



Cracking digital archival research and metadata: Archives Portal Europe

DARIAH Virtual Annual Event, 18 November 2020



Speakers:

- DARIAH-EU Working Group "Sustainable publishing of (meta)data" –
 Johan Van der Eycken, johan.vandereycken@arch.be
- Archives Portal Europe –
 Kerstin Arnold, <u>kerstin.arnold@archivesportaleurope.net</u>
- PARTHENOS project Klaus Illmayer, klaus.illmayer@oeaw.ac.at
- SSHOC project Frank Fischer, <u>frank.fischer@dariah.eu</u>;
 Laure Barbot, <u>laure.barbot@dariah.eu</u>



Working Group Sustainable publishing of (meta)data



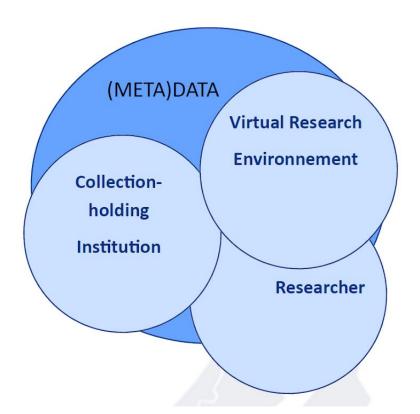
Sustainable publishing of (meta)data



Opportunities

- New technologies offer for researchers
- There has never been so much data and metadata available
- Need to maximise the use of these new opportunities

to bring together international expertise from different international networks







Knowledge exchange

- We all face the same difficulties seen from our own research background and perspective.
- We are all working on thinking about solutions for these same problems

Cooperation versus competition

- Resources and staff are a scarce commodity and are distributed between different RI and instances = competition
- Awareness of the usefulness of collaboration and of sharing knowledge and know-how, without losing sight of the individual interest or the interest of one's own institution = collaboration becomes political

Field of collaboration



Metadata, a path to standardisation.

Specific challenges regarding sustainable archiving and availability of digital information, such as the use and implementation of international standards.

Metadata and Society.

Focussed on new opportunities and challenges arising in a digital society, e.g., the implementation of the General Data protection Regulation (GDPR) for cultural heritage (EU) and eIDAS.

Metadata communication and interoperability.

The Communication between archival institutions and researchers, both at the level of technological components and at the level of researchers' expectations and options

Activities



- Bring together and communicate about, knowledge, hands-on expertise and tools concerning sustainable digital publishing of metadata (e.g. 2016 - https://hal.inria.fr/hal-01281442)
- Offer tools for self analysis
 (e.g. 2015-2017 Maddlain https://www.kbr.be/en/projects/maddlain)
- Integrate experiences from research infrastructures (<u>EHRI</u>, Europeana, Archives Portal Europe, <u>CESSDA</u> and others) and collection holding institutions (e.g. 2017-2022 - <u>Social Sciences and Humanities Data Archive</u>)
- Keep the dialogue between archival institutions and research infrastructures alive (e.g. 2017-2018 - <u>Trust and Understanding, The value of metadata in a digitally joined-up world</u>)
- Explore options to overcome challenges in reaching the goal of producing standards-compliant, publishable data and metadata (e.g. <u>PROMISE</u> (<u>PReserving Online Multiple Information: towards a Belgian StratEgy</u>)



Annual Event: Sustainable Publishing of Metadata: Open Data

Working Group:

https://www.dariah.eu/activities/working-groups/sustainable-publishing-of-metadata/

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Background and general introduction

Network





Countries

incl. overseas territories



Languages

all official EU languages, plus Georgian, Hebrew, Icelandic



Alphabets

ქართველი**, Ελληνικά, Српски**

National archives City archives Private archives Museum archives Church archives University archives Business archives etc....



590k

Collections

Currently the largest online archival repository in the world



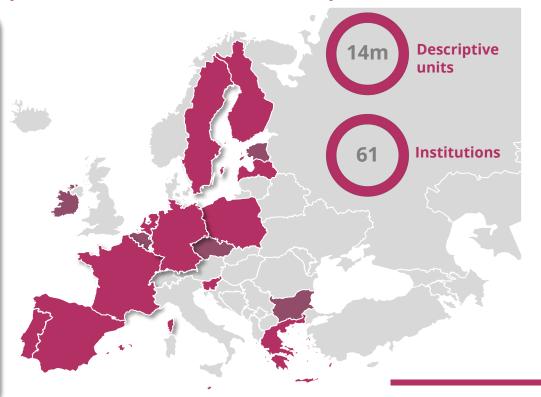


Archives Portal Europe network (APEnet, 2009-2012)



APEnet

- Display information about archival collections, their creators, the institutions;
- Searchable through a single engine;
- Link to the individual digital objects where applicable
- Aggregator for Europeana



