



From paper to digits

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KU LEUVEN



From paper to digits.

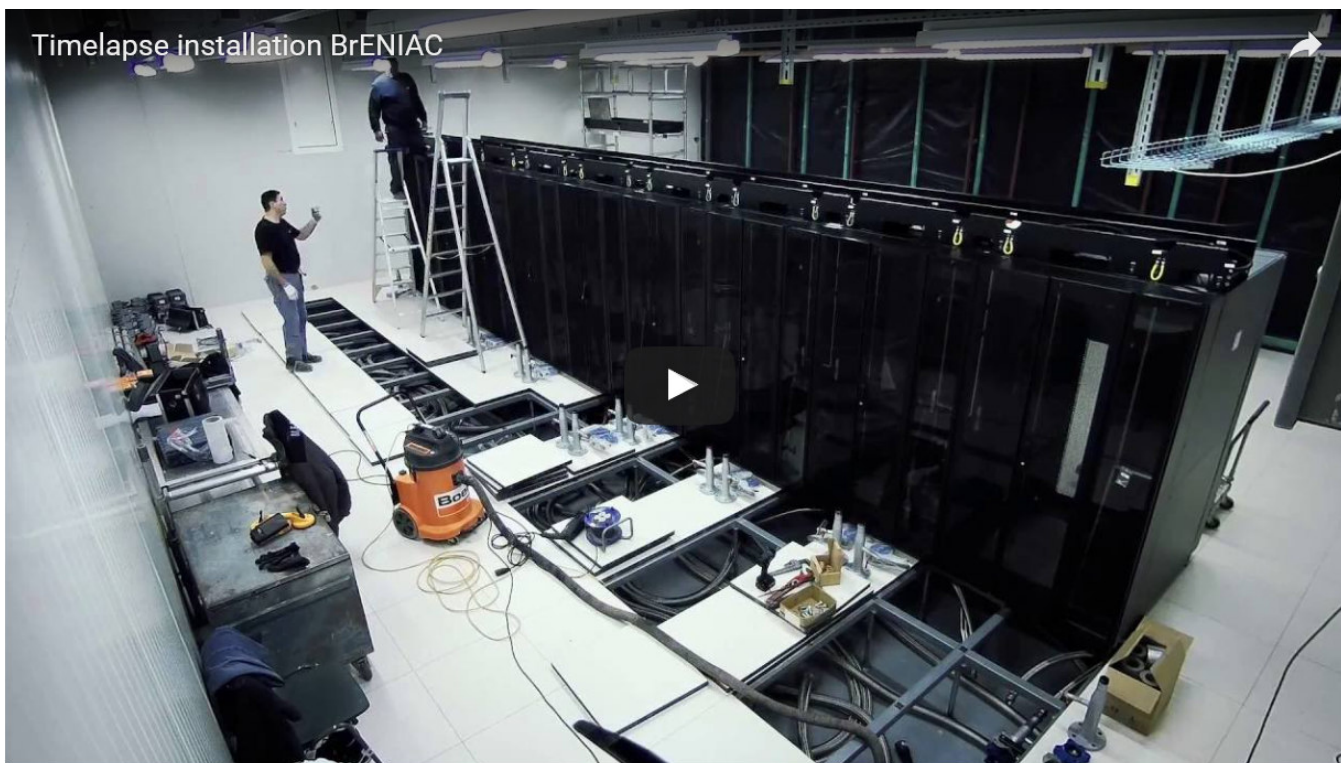
Challenges and opportunities of Digital research

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●●●● Innovation through collaboration



[Timelapse installation BrENIAC - YouTube](#)

