Mapping METS and Dublin Core to CMDI: Making Textbooks available in the CLARIN VLO

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Outline

• Motivation
• Why CLARIN, why CMDI?
• CMDI process at GEI
  • TEI To CMDI
  • METS To CMDI
  • DC To CMDI
• Conclusion
In 1953 Georg Eckert (1912-1974) founded an „international textbook institute“

In 1975 the Georg-Eckert-Institute was established in Brunswick, Germany

It is member of the Leibniz Association since 2011

The institute conducts applied and multidisciplinary research into textbooks and educational media related to textbooks, informed primarily by history and cultural studies

Research, Transfer and Infrastructures are closely connected
World Views is an open edition featuring:

- Digital images from textbooks
- Full, TEI-XML annotated text
- Translations
- Comments and Essays on authors, educational systems, historic events featured etc.
- Metadata in different formats

Objective: Make data as open, visible and re-usable as possible

http://gei-worldviews.gei.de/
The GEI-Digital Project

http://gei-worldviews.gei.de/

Gei-Digital is an open edition featuring:

- Metadata in different formats
- The MIK-Center in Berlin is conducting the digitalisation of the content using the Goobi open source system.

Objective: Make data as open, visible and re-usable as possible
https://vlo.clarin.eu/

The data becomes visible and searchable in the VLO.
Why CLARIN, why CMDI?

- **Current standards**: CLARIN promotes the use of Component MetaData Infrastructure (CMDI).

- **Reduce dispersion of a multitude of formats**: using the CMDI suggested by CLARIN to overcome the dispersion produced by a multitude of formats of metadata for existing language resources and tools.

- **Interoperability and reusability of resources**: CMDI allows to overcome the problems that often descriptions like TEI headers for text or IMDI for multimedia collections have; such problems are due to the fact that these descriptions contain too specific information for any given research community.

- **Sharing resources**: CMDI offers component based metadata for harvesting resources via the Open Archives Initiative Metadata Harvesting Protocol (OAI-PMH)
A metadata framework that is flexible enough to cover the different wishes from the various sub-disciplines and projects, but nevertheless has the expressive power to serve for the various functions.
The World Views Project Use Case Scenario

World View Service

Goobi

TEI Document

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Worldviews: The World in Textbooks

The World Views Project

Use Case Scenario

Goobi

TEI Document
CMDI process at GEI
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The GEI-Digital Project Use Case Scenario

METS Document

GEI Digital Service

Goobi

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CMDI process at GEI

Profile Definition
- Define conceptual model of existing resource
- Select Existing Profile in CMDI Component Registry
- Create a NEW Profile in CMDI Component Registry

Editing Metadata
- Validate Metadata
- Manage Metadata
- Create Metadata

Harvesting Records
- Move Metadata in persistent storage
- Assign persistent Identifier
- Make Metadata available through OAI-PMH

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METS to CMDI Components, elements and attributes
From GEI METS Document To GEI CMDI

Conceptual Model

METS Document

GEI Digital Service

Goobi

METS CMDI Profile

CMDI Metadata Editor

CMDI file

VLO

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Mapping problems

• Many of the profile’s components, elements and possible values are semantically defined through a link to an entry in the CLARIN Concept Registry (CCR).

• For any that were missing we created definitions and provided other relevant information required for inclusion into the CCR.

• We submitted the complete table of missing elements, in the format required, to the maintainers of the CCR but CMDI mapping problems led a stop of our process.
Mapping problems

• CMDI cannot manage recursive structures such as those based on the `<mets:div>` components which are mandatory for mapping the physical layer of the digital objects.
  • METS semantics states that: "The structural divisions of the hierarchical organization provided by a `<structMap>` are represented by division `<div>` elements, which can be nested to any depth."

• CMDI cannot manage cross-reference links such as `<mets:smLink>` components, which can be found in any METS structure.

• CMDI cannot manage different concepts tied to the same label.
  • In METS such cases are disambiguated by their position in the XML structure.
The GEI-Digital Project Use Case Scenario

GEI Digital Service

Goobi

DC Document

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CMDI process at GEI

Profile Definition
1. Define conceptual model of existing resource
2. Select Existing Profile in CMDI Component Registry
3. Create a NEW Profile in CMDI Component Registry

Editing Metadata
1. Validate Metadata
2. Manage Metadata
3. Create Metadata

Harvesting Records
1. Move Metadata in persistent storage
2. Assign persistent Identifier
3. Make Metadata available through OAI-PMH
From GEI DC Document To GEI CMDI

DC Document

GEI Digital Service

Goobi

Conceptual Model

CMDI Component Registry

Dcto CMDI Converter

CMDI File

VLO

CLARIN Virtual Language Observatory

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GEORG ECKERT INSTITUTE
for International Textbook Research

ANNUAL CONFERENCE 2019
Leipzig, Germany
By using CMDI, full-text resources can immediately be indexed by CLARIN’s Virtual Language Observatory and can be analyzed using its various tools and services such as Weblicht.

The CMDI description of GEI resources allows for internally standardized search and retrieval operations in federated search scenarios.
Conclusion

• We describe a mapping process to established standards and provide APIs for other services, in order to integrate our resources and tools into the CLARIN infrastructure and make them discoverable in VLO.

• We focus on CMDI as a unique metadata descriptive standard for encoding administrative and structural metadata of the resources of GEI-Digital repository.

• We create the METS CMDI profile but the CMDIfication process is stopped because for mapping problems, the METS to CMDI mapping revealed itself impracticable.

• Our library team likes and used METS because they want to record more than is possible with DC.
Thanks for your Attention!

Questions?