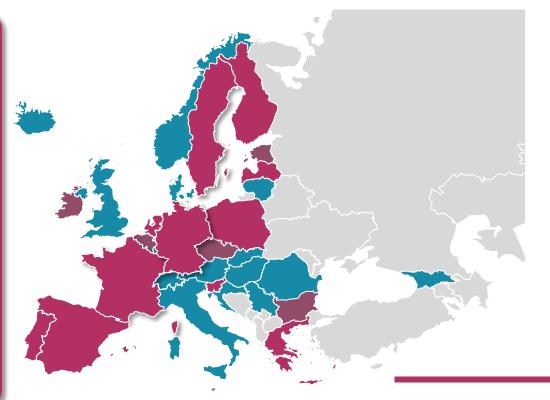


Archives Portal Europe network of eXcellence (2012-2015)



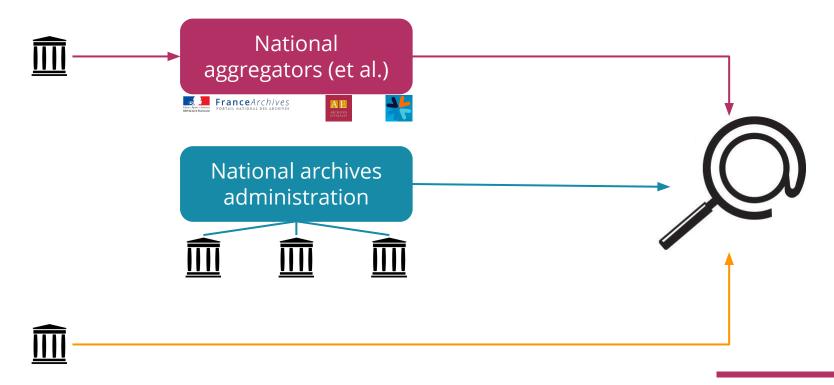
APEx

- Strengthen the portal
- Open up to other countries
- Open up to other archives



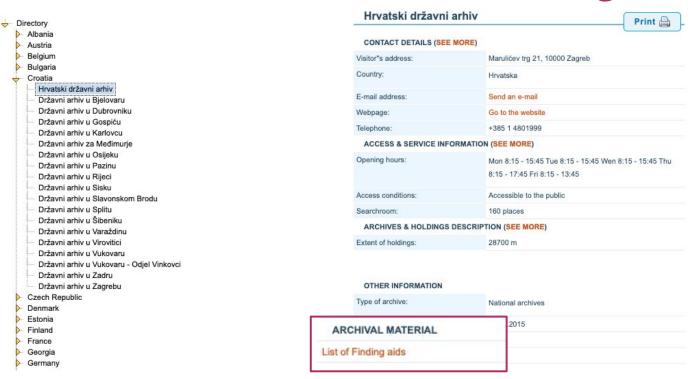


Ways to deliver content to the portal



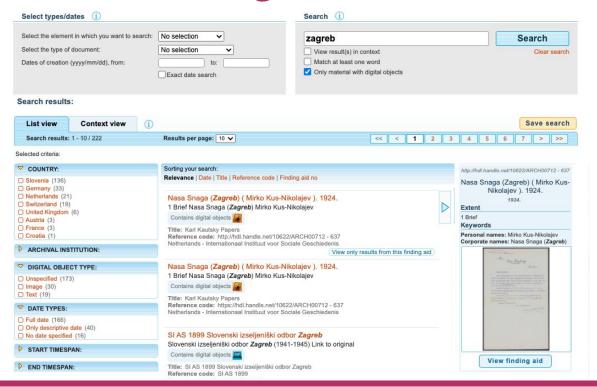


Information about an institution (old design)





Search results (old design)



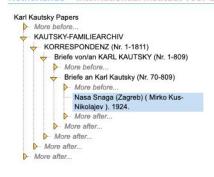


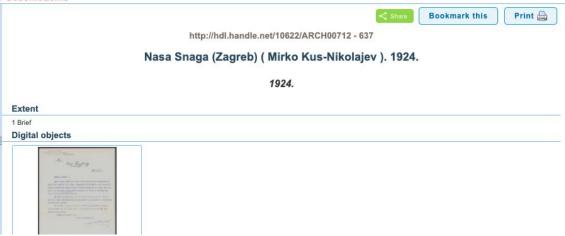
Collection details (old design)





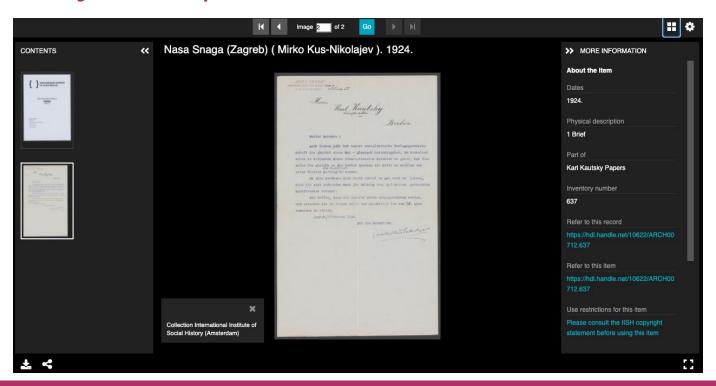
Netherlands > Internationaal Instituut voor Sociale Geschiedenis