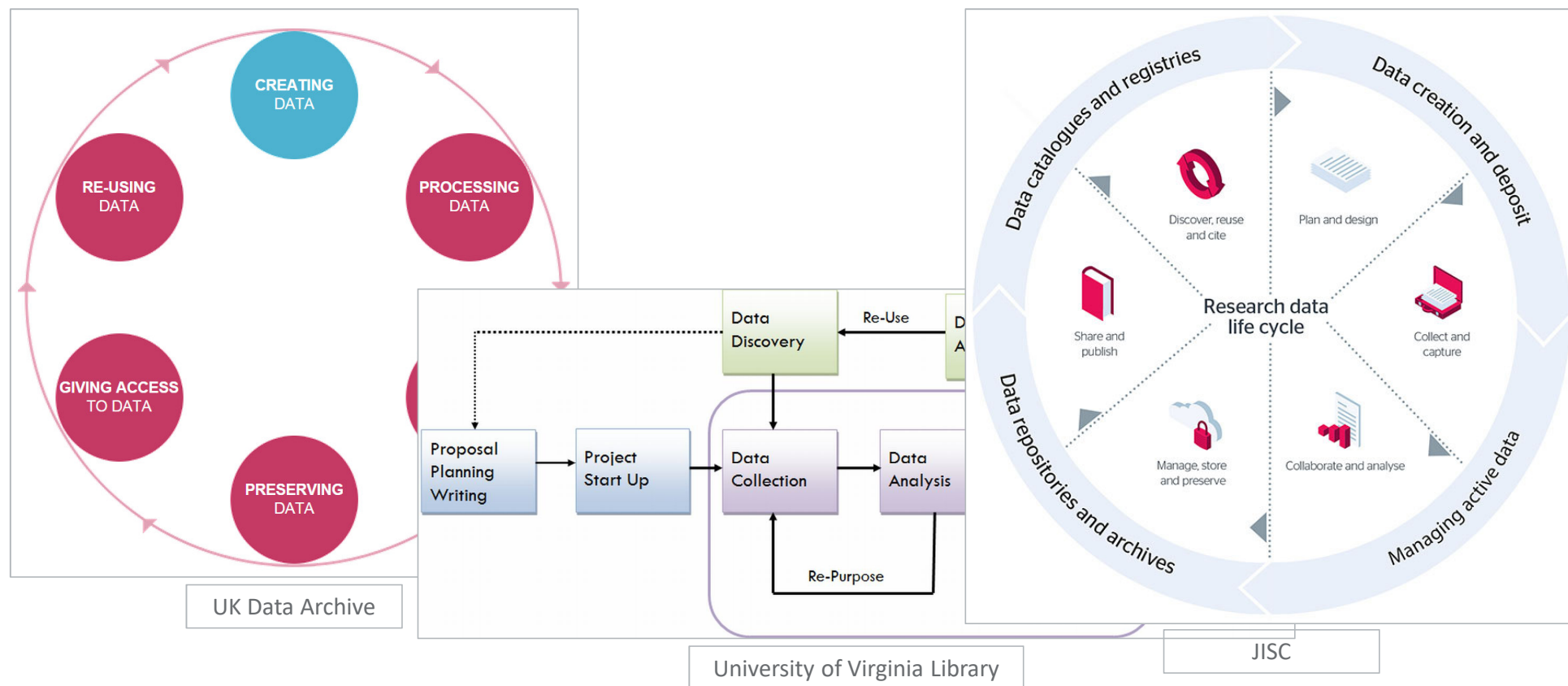


PEAK PERFORMANCE 600⁺ TERAFLOPS	EDR	GPFS 600 ⁺ TB
	16,240 cores Intel E5-2680 V4	128 GB Memory per node <small>256 GB</small>

