How to work together successfully with e-Humanities and e-Heritage Research Infrastructures (PARTHENOS Webinar)
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A Webinar of the PARTHENOS eHumanities and eHeritage Series
#lovedata2018

How to work successfully with eHumanities and eHeritage Research Infrastructures: The Devil is in the Details!

(Klaus Illmayer and Marie Puren)

Webinar start: 13.02.2018, 11:00 CET
Moderation: Ulrike Wuttke
(University of Applied Sciences Potsdam)

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How to work successfully with eHumanities and eHeritage Infrastructures: The Devil is in the Detail!

Marie Puren Ph.D. (Inria, Paris, France) & Klaus Illmayer (ACDH-OEAW, Austria)

Date and Time: 13.02.2028, 11:00 - 12:00 CET
Moderation: Ulrike Wuttke (University of Applied Sciences Potsdam)

Join the conversation on Twitter: #PARTHENOSWebinar @Parthenos_EU

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Some Housekeeping...

• As a participant you will be **muted** and not be seen throughout the webinar.
• For **questions** and **remarks** please use the **chat**. For questions, please use the word **question**.
• Your questions are going to be answered by the trainers during / after the presentation.
• If you have **sound problems**, please test your technical settings. You have to click on the **speaker symbol** on top to be able to hear (it has to be **green**).
• **Help us improve**: Follow up e-mail with a link to a short **feedback survey**.
Some words about PARTHENOS...

- **PARTHENOS** stands for: Pooling Activities, Resources and Tools for Heritage eResearch Networking, Optimization and Synergies

- PARTHENOS is a **Horizon 2020** project with the aim to **strengthen the cohesion** of Heritage related E-research

- Running time: 1 May 2015 - 30 April 2019

- PARTHENOS has 16 partners from 9 European countries

- PARTHENOS Coordinator: PIN Scrl (Italy)

- The PARTHENOS webinar series is a **cross PARTHENOS training effort**
How to work successfully with eHumanities and eHeritage Infrastructures: The Devil is in the Details

Trainers

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(Inria, Paris, France)

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Moderation

Dr Ulrike Wuttke
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Warm up: Tell us where you are

Klaus Illmayer (Vienna - Austria, ACDH-OEAW)
Marie Puren (Paris - France, INRIA)
Ulrike Wuttke (Potsdam - Germany, FHP)

Now tell us the place from where you are participating:

• Please use the chat function (you can find it at the bottom on the right side)

• If you don’t see it, please close the full screen

• You can use the chat function to ask questions. We will answer it after our presentation in the Q&A section
Covered topics

• e-Infrastructures
• Preparing data
  • FAIR data principles
  • Standards (Standardization Survival Kit - SSK)
• Conclusions
• Q&A
eHumanities and eHeritage Research Infrastructures

Definitions - let’s have a look at PARTHENOS:

• “Pooling Activities, Resources and Tools for Heritage E-research Networking, Optimization and Synergies”
• Focus on research communities from humanities and heritage
• Connect analog and digital research, connect digital infrastructures; harmonize standards; share best practices
• Examples: Joint Resource Registry, Standardization Survival Kit (SSK), collection of recommendations and best practices, ...
• PARTHENOS itself is an e-Infrastructure
What is a Research e-Infrastructure?

• A community driven digital environment for research
  • Allowing community members to work together in means of shared communication, resources, tools and services
  • More extended: Virtual Research Environments (VRE)
    • Bundle communication, resources, tools and services to establish a digital workflow, tailored to the needs and practices of the community
    • Even more extended: Combine different communities

• Ideally: A technical framework to support the research data life cycle
Research data life cycle #1

Creating data
- design research
- plan data management (formats, storage etc)
- plan consent for sharing
- locate existing data
- collect data (experiment, observe, measure, simulate)
- capture and create metadata

UK Data Archive Research Data Lifecycle, http://www.data-archive.ac.uk/create-manage/life-cycle
Copyright: University of Essex
Research data life cycle #2

- Steps of the life cycle rely on **different tools and services**
- **Different practices** behind these steps, e.g. preserving data with a digital archive like ACDH’s [ARCHE](#)
- **Data** that goes through the life cycle may **initiate a new life cycle**
- **Combination** of different tools, services and e-Infrastructures (and you may need to rearrange it)
Scope of e-Infrastructures