Digital object on provider's website







Research and metadata standards

A multilingual and multicultural environment

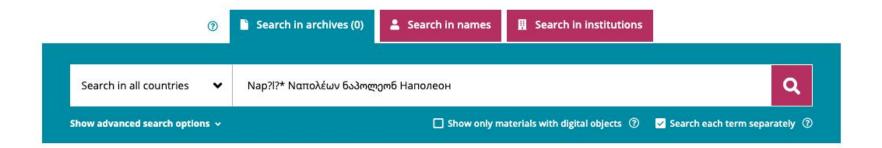








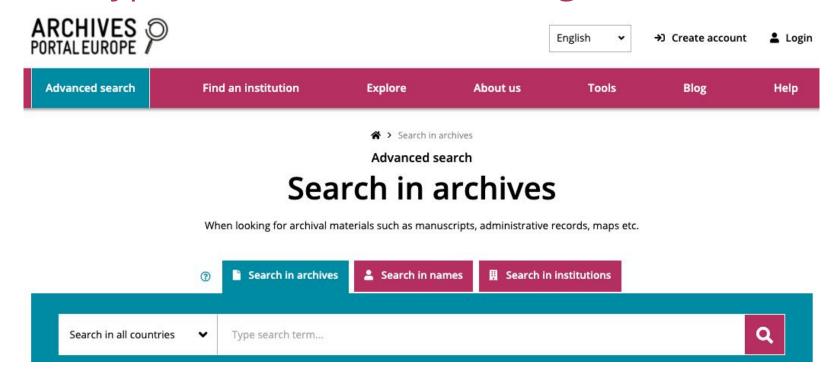
Full text search (new design)



- Combining search terms in different languages and scripts
- Using wildcards for more inclusive coverage



Three types of searches (new design)





Three main metadata standards

Encoded Archival Description

- XML format
- Archival material
- apeEAD profile
- Linked to apeMETS for digital objects

Encoded Archival Context

- XML format
- Records creators
- apeEAC-CPF profile
- Potential extension to other entities

Encoded Archival Guide

- XML format
- Institutions with archival holdings
- EAG2012 standard



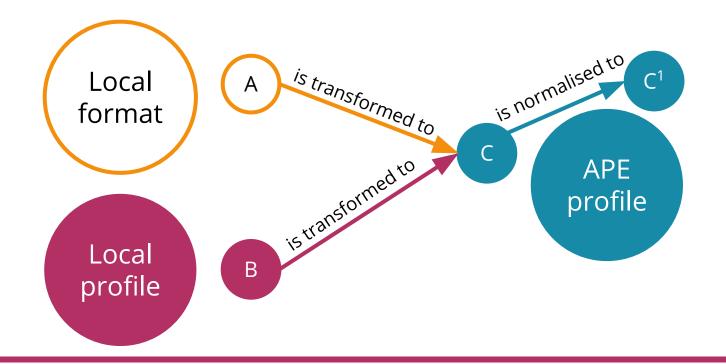
Different ways to say the same thing





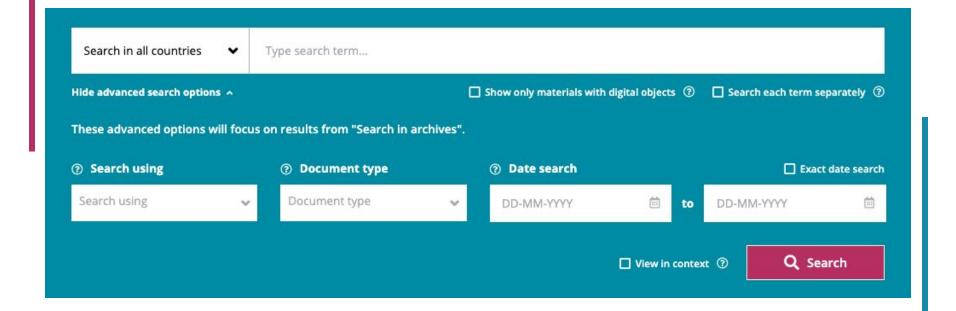


Transformation and normalisation



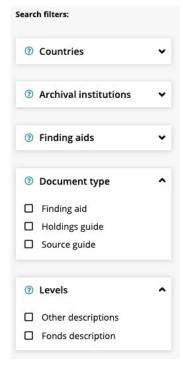


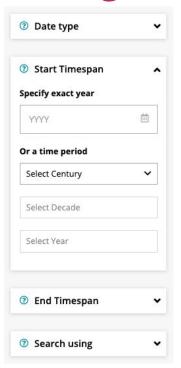
Advanced search options (new design)





Filters for search results (new design)







Based on...