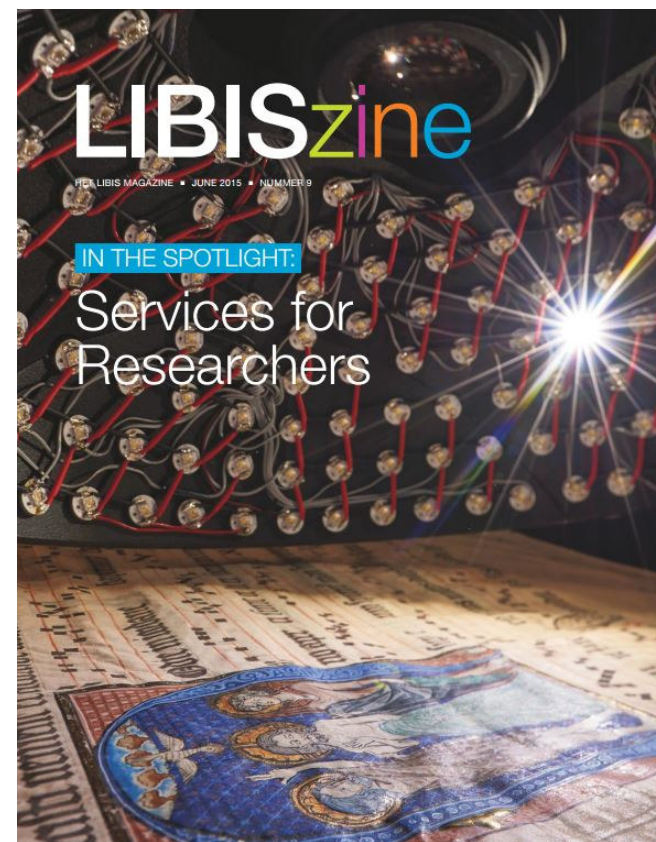
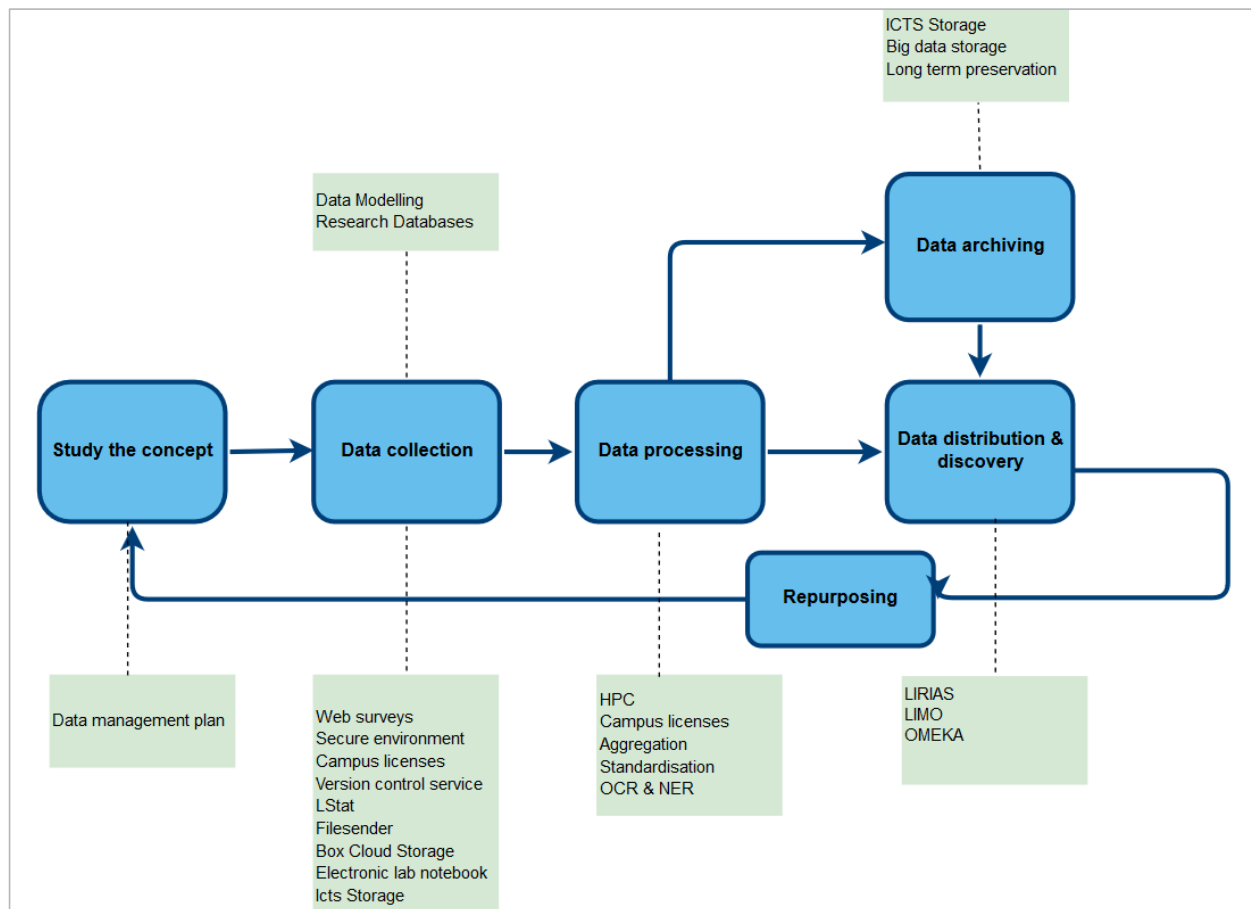
Source: <https://admin.kuleuven.be/icts/nieuws/breniac>



