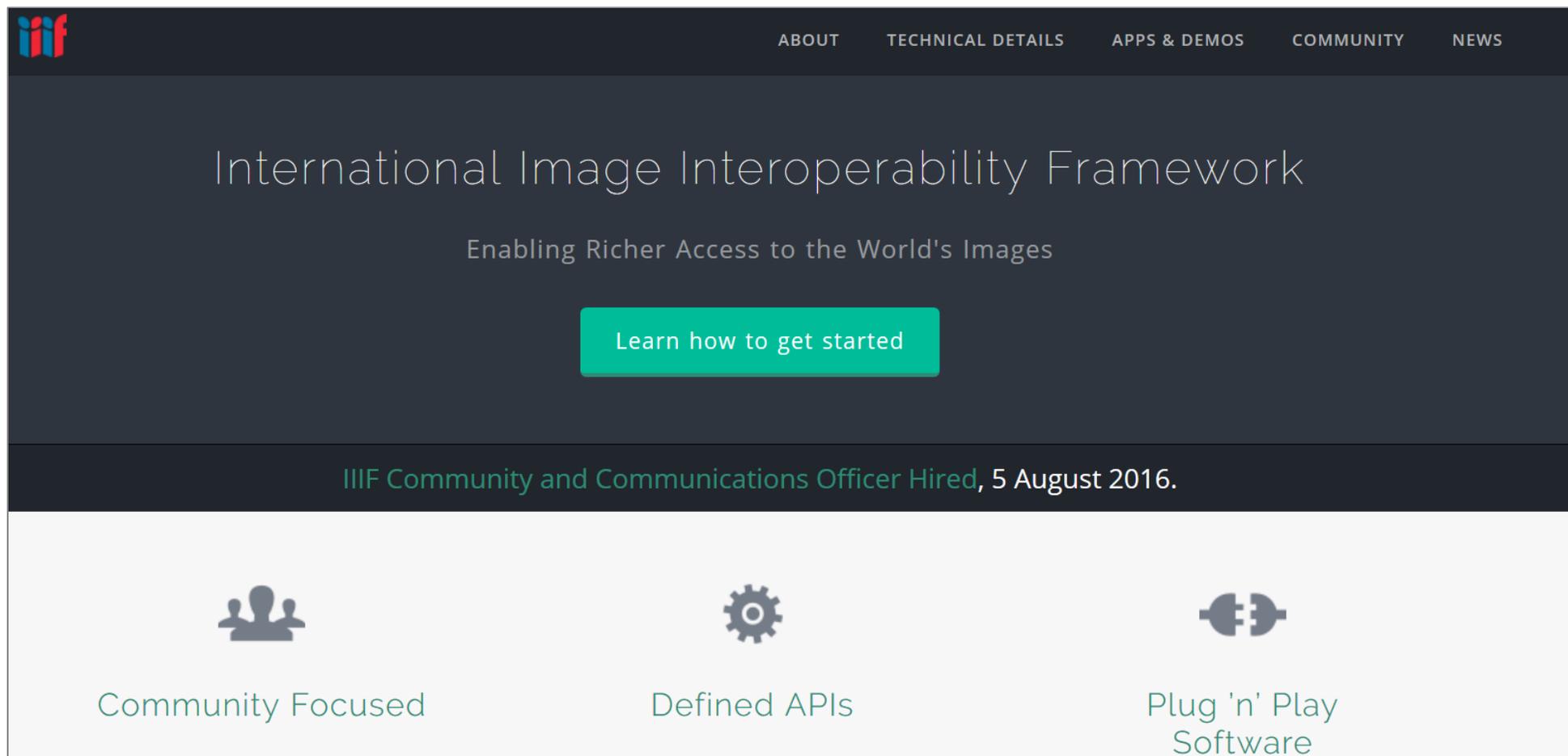


[NL-SH-ms-72A](#)



[D-Mbs-ms-Mus.ms.-F](#)

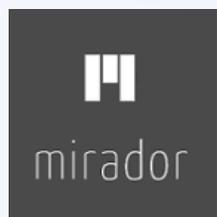
# ●●●● IDEM – Selection of IIF Mirador viewer



The screenshot shows the homepage of the International Image Interoperability Framework (IIF). At the top left is the IIF logo, and at the top right is a navigation menu with links for ABOUT, TECHNICAL DETAILS, APPS & DEMOS, COMMUNITY, and NEWS. The main heading reads "International Image Interoperability Framework" with the tagline "Enabling Richer Access to the World's Images". A prominent teal button in the center says "Learn how to get started". Below this is a news banner: "IIF Community and Communications Officer Hired, 5 August 2016." The bottom section features three columns, each with an icon and a title: "Community Focused" (with a group of people icon), "Defined APIs" (with a gear icon), and "Plug 'n' Play Software" (with a puzzle piece icon).