- Enabling **sharing**
- Scales up: From a simple communication **tool to a platform** that deliver services, integrate tools and supports work with data
- Different **sizes** of e-Infrastructures: smaller ones may fit better for specific research purposes
- A small e-Infrastructure: your local computer and the environment you set up for doing your research work
Examples of e-Infrastructures

• Research projects using digital tools and services
• Institutions: ACDH-OEAW, INRIA, ...
• National consortia: DARIAH-DE, CLARIAH-NL, DHA, ...
• Transnational networks: CLARIN ERIC, DARIAH-EU, RDA, OpenAIRE, ...
• Data hubs: Europeana, HAL, Zenodo, GitHub, ...
What is the background of an e-Infrastructure?

- Combination of **hardware and software** that enables shared work
- **Maintenance** of this combination
- Further **development** and **integration** of services
- Creating an **user interface** that supports participation
- The more participants and services, the more **complex** this becomes
  - Combining software for a digital workflow can get tricky
  - Integrating different communities, research methods, and data can get confusing
How an e-Infrastructure should look like #1

Users of an e-Infrastructure should not be bothered with the technical background:

• Integrating hardware and software silent: researchers want to work on their data and not on the setup of the e-infrastructure

• The technical configuration needs to be transparent, preventing a “black box”

• Providing an easy entry point so that users can work immediately
Requirements for working with an e-Infrastructure

• Have a research question and even better, have research data

• If you have a running project or a project in preparation, connect with an e-infrastructure on how to integrate your data
  • Understand how to integrate your data: Which standards are in use? Are there access points where you can put or get data from (API)?

• Some e-Infrastructures support you in creating data, which is of relevance if you don’t have data already gathered

• Define your requirements for data to compare different e-Infrastructures
How an e-Infrastructure should look like #2

- A **rich combination** of data, services and tools that allows to **create data, to gather data and to connect data** for research questions
- Supports the **implementation** of research data life cycle steps
- Valuable interfaces to **integrate** research data
- **Facilitate** research and **harvest** research data
- Be aware: There is **no one-approach-fits-it-all** e-Infrastructure
How to connect with an e-Infrastructure?

• **Ask** colleagues

• **Discuss** in your community

• **Connect** with local support institutions

• **Contact** an e-infrastructure

• **Compare** e-Infrastructures to identify the best fitting approach

• **Combine** e-Infrastructures with other e-Infrastructures, with (self-developed) services, and with **tools**

• **Create** a digital workflow
Further information on e-Infrastructures

- PARTHENOS Training: Introduction to Research Infrastructures
  http://training.parthenos-project.eu/sample-page/intro-to-ri/

- Open Data Institute: What is data infrastructure?
  https://theodi.org/what-is-data-infrastructure

- European Commission: Policies - e-Infrastructures
  https://ec.europa.eu/digital-single-market/e-infrastructures

- European Commission: Infrastructure publications
Take away messages e-Infrastructures

• E-Infrastructures **connect** you with stakeholders
• For Researchers:
  • e-Infrastructures **support** you
  • ... give you **access to data** for research
  • ... **create impact** for research
• For Cultural Heritage Institutions:
  • e-Infrastructures **raise dissemination** of data
  • ... enable researchers to **work** with data
  • ... deliver new **insights** into data
• To succeed, it requires **data quality** => **community effort**
Data quality is important

- Identify for your project **what is data**
- Create **structured** data
- Make a **data management plan** (DMP)
- Publish your data as **open** as possible

Data quality is about:

- Apply **FAIR** data principles
- Use **standards**

Key to success: **Preparation** and **continuous** work on data quality
Are you aware of the FAIR data principles?

• We prepared a poll
• Please close the full screen window to see it
• Take your vote!
What are the FAIR data principles?