Digital transformation of research



Services for researchers @ KU Leuven



KU Leuven



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



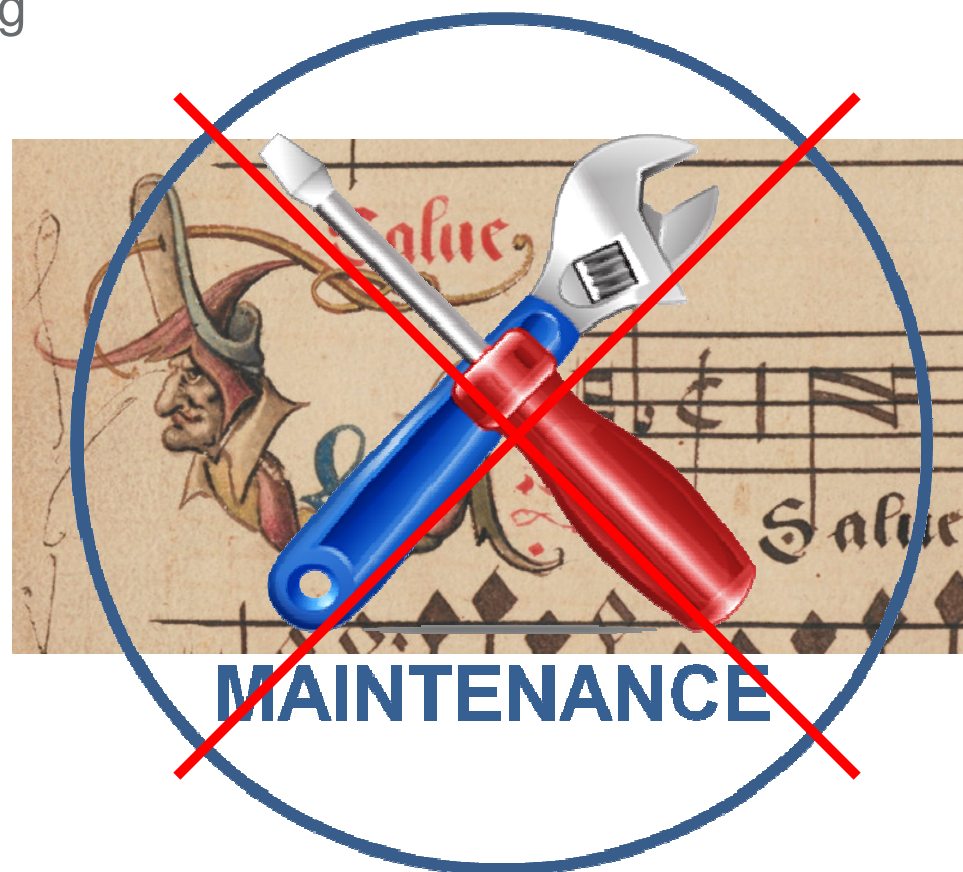
*Manuscript illumination.
Probably created by the workshop of Petrus Alamire for the
Illustrious Brotherhood of Our Lady in 's-Hertogenbosch
(around 1530's).*