- Administrative aspects
 - Country and institution
- Type and structure of archival collections
 - Finding aid, holdings guide, source guide
 - Level of description
- Specific parts of the archival description
 - Title, identifier, scope and content note
 - Dates
 - Digital objects



Managed in the portal's back-end

Country level



Institution level



Managed in the metadata as provided

```
<archdesc level="fonds" type="inventory">
    <did>
        <unitid type="call number">ABC</unitid>
        <unittitle>Collection of photographs</unittitle>
    </did>
    <dsc>
        <C>
            <did>
                <unitid type="call number">1</unitid>
                <unittitle>Photograph of the Croation State Archives in Zagreb</unittitle>
                <unitdate>18 November 1990</unitdate>
                <dao xmlns:xlink="http://www.w3.org/1999/xlink" xlink:href="http://www.arhiv.hr/portals/0/Kvadratici/Arhiv.jpg"</pre>
                xlink:title="Outside of the Croatian State Archives in Zagreb"/>
            </did>
            <scopecontent>
                The picture shows the building of the Croation State Archives in Zagreb.
            </scopecontent>
        </0
    </dsc>
</archdesc>
```



Normalised during conversion

<unitdate>18 November 1990</unitdate>

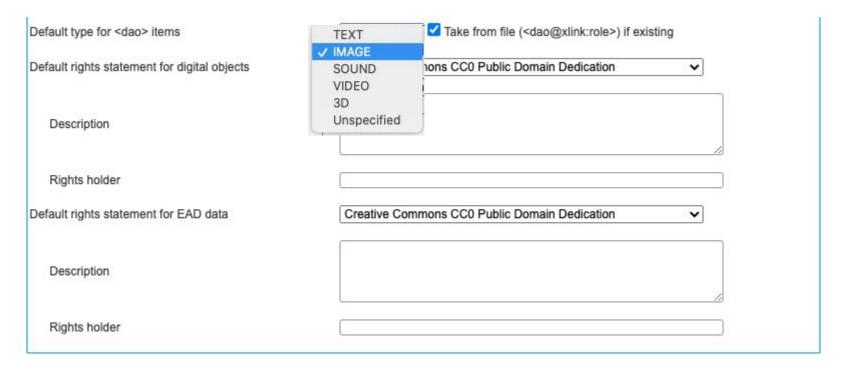
becomes

<unitdate normal="1990-11-18">

18 November 1990</unitdate>



Additions based on provider's input





Searching by topics (new design)



How about looking at our content from a different angle? We have selected numerous topics that allow you to dive into the archives material on a thematic or genre-related approach.





Social history

Documents that relate to the everyday life of the population, living and working conditions, welfare; collections related to historians of social history

100.000+ results



Industry

Documents related to companies, industrial production, the second sector at large

100,000+ results



Documents related to the study of families, family histories, and lineage

100,000+ results





Source guides and subject headings

Source guides

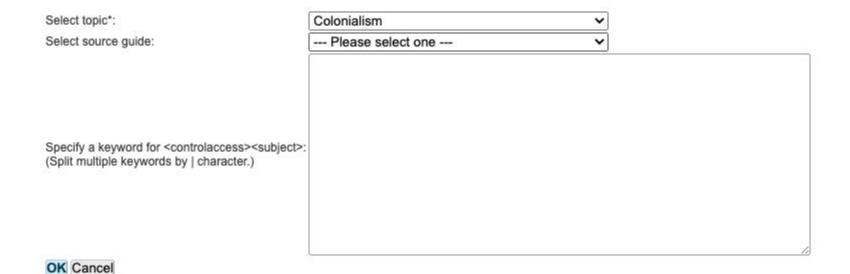
- Special document type
- Combining collections from one or several institutions relating to the same topic

Subject headings

- Part of the archival descriptions
- To certain extent based on national vocabularies
- Potential for Linked
 Data

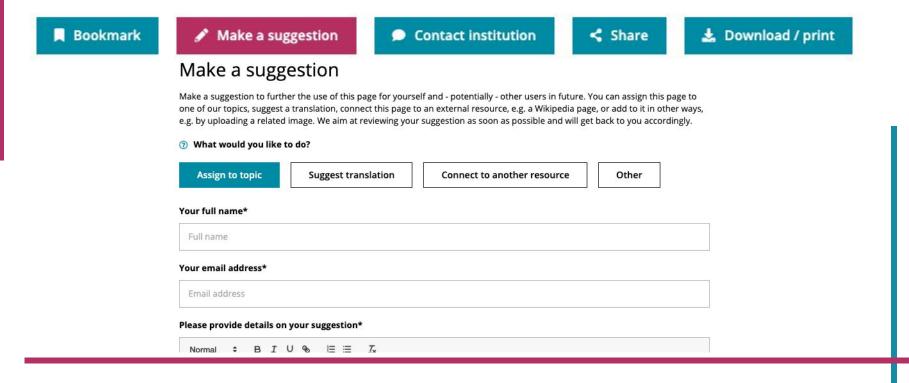


Topic management by the providers





Topic extensions by registered users (new design)





Outlook: users forming a network

Welcome Archives!

01. APE T&C acceptance

02. Settings & preferences

We need a couple of things from you before we can proceed...

You can change this at any time in your account area

What would you like to be kept up to date on?

Newsletter

We will email you once a month, keeping you up to date on our latest blog articles, events, conferences, grants available. You can opt out at any time.