Findable  Accessible  Interoperable  Reusable

By SangyaPundir (Own work) [CC BY-SA 4.0 (https://creativecommons.org/licenses/by-sa/4.0)], via Wikimedia Commons: https://commons.wikimedia.org/wiki/File%3AFAIR_data_principles.jpg
The FAIR data principles

• Compiled by FORCE11
  • https://www.force11.org/group/fairgroup/fairprinciples
  • Guiding principles: https://www.force11.org/fairprinciples

• **Generic** principles to **raise data quality**
• Applying them **supports the research data life cycle**
• ... and the **further development of e-Infrastructures**
• Different ways to **implement** them
• Asks for **involvement** of all stakeholders
Data as increasingly FAIR Digital Objects

- Totally UNFAIR
- Findable Usable for Humans
- FAIR metadata
  - FAIR data-
  - Open Access
  - FAIR data-
  - Open Access/Functionally Link

Taken from FORCE11 website:
https://www.force11.org/fairprinciples
Further information on FAIR data principles

• PARTHENOS training: Manage, Improve and Open up your Research and Data:  
http://training.parthenos-project.eu/sample-page/manage-improve-and-open-up-your-research-and-data/

• FAIRsharing: https://fairsharing.org/

• GO FAIR: https://www.go-fair.org/

• Outcome PARTHENOS Work Package 3: Support tool for the implementation of common policies

• Make your data FAIR!
How can I make my data FAIR?

A Data Management Plan
"helps 2020 beneficiaries make their research data
Findable,
Accessible,
Interoperable and
Reusable
(FAIR) [...]."

How can I make my data FAIR?

Develop research question

Plan research project

Carry out research

Analyse data

Publish results

(Picture Research Lifecycle: PARTHENOS CCO)

Write a Data Management Plan (DMP)

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What is a Data Management Plan (DMP)?
What is a Data...

"Research data is data that is collected, observed, or created, for purposes of analysis to produce original research results."

Margaret E. Henderson, 
What is a Data...
...Management...

• An ongoing **maintenance** (backup, migration, conversion...)
• An **action plan** in terms of data quality, technical feasibility and financial viability
• Identifying and making **visible** the actions to be conducted
• Planning **key stages, deadlines and critical time periods**
...Management...

Manage your data, don't let your data manage you!
...Plan?

DON'T WORRY

I HAVE A PLAN
...Plan?

When you create a DMP, you explain how data will be:

- Described
- Shared
- Protected
- Preserved
And in practice?

Why would my data be FAIR with a DMP?

- Data description
- Standards and metadata
- Data sharing
- Data storage and preservation
And in practice?

Why would my data be FAIR with a DMP?

- **Findable**
  - Data description
  - Standards and metadata
  - Data sharing

- **Accessible**
  - Data sharing
  - Data storage and preservation

- **Interoperable**
  - Standards and metadata

- **Reusable**
  - Data sharing
  - Data storage and preservation
In practice, my data are findable because I...

- Pick a **naming convention** (and stick to it)
- Provide clear **version numbers**

**EXAMPLE:**

```
title_project_identifier_v2_yyyymmd\dd
```

- Create **metadata** describing your data
- Include **appropriate standards** for the content and format of your data
In practice, my data are findable because I...

Create metadata (among other things)

Metadata are data about data
In practice, my data are accessible because I...

- Deposit my data and associated metadata in a **research data repository** that will identify my data with a unique persistent identifier (such as DOI or Digital Object Identifier) (E.g. [Zenodo](http://zenodo.org))

**TIP** – I can find a research data repository with [re3data](http://re3data.org) or "Registry of Research Data Repositories" that is a catalog of research data repositories.

- Precise which **methods and software tools** are needed to access my data

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In practice, my data are interoperable because I...

- Use **standards** to modelize and describe my data
- Use **standards vocabularies or ontologies** for the metadata I created

**DEFINITION** – In addition to metadata and standardised metadata schemas, research infrastructures can also use other forms of “knowledge representation system” to enhance the researcher’s experience of the interoperable data they present. When we talk about ‘Knowledge Representation Systems’ in research infrastructures, we usually mean a specific category of hierarchical systems of terms known more commonly as an ‘ontology’. Before the digital age, philosophers referred to an ontology as “the study of the kinds of things that exist”. Ontologies are similar to taxonomies [...].", [PARTHENOS](http://www.partenos.org), What Are Knowledge Representation Systems and 'Ontologies'?
In practice, my data are reusable because I...

- Have obtained the **informed consent** for people participating to the research (if needed)
- **License my data** with a licence as open as possible
  
  **TIP**— I can use the [Creative Commons](https://creativecommons.org) framework to combine 4 license types, precising the rights I give up or not.
- **Store data** in a long-term archive.