Source: idemdatabase.org

.... 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

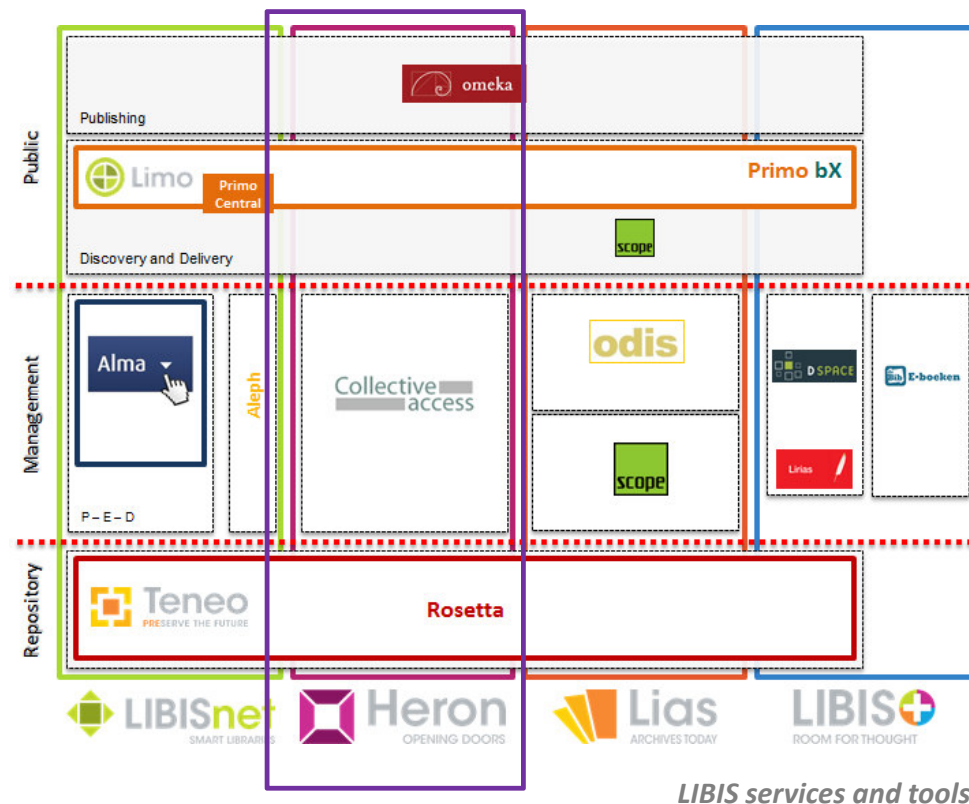


●●●● IDEM project - Selection of tools

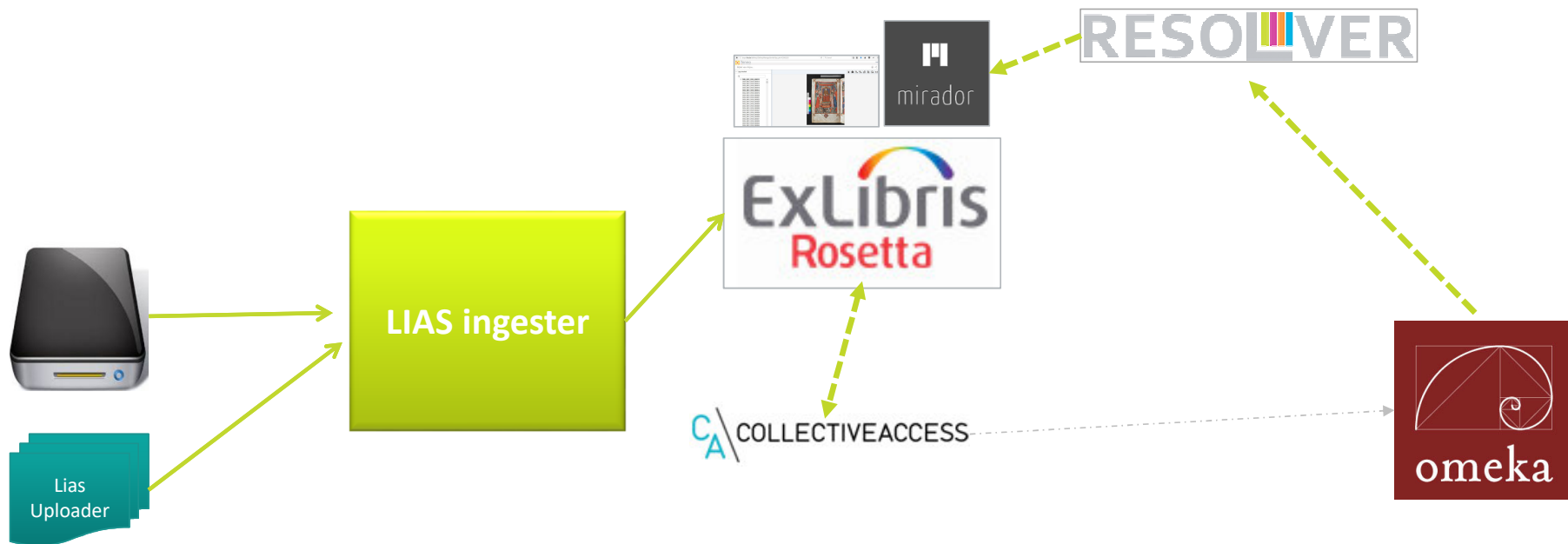


- Reuse a combination of existing tools in a flexible way
- Use open source where possible to limit the license costs
- Share the development costs with projects with similar interests

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
- ...



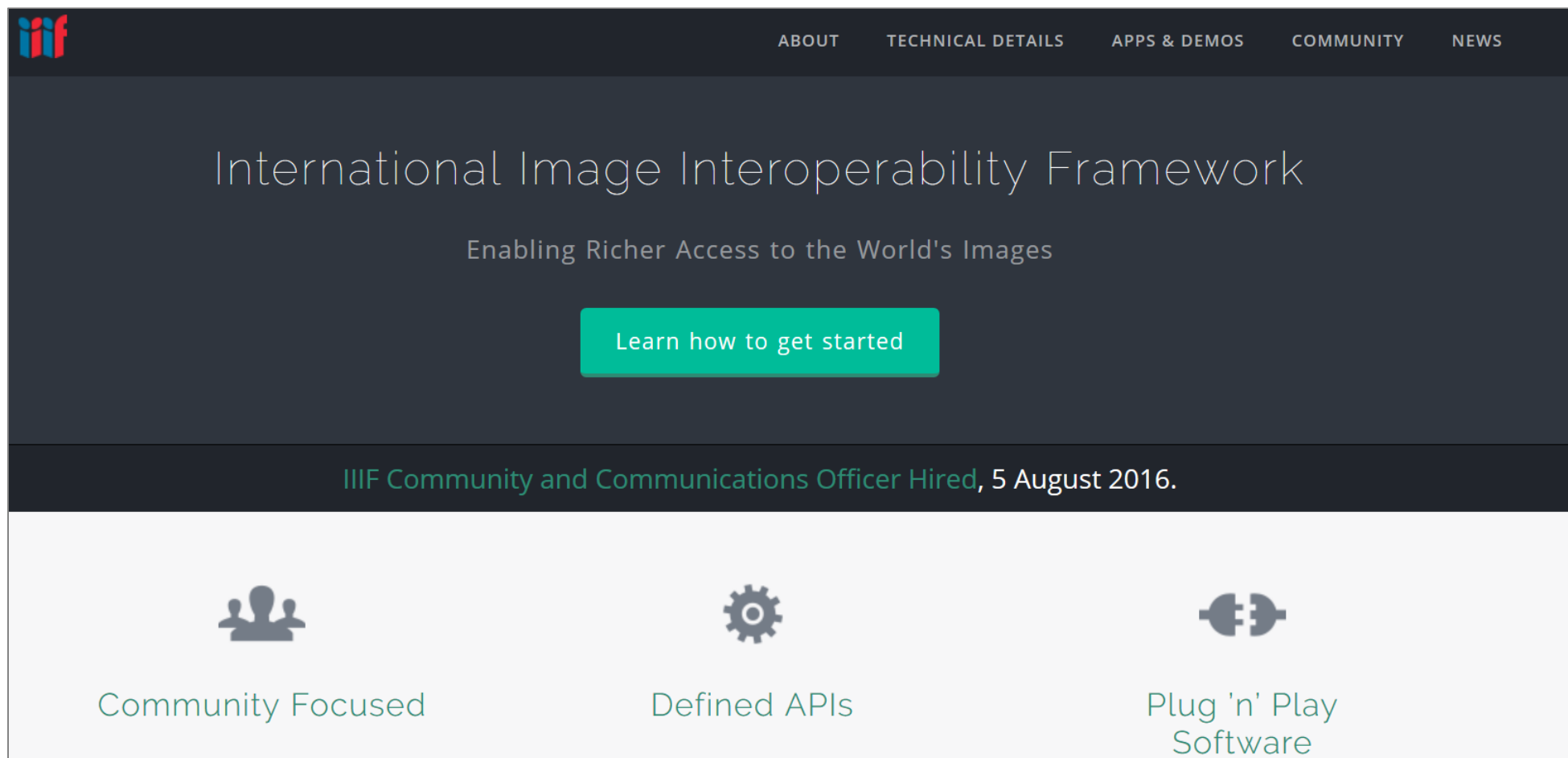
[NL-SH-ms-72A](#)