Researcher materials

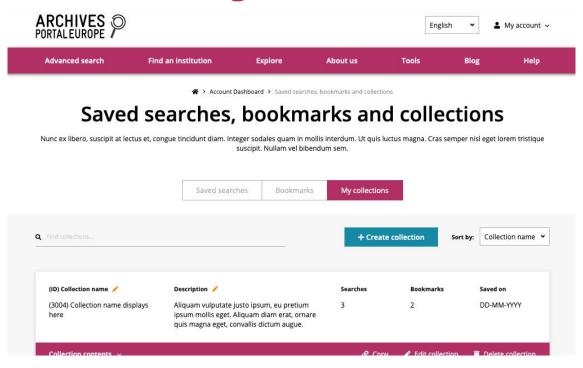
We will email you with suggestions of new topics or functionalities related to your research, networking opportunities and current events.

Updates to my saved content

We will email you when a change has been made to your bookmarks or new content has been added matching your saved searches.



Outlook: users forming a network





PARTHENOS and the requirement of structured archive data of high quality

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Topics

PARTHENOS

- Short description
- Implementation of archive material
- Experiences

Archives

- Issues regarding structured data as expected by harvesters like PARTHENOS
- Description vs. data
- Records in Contexts (RiC) as game changer?

Cracking the archive

- Experiences with RiC
- Entity driven recording
- Archives Portal Europe as harvester compared to PARTHENOS and SSHOC

PARTHENOS: introduction



- Was a Horizon 2020 funded project (2015-2019): https://www.parthenos-project.eu/
- Is an acronym that stands for "Pooling Activities, Resources and Tools for Heritage E-research Networking, Optimization and Synergies"
- Strong focus on a technical solution for harvesting data from many sources to gain cross-disciplinary insights: Virtual Research Environment (<u>VRE</u>)
- Other outcomes: <u>training suite</u>, <u>standardization survival kit</u>, <u>hub</u>, <u>guidelines</u> <u>and policies</u>, <u>deliverables</u>
- Important goal: apply a linked data model to the harvesting mechanism and prepare a VRE to allow researchers querying for complex research questions (training & awareness for standards, policies, technical framework)

PARTHENOS: aim



- Semantic rich data from many sources can help in discovering new research insights, cross-disciplinary exchange and reviewing of thesis/claims/opinions
- PARTHENOS collects data from humanities and social sciences disciplines e.g. linguistic studies, history studies, archaeology, cultural heritage
- Relies on already existing data collections by providers like CLARIN, DARIAH, ARIADNE
- VRE runs natively on a triple store and data is modelled in CIDOC CRM
- Development of a tool that supports mapping from any source

PARTHENOS: archive material



- Two main modes of interest:
 - **Combining data** from different spheres e.g. archaeology, literature and theatre studies when thinking about how a theatre play from ancient Greece was performed (= theatre studies) it is helpful to have resources that gives you background information on the architecture of theatre buildings (= archaeology/heritage science) and interpretations of the play (= literature studies)
 - Discovering new connections e.g. history studies and meteorology/climate studies transcription of a notebook of a monk in the medieval times (= history studies) may include observations on climate events (= meteorology/climate studies)
- Both modes differ in granularity of details that is necessary: first may work
 with simple keywords and a string search in title whereas the second needs
 background details on the content of an archive holding
- PARTHENOS VRE as a framework to provide both modes to researchers

PARTHENOS: discovery



Q Discovery Service A NLP Hub A Text Analytics Services A Visual Media Service Documentation Media Service Documentation Media Service SPARQL Quick Links - Login •



https://parthenos.acdh.oeaw.ac.at/Start

PARTHENOS Discovery

Your gateway to the PARTHENOS Entities Dataspace. Metadata from all partner Research Infrastructures is aggregated here under a common semantic model, allowing for unprecedented interdisciplinary view on these hetereogeneous datasets.



Explore/Search

PARTHENOS Discovery application offers multiple options to explore the dataset. You can search by keyword, by semantic relations, by sources or via the underlying model.

by keyword

Keyword search with faceting over selected properties

by semantic relations

Advanced semantic search using query builder

by sources

Dataset divided by the contribution from individual sources

by model

Explore the data based on the underlying ontology the PARTHENOS Entities Model

Additionally you can dive into the dataset through one of the main types: actors, datasets, services, software, projects and places. Either through keyword search or by exploring the entities in the model.

(The numbers indicate how many instances of given type (including subclasses) are there, distinguishing between explicitly created instances and all instances.)

Highlights



Main Entities

Browse through the manually crafted dataset of top-level entities like project partners, services and datasets, for which descriptions did not previously exist.



Showcases

This is a hand curated list of entities-detail views and other specialized pages to highlight specific aspects of the application or the dataset



Images

Browse through records featuring an image representation.