# ●●●● IDEM – Selection of IIF Mirador viewer



## OPEN SOURCE

Participate in development on Github. Submit issues, changes, or suggestions, and be a part of the process. You can also join the discussion on the mirador-tech mailing list and slack channel.



## FULL FEATURED

Mirador implements the full client functionality of the IIF Image and Presentation APIs. It provides tools for bringing in metadata, images, structures, and can create, edit, delete, and view annotations in Open Annotation Format.

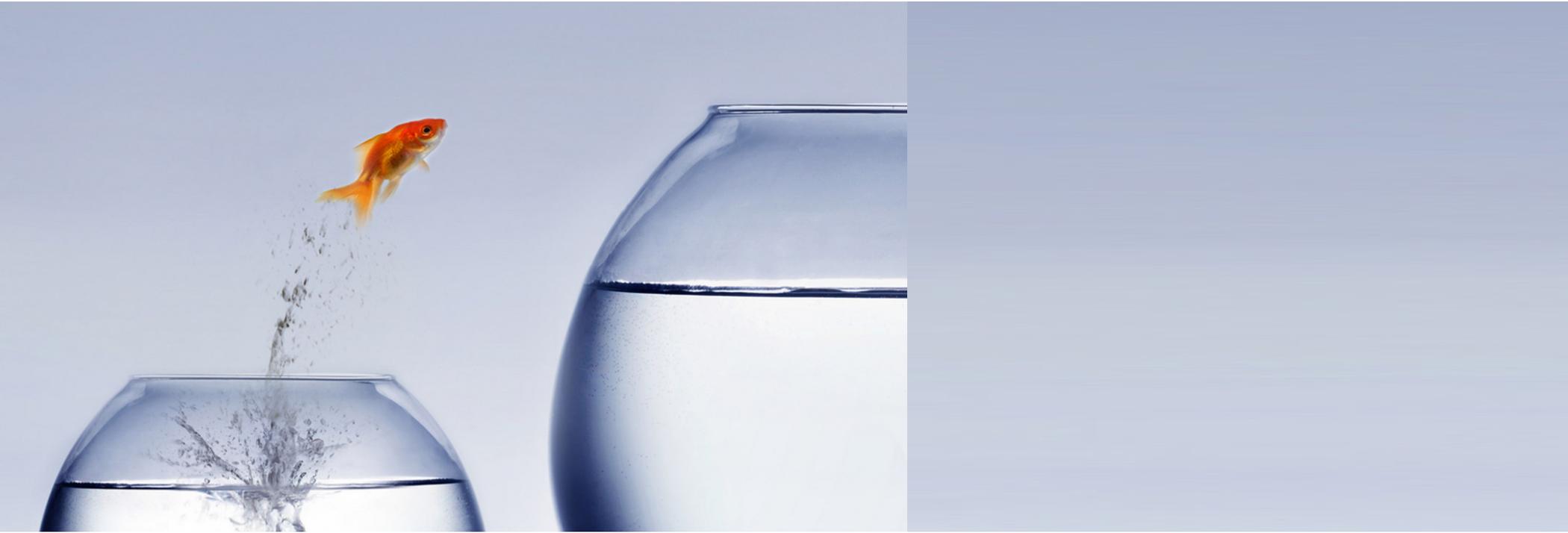


## CONFIGURABLE

Mirador can be easily configured to provide the simple functionality of an embedded viewer or bookreader, or opened up into a fully-featured scholarly workspace.







# Challenges & opportunities

From a service provider point of view



# ●●●● Budget vs. Requirements

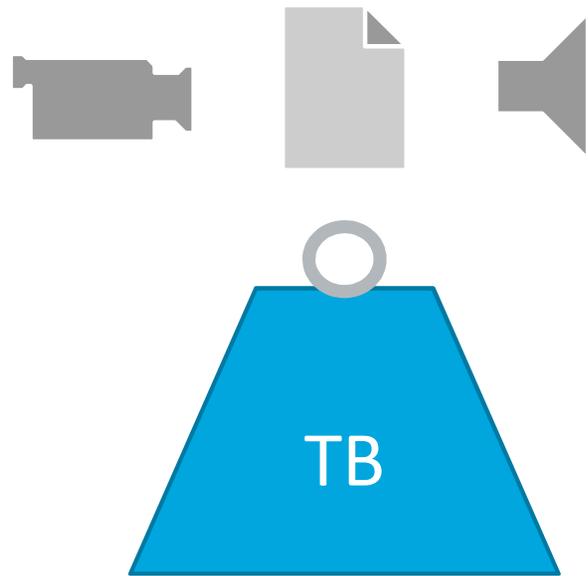


*Budget for IT usually underestimated*

# Technical knowhow



*Awareness and IT knowledge are growing*



*Costs for maintenance, storage and support remains the biggest challenge for humanities research groups*

# Opportunities



Teneo

Bookmark Change Layout Full

B-Br-ms-9126

*Growing number of partnerships through investments and diversification of services*

Navigation icons: back, forward, search, zoom in, zoom out, home, refresh.