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



IDEM – Selection of IIF Mirador viewer



The screenshot shows the IIF website with a dark header containing the IIF logo and navigation links: ABOUT, TECHNICAL DETAILS, APPS & DEMOS, COMMUNITY, and NEWS. The main content area has a dark background with the text "International Image Interoperability Framework" and "Enabling Richer Access to the World's Images". A green button labeled "Learn how to get started" is centered. Below this is a dark banner with the text "IIF Community and Communications Officer Hired, 5 August 2016." The footer is light grey and features three icons: a group of people for "Community Focused", a gear for "Defined APIs", and a plug for "Plug 'n' Play Software".

International Image Interoperability Framework

Enabling Richer Access to the World's Images

[Learn how to get started](#)

IIF Community and Communications Officer Hired, 5 August 2016.

Community Focused

Defined APIs

Plug 'n' Play Software





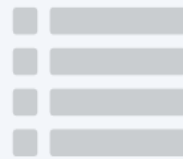
IDEM – Selection of IIIF Mirador viewer



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 IIIF 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.

IDEM – Selection of IIF Mirador viewer



Bookmark Change Layout Full Screen

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projectmirador.org, idemdatabase.org, [Mirador demo](#)

DARIAH Annual event 2017

14



Challenges & opportunities

From a service provider point of view

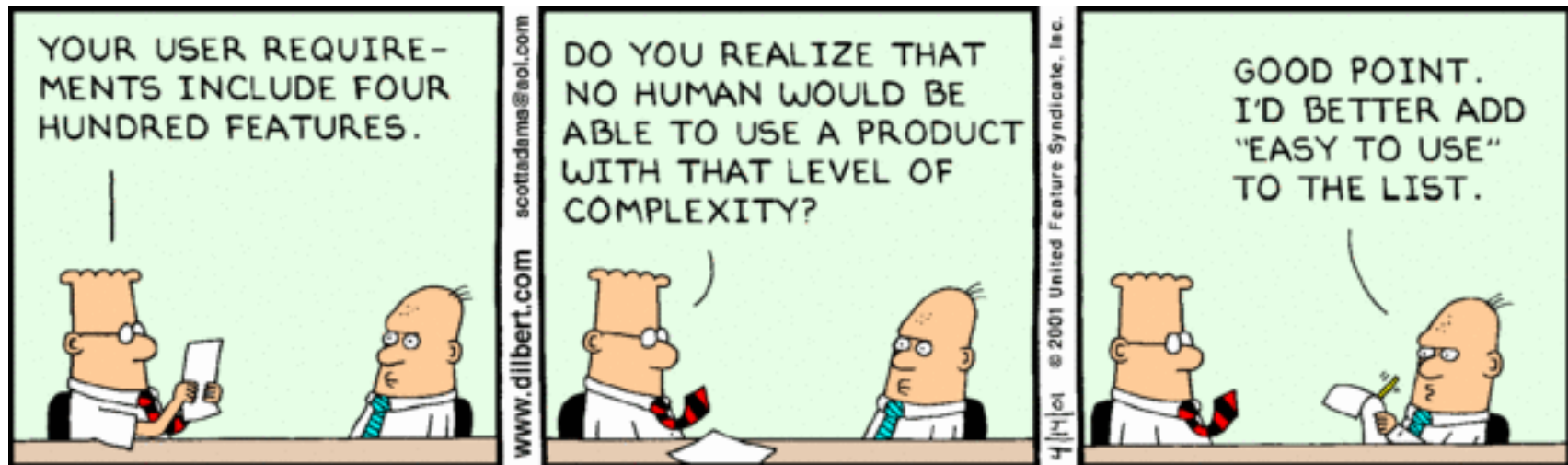


●●●● Budget vs. Requirements

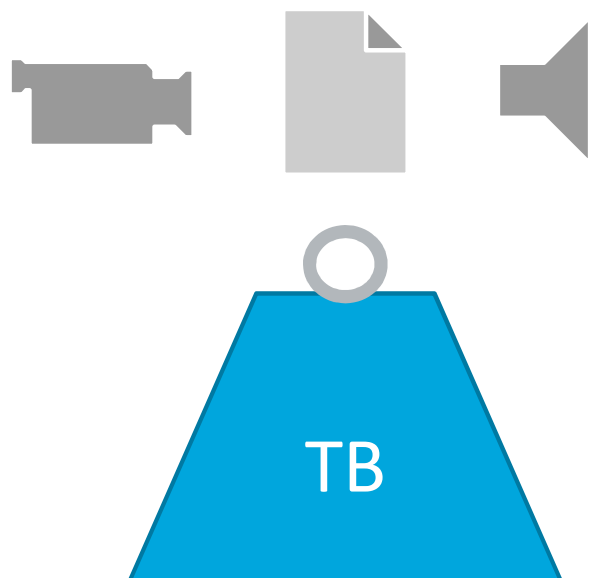


*Budget for IT usually
underestimated*

Technical knowhow

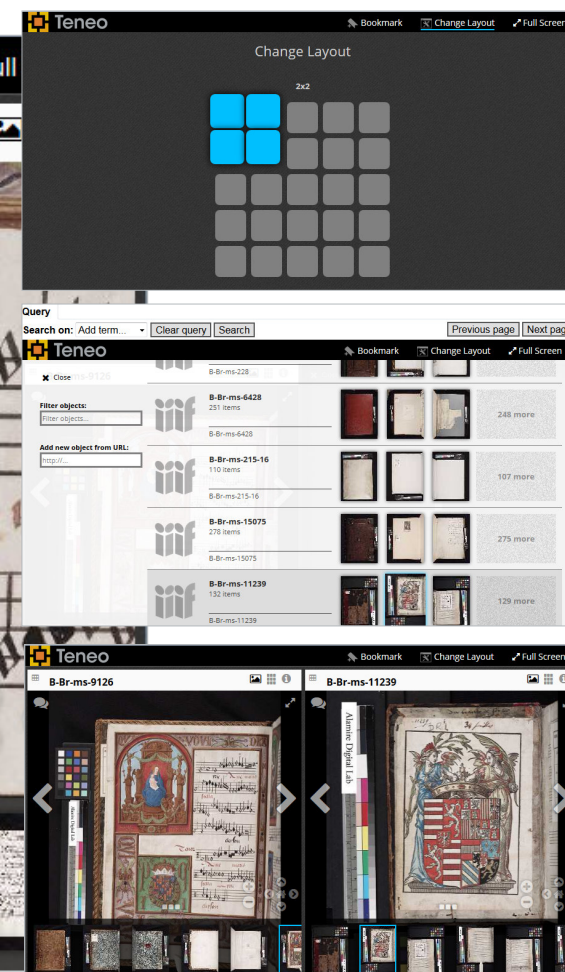
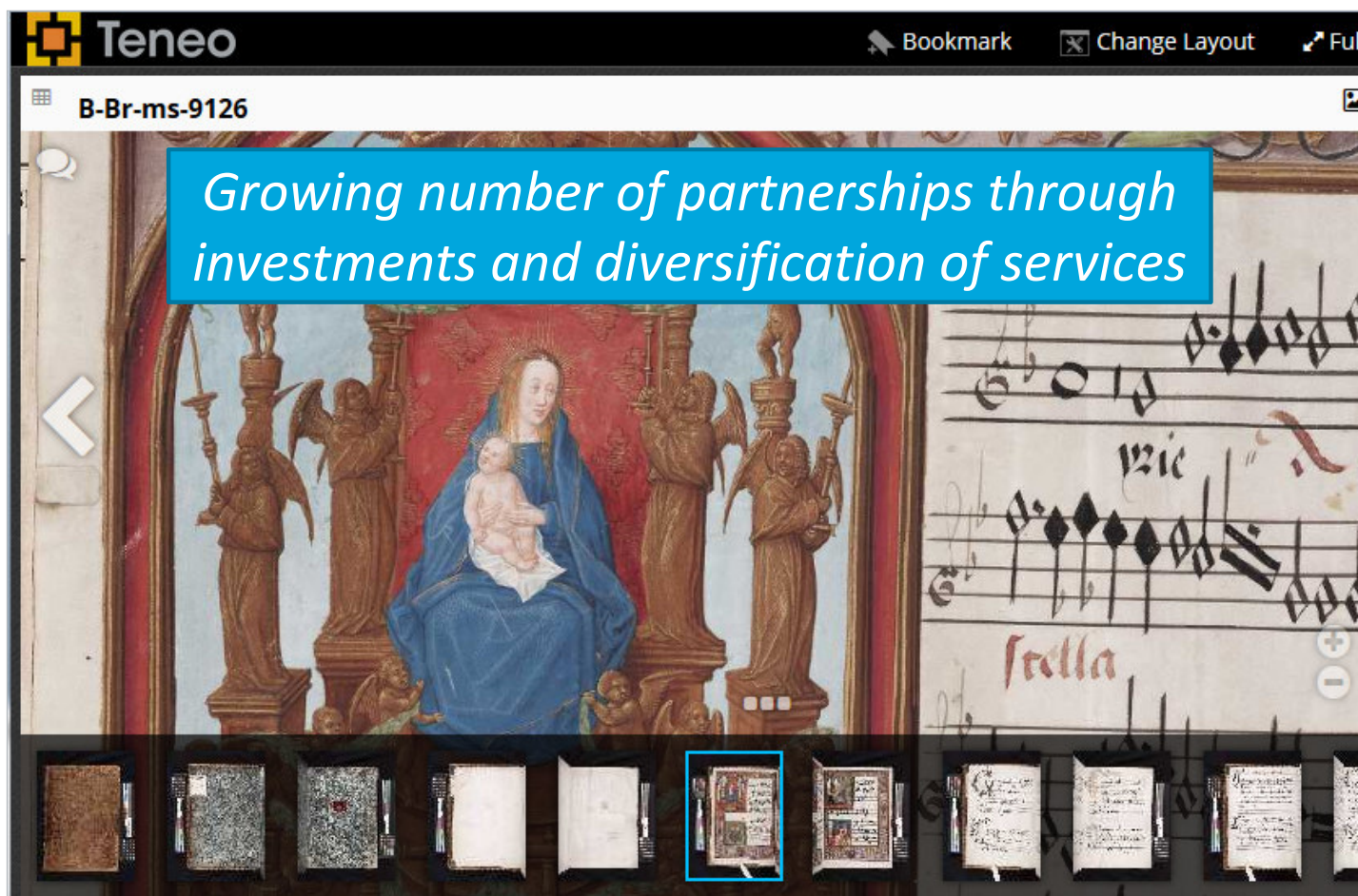