Places

Browse through geo-referenced records. (Only available for records with geocoordinates). Screenshot of the PARTHENOS Discovery (part of PARTHENOS VRE) start page

PARTHENOS: experiences

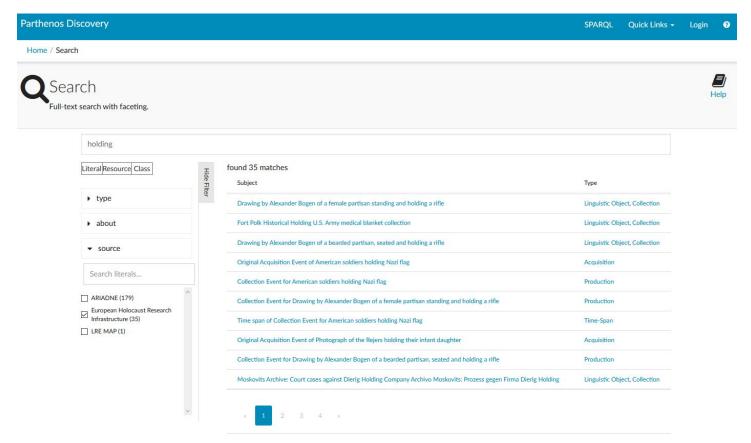


- Semantic rich data sets are not easy to gather
- Even more complicated to model and map it in the destination data model
- CIDOC CRM allows a lot of expression but becomes very fast very complicated - it is usually also necessary to expand the basic model (in this case introducing the PARTHENOS Entity Model)
- The innovative **approach** of PARTHENOS (the vision was very optimistic but nevertheless an important forward-looking proof of concept) relies strongly on the availability of a **lot of data** with a **high quality** and an extensive detailed and structured "**rich description**" (source data model and fields are crucial)
- Archive material important but was not much harvested due to less archive data collections in consortium & missing linked data approaches by archives

Archives: structured data

- A shift is necessary from descriptive data to structured data if we like to take the next step from digital search to digital analysis and research
- This is true for all kind of data: (meta)data on archive material, research data, transcriptions and even publications
- FAIR data principles as a guidance: important are persistent identifiers
 (PIDs) to find the data points for connection between data collections and
 machine-readable data: clear distinction of fields and entities (highlighting by
 structure entities like persons, places, events)
- Currently **establishing harvesting** platforms is already a **tough job** (finding **common grounds** not easy: different schemas, software, mapping tools, recording traditions, challenges for infrastructure and staff) PARTHENOS shows future paths to be taken to **expand the digital research potential**

Archives: PARTHENOS - information in title



Screenshot of the PARTHENOS Discovery (part of PARTHENOS VRE) search results page