Thumbnail strip at the bottom showing various manuscript pages, with the current page highlighted in blue.

Teneo

Bookmark Change Layout Full Screen

Change Layout

2x2

Query

Search on: Add term... Clear query Search Previous page Next page

Teneo

Bookmark Change Layout Full Screen

Close B-Br-ms-228

Filter objects: B-Br-ms-6428 251 items 248 more

Filter objects: B-Br-ms-6428

Add new object from URL: B-Br-ms-215-16 110 items 107 more

B-Br-ms-215-16

B-Br-ms-15075 278 items 275 more

B-Br-ms-15075

B-Br-ms-11239 132 items 129 more

B-Br-ms-11239

Teneo

Bookmark Change Layout Full Screen

B-Br-ms-9126 B-Br-ms-11239



# ●●●● Opportunities



Source: <https://www.pinterest.com/pin/132926626478982555/>

*Working together to achieve our goals*

*Clear communication on the limitations and what to expect (TCO)*

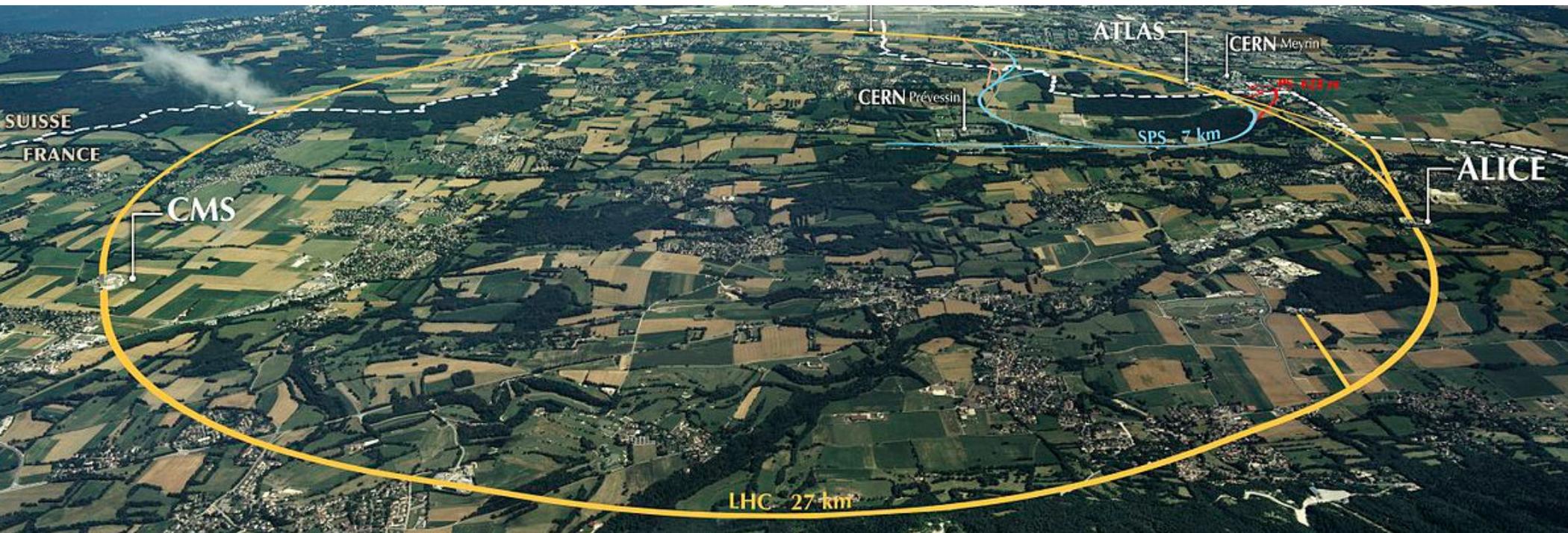
*Willingness to collaborate and share developments is growing*

*Alternative financing mechanisms for post-project sustainability*



*Technical research  
support services at the  
University*

- Have access to both financial and personnel resources to execute technology projects
- Can interpret and translate the research needs into technical requirements
- Can provide qualitative, scalable, affordable and reusable services
- Can link up with other service providers and vendors to achieve technical innovation
- Are the best guarantee for technical and financial sustainability
- Can serve as a bridge between DH researchers and research infrastructures such as DARIAH