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The Devil is in the details

If you want make your data FAIR!
Standards are crucial for research

"Standards are a key to great digital research, which helps to discover and understand our cultural and societal life."

Laurent Romary, chairman of the Technical Committee "Terminology and other language and content resources" of the International Organization for Standardization (ISO)
What are standards?

• They **inform** you about practices, protocols, artefact characteristics or data formats.

• They can be used as **reference** when you work with colleagues from your field, so that you can produce **comparable or interoperable** results.

• They are **not regulation**, you don’t have to follow them (but you should).

• They are published and maintained by **standards organizations** such as **[TEI](https://www.tei-c.org)**, **[ISO](https://www.iso.org)**, and **[W3C](https://www.w3.org)**

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What are standards?

To be called "standards", they must fulfill three requirements:

• They express a **consensus**
• They are published and easily **accessible**
• They are **maintained**
Why standards?

https://hdl.handle.net/11403/de-parl

https://hdl.handle.net/11403/uk-parl

https://hdl.handle.net/11403/fr-parl

List of metadata in the <teiHeader>:
• <fileDesc>
• <encodingDesc>
• <profileDesc>
• <revisionDesc>
Why standards?

• A metadata schema consists of a definite set of characteristics to describe data.

**DEFINITION** - It is "a labeling, tagging or coding system used for recording cataloguing information or structuring descriptive records. A metadata schema establishes and defines data elements and the rules governing the use of data elements to describe a resource”,

Open data support

• One of the most commonly used metadata standard is [Dublin Core](#).
Why standards?

NO METADATA
NO FUTURE
How to identify relevant standards for my research?

xkcd – "How standards proliferate"
The Standardization Survival Kit (SSK)

Homepage

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The Standardization Survival Kit (SSK)

- Documenting
- Supporting
- Communicating
- Training

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The Standardization Survival Kit (SSK)

Collaborative Digital Edition of a Musical Corpus

A project aims to do a digital edition of a musical corpus. The researchers need to be able to encode a broad range of musical documents in a machine-readable structure. The data to be encoded may include the musical content as provided by the composer (notes, pitches, durations, dynamics, etc.), information on the score (incipit, lyrics writer, etc.), information added by a performer when interpreting the content (timing, phrasing, various annotations, etc.), information on the visual appearance of the score (page layout, musical font, etc.) and analyses of the content in any of the other domains. The edition will be structured around a database in order to allow the users to explore it more easily. Furthermore, the project intends to be collaborative, which means it will offer anyone interested the possibility to contribute.

A research scenario (description)
The Standardization Survival Kit (SSK)

A research scenario (steps)
The Standardization Survival Kit (SSK)

5. Enrich the musical edition with critical apparatus metadata

Add to music edition one staff for each source attesting variants or person suggesting emendation. Encode variants/emendations only in the measures where interventions occur.

http://tadirah.dariah.eu/vocab/index.php?_search_expression=Annotating

General resources

- software
  - Avid Technology
  - Sibelius

Projects-specific resources

- Gesualdo Online
  - webpage

- The Lost Voices Project
  - webpage

A research scenario (ressources)

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The Devil is in the details!

- Improve your data and share them by using the services offered by **e-Infrastructures**

- Write a **DMP** to make your data FAIR

- Pay attention to "details", such as **standards**

- Choose the best suited standards for your data by using the **Standardization Survival Kit (SSK)**

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Take away message

For better data, don't mess with the Devil... don't mess with standards!
Announcements

• Next PARTHENOS webinar:
  • “Research Infrastructures: Beyond tools – General introduction” (Steven Krauwer, Stefan Schmunk), 22.02.2018, 11:00 CET

• New PARTHENOS Training Suite module: Manage, Improve and Open Up Your Research and Data

• New clips with Mork and Tork Cartoon about Standards in several languages

• Launch Standardization Survival Kit (SSK) (soon!)

• PARTHENOS Webinar Workshop at the European Summer University in Digital Humanities 2018 (ESU), Leipzig

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Questions & Answers

(Picture CC0 https://pixabay.com/photo-2999583/)

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PARTHENOS eHumanities and eHeritage Webinar Series

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