Awareness and IT knowledge are growing



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

Opportunities



●●●● 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*

●●●● Benifits for Humanities researchers



*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



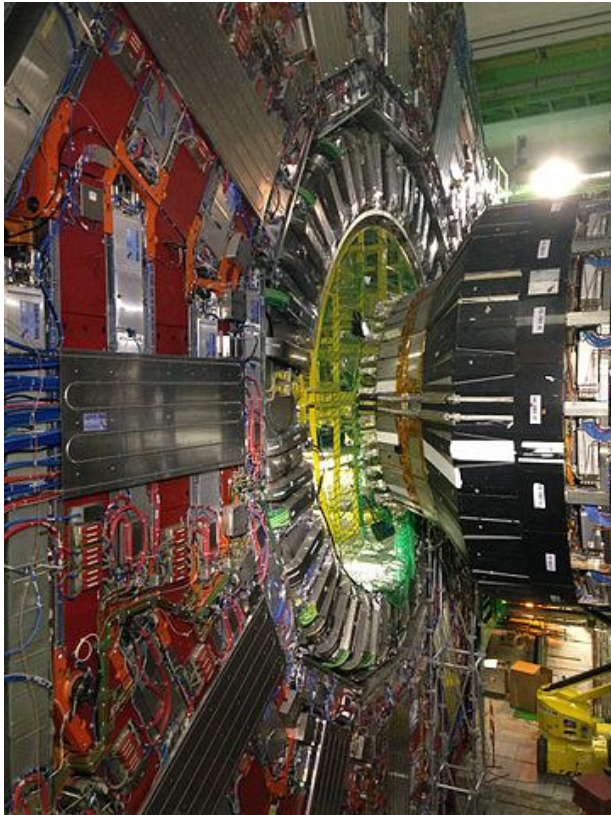
By Maximilien Brice (CERN) (CERN Document Server) [CC BY-SA 3.0 (<http://creativecommons.org/licenses/by-sa/3.0/>)], via Wikimedia Commons

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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