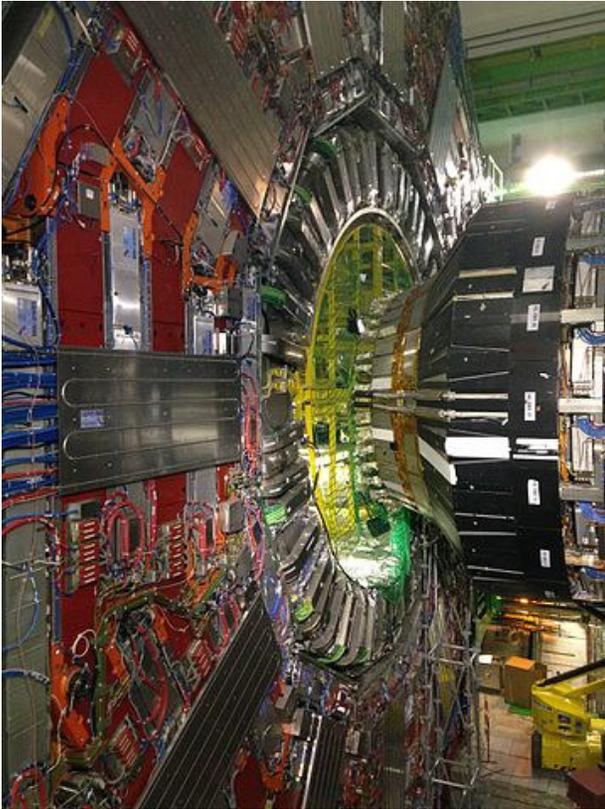
By Maximilien Brice (CERN) (CERN Document Server) [CC BY-SA 3.0 (<http://creativecommons.org/licenses/by-sa/3.0/>)], via Wikimedia Commons

# The bigger picture

Sustainable research infrastructures on a pan-European and global scale



# ●●●● Innovation sustainability



By Tighef - Own work, CC BY-SA 3.0,  
<https://commons.wikimedia.org/w/index.php?curid=32359317>

## Dariah is in the position to:

- Fully exploit synergies and integration activities between smaller regional, national and other pan-European RI
- Identify the needs of Humanities researchers and the gaps of the research and development
- Provide training programs for humanities researchers that will lead to the increased use of existing RI
- Create awareness around sustainability and the benefits of collaborating and investing in an existing RI instead of starting a new project

# ●●●● Data sustainability



By Foolish lego web-comic  
<http://www.foolishlego.com/?p=3536>

## DARIAH is in a position to:

- Promote and support use and reuse of research results and open data
- Help reduce the heterogeneity of data
- Promote data management and stewardship
- Point researchers to trusted repositories
- Make available core data experts to provide best practice guidelines and assist researchers in creating FAIR data
- Be an intermediate between RI and e-infrastructures to provide cost efficient and sustainable storage and access

# ●●●● Sustainable partnerships



Source: <https://www.pinterest.com/AshlingGilbert/colonies/>

## DARIAH is in the position to:

- Explore and indicate pathways for DH projects and RI to collaborate
- Provide guidance on access to RI and data
- Look out and apply for joint funding mechanisms
- Coordinate joint initiatives
- Stenghten the European position on DH research within the international context

# ●●●● Sustainable skills



## DARIAH is in a position to

- Continuous upskilling of DH researchers and RI managers
- Support the transfer of best practices
- Mentoring programs between experienced and less experienced users
- Training experiments
- Stimulate knowledge transfer, not only of researchers, but also of supporting personnel
- Facilitate the organization of staff exchanges

# Financial sustainability



Source: [Pinterest](#)

## DARIAH is in a position to:

- Support smaller distributed RI to gain financial stability
- Simplifying the discoverability of these services
- Help users better understand their relevance
- Provide shared language for service descriptions
- Increase visibility of service offerings
- Train and assist RI managers in business modeling, setting up open source projects, and managing user communities
- Point them to similar projects for participation and collaboration

# Sources & reading material

- [ESFRI - Strategy Report on Research Infrastructures](#)
- [European Commission - Long term sustainability of Research Infrastructures, Exploring RI's full potential](#)
  - [Workshop report](#)
  - [Non paper](#)
  - [Report on the consultation on the Long Term Sustainability of Research Infrastructures](#)
  - [Presentations](#)
- *Note on research infrastructures by LERU Working Group of Deans of Natural Sciences*
- [How to create a successful opensource project. St. Andrews 2012](#)
- [The Impacts of Large Research Infrastructures on Economic Innovation and on Society: Case Studies at CERN](#)
- [European Charter for Access to Research Infrastructures](#)
- [Finland's Strategy and Roadmap for Research Infrastructures 2014–2020](#)
- [Dublin City University Research Infrastructure Policy](#)

# ●●●● Thank you! Questions?



*Dr. Lynda Sayce prepares a manuscript in the Alamire Digital Lab in Vatican City.  
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Roxanne Wyns - [Roxanne.Wyns@kuleuven.be](mailto:Roxanne.Wyns@kuleuven.be)



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