Archives: PARTHENOS - information in keywords

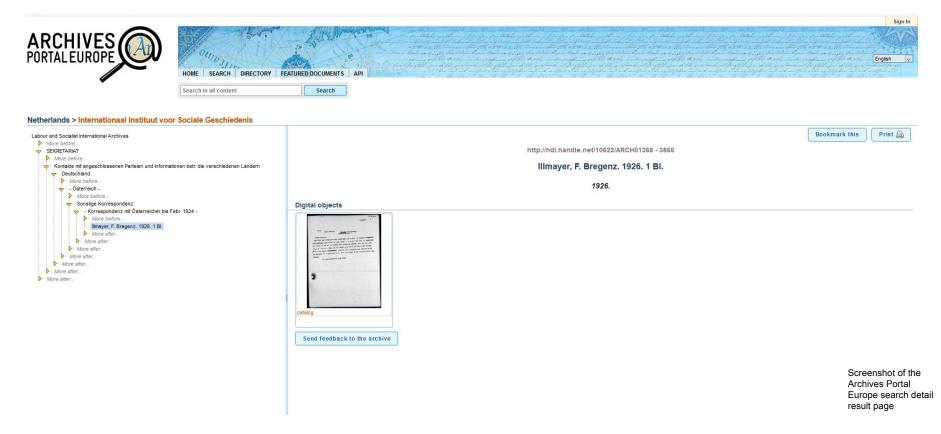


Screenshot of the PARTHENOS Discovery (part of PARTHENOS VRE) item detail page

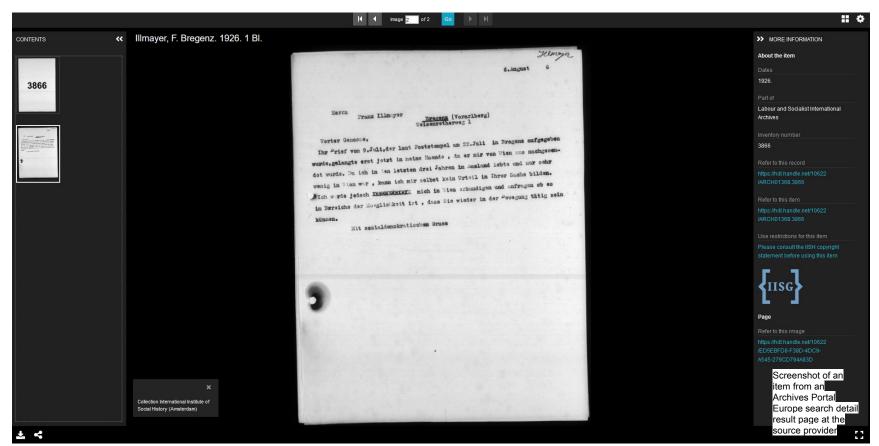
Archives: Description vs. data

- In PARTHENOS most information gained from archive material is in the title and in the description - sometimes you also have keywords
- What PARTHENOS **missed** is the **hierarchical structure** in the archives that also gives implicit information (but also usually due to the title/description of the holding/fonds e.g. the description of "scope and content")
- Both title and description as well as keywords is not structured enough:
 - There is the need to **explicit highlight by structure the important entities** that are mentioned or somehow related to an archive material e.g. persons, places, concepts
 - There is also the need to **say something about the relation** how an entity is connected to an archive material e.g. archive material *is a* **photograph** *showing* **person X** who *is photographed by* **person Y** *at* **place A** *on* **time B** *as part of* the **event Z**
 - The bold entities and the italic relations all need to be in a structured data format e.g. linked data formats like RDF in a structure like the one defined by the ontology CIDOC CRM and using common agreed vocabularies

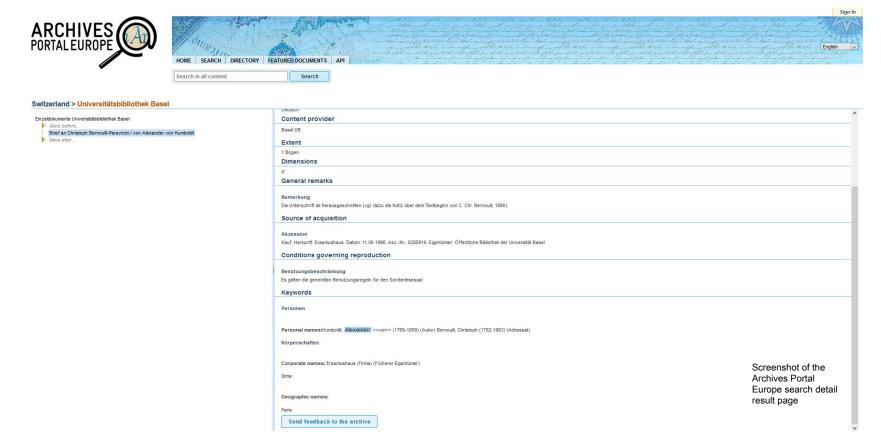
Archives: structured information?



Archives: structured information?



Archives: structured information?



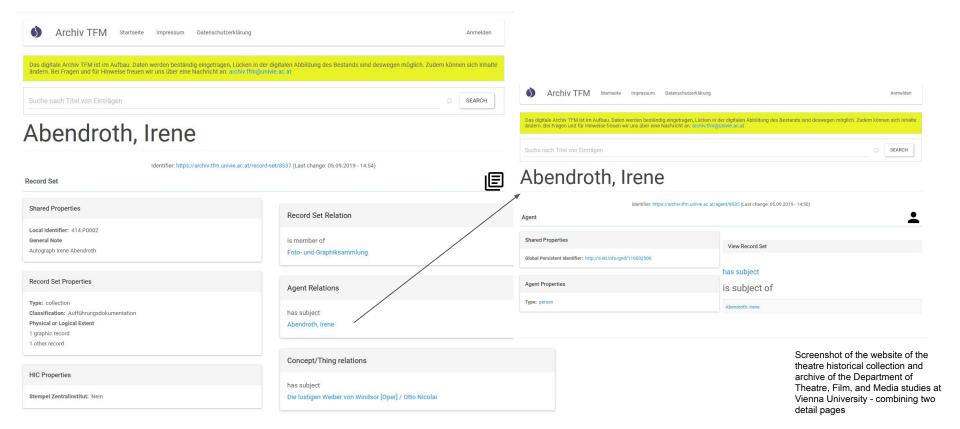
Archives: RiC

- Necessary linked data oriented format is in general on the rise but still in an early stage of implementation
- For archives there is a promising development: ICA's new standard Records in Contexts (RiC) => https://www.ica.org/en/records-in-contexts-ontology
- RiC is oriented to linked data expressions and can be compared to an ontology like CIDOC CRM therefore allows easy mappings to ontologies
- It is downward compatible to ICA ISAD(G) standard but allows **new additional** and detailed structuring of information
- Thus it enables archives and researchers to enrich already recorded archive holdings and to start new archive recordings with a rich relation and entity related data model

Cracking the archive: experiences with RiC

- RiC allows very **detailed recording of data on archive material** without loss of archive structure rules and benefits of descriptive oriented recording
- For the full effect it is necessary to record details of archive material which
 means more effort when doing the recording: typing something in a
 description field is way more faster and easier for humans then setting
 relations to entities where ideally identifiers should be applied
- Also it implies **more intensive research** when it comes to details
- Is also true for research results and data where the descriptive approach (publications) has a strong tradition and advantages but will also need to orient more on the structured way of data representation (like TEI for digital editions)
- Advantages of such a switch to structured data will show up in the future

Cracking the archive: experiences with RiC



Cracking the archive: entity driven recording

- The more entities and relations are identified and bound to PIDs the more complex and innovative research will be possible
- Identifying entities is time consuming as it involves reading the content
- I'm sceptical that this task can be solved with **machine-learning**: support yes, but in the end it needs **humans to gain high-quality (meta)data**
- At first it looks like as the burden lies **at the source provider** like archives
- But it is unrealistic that the **necessary resources** are allocated there to create high quality and detail data (also archives should be neutral agencies)
- Instead investment in solutions where researchers and research projects
 can enrich data from archives (e.g. crowdsourcing) and delivers back this
 contextual information into platforms like APE, PARTHENOS EHRI as a good
 example for such an approach

Cracking the archive: APE and PARTHENOS



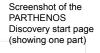
underlying dataset.

Here are a few more advanced options to explore and experiment with the dataset.











- Having enriched structured data based on FAIR data principles is a main requirement for pushing digital research and digital work with archive materials to the next level
- It allows to do complex queries across many domains (disciplines, archives, methods, research questions) by using methods like SPARQL queries, data notebooks, innovative analysis and supporting the two PARTHENOS modes

Social Sciences & Humanities Open Cloud





Frank Fischer
Higher School of Economics (Moscow) & DARIAH-EU

Laure Barbot



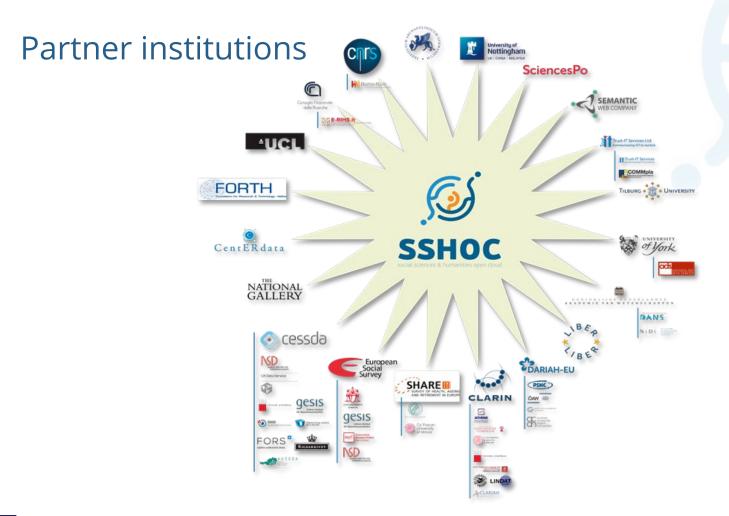


Type of action & funding:

Research and Innovation action

(INFRAEOSC-04-2018)







Why Social Sciences and Humanities Open Cloud?



Objectives:

- To build the SSH Cloud: creating the social sciences and humanities (SSH) part of European Open Science Cloud (EOSC)
- 2. To maximise data re-use: maximising re-use through Open Science and FAIR principles (standards, common catalogue, access control, semantic techniques, training)
- **3. To interconnect RIs:** interconnecting existing and new infrastructures (clustered cloud infrastructure)
- **4. To set up governance:** establishing appropriate **governance model** for SSH-EOSC

Being realised through 9 Work Packages:

WP1 Project Management and Administration WP2 Communication, Dissemination and Impact

WP3 Lifting Technologies and Services into the SSH Cloud

WP4 Innovations in Data Production WP5 Innovations in Data Access

WP6 Fostering Communities, Empowering Users & Building Expertise

WP7 Creating the SSH Open Marketplace

WP8 Governance, Sustainability, Quality Assurance

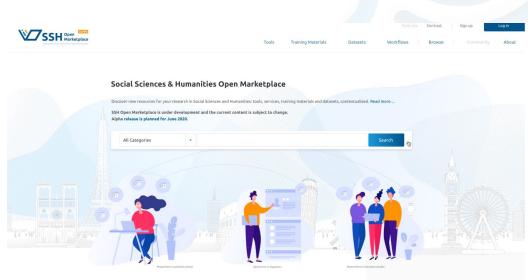
WP9 Data
Communities



SSH Open Marketplace

Discovery portal for SSH resources

- Tools & services
- Training materials
- Workflows
- Datasets
- Publications
- 3 guiding principles
 - Contextualisation
 - Curation
 - Community





Creation of the SSH Open Marketplace – Timeline



The SSH Open Marketplace: discovery portal and metadata

- Metadata aggregation
 - Identification and prioritisation of sources
 - Beta release: TAPoR, SSK, Programming Historian, DH conference papers, CLARIN Switchboard, EOSC catalogue
- Mappings between data models
 - Flexible and evolutive data model dynamic properties
- Enrichment and Curation



Referencing semantic artifacts in the SSH Open Marketplace?

- Forthcoming SSHOC conversion Hub as part of the MP (T3.5)
- Semantic artifacts as items in the MP:
 - controlled vocabularies
 - dictionaries and thesauri
 - metadata schemas
 - ontologies

Cf. D7.6 "Resources for Marketplace content description" to be released at the end of the year



Metadata discussions within SSHOC

- WP3 Lifting Technologies and Services into the SSH Cloud -CLARIN
 - D3.1 Report on SSHOC (meta)data interoperability problems
 - Inventory of metadata sets, standards and taxonomies used in SSH





Thank you very much for your attention and participation!

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