The SeaLiT Ontology
An extension of CIDOC-CRM for the modelling of Maritime History information

Athina Kritsotaki, Pavlos Fafalios, Martin Doerr
Centre for Cultural Informatics (CCI), Institute of Computer Science (ICS), FORTH
Outline

- Context
- The SeaLiT Ontology
- Application
- Conclusion and Next Steps
Context
The project ‘SeaLiT’ - http://www.sealitproject.eu/

- **Full title**: Seafaring Lives in Transition. Mediterranean Maritime Labour and Shipping during Globalization, 1850s-1920s
- **Project type**: ERC starting grant (Feb 2017–Jan 2023, Grant agreement ID: 714437)
- **Field**: Maritime History
- **Principal Investigator**: Dr. Apostolos Delis, Centre for Maritime History, Institute of Mediterranean Studies – FORTH
- **Research Groups**:
  - Centre for Maritime History / Institute of Mediterranean Studies – FORTH (Greece)
  - T.I.G. / University of Barcelona (Spain)
  - NAVLAB / University of Genoa (Italy)
  - UMR TELEMME / University Aix-Marseille (France)
  - Department of History / University of Zadar (Croatia)
  - Centre for Cultural Informatics / Institute of Computer Science – FORTH (Greece)
SeaLiT – The research focus

- The transition from sail to steam navigation and its effects on seafaring populations in the Mediterranean and the Black Sea between 1850s-1920s
- The maritime labour market, the life on board and ashore, the evolving relations among ship owners, captains, crew and local societies
- Maritime regions of investigation:
  - Barcelona and the Spanish Levant coasts
  - Marseille and the Provencal ports
  - Genoa and the Ligurian littoral communities
  - Trieste and the Dalmatian coasts
  - Ionian and Aegean islands
  - Odessa and the Crimean ports
SeaLiT – The archival sources

- Crew lists
- Ship logbooks
- Account books
- Censuses
- Sailors registers
- Students registers
- Civil registers
- Maritime personnel registers
- Payrolls
- Employment records

- Handwritten!
- In different languages!
- From different issuing authorities!
**SeaLiT – Examples of ship logbooks**

Brig Eleni Koupa  
(Private Archive of Evangelos Rafalias, Hydra)

Cargo steamer Leonidas  
(Syrmas Archive, Hellenic Literary and Historical Archive [ELIA], Athens)

Barquentine Asimoula  
(Maritime Museum of Galaxidi)
The data management workflow

- Transcription
- Curation
- Transformation
- Exploration

SeaLiT Ontology

Curation

Transformation

X3ML

ResearchSpace

Semantic Network
Data transcription with FAST CAT

- Data from different sources are transcribed as ‘records’ belonging to ‘templates’
  - A ‘template’ represents the structure of a single data source
Data transcription with FAST CAT

- Data from different sources are transcribed as *records* belonging to *templates*.
  - A *record* organizes the data and metadata in tabular form (tables).
Data curation with FAST CAT TEAM

- **FAST CAT TEAM:**
  - Management of *entity instances* and *vocabulary terms* (that appear in the transcripts)
  - It decouples data curation from data transcription
  - We avoid ‘spoiling’ the original transcripts (important for verification and long-term validity)
Some stats…

- 30 users in 5 countries
- **20 templates**
- >600 records
- 5 languages

**FAST CAT TEAM:**
- ~50 vocabularies
- ~100K person instances
- ~10K location instances
- >2.5K ship instances
- ~1K legal entity instances

<table>
<thead>
<tr>
<th>No</th>
<th>Template Name</th>
<th># Records</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Accounts book</td>
<td>14</td>
</tr>
<tr>
<td>2</td>
<td>Census La Ciotat</td>
<td>63</td>
</tr>
<tr>
<td>3</td>
<td>Civil Register</td>
<td>29</td>
</tr>
<tr>
<td>4</td>
<td>Crew and displacement list (Roll)</td>
<td>35</td>
</tr>
<tr>
<td>5</td>
<td>Crew List (Ruoli di Equipaggio)</td>
<td>98</td>
</tr>
<tr>
<td>6</td>
<td>Employment records, Shipyards of Messageries Maritimes, La Ciotat</td>
<td>50</td>
</tr>
<tr>
<td>7</td>
<td>First national all-Russian census of the Russian Empire</td>
<td>6</td>
</tr>
<tr>
<td>8</td>
<td>General Spanish Crew List</td>
<td>64</td>
</tr>
<tr>
<td>9</td>
<td>Maritime Register of the State for La Ciotat</td>
<td>1</td>
</tr>
<tr>
<td>10</td>
<td>List of ships</td>
<td>71</td>
</tr>
<tr>
<td>11</td>
<td>Logbook</td>
<td>17</td>
</tr>
<tr>
<td>12</td>
<td>Naval Ship Register List</td>
<td>2</td>
</tr>
<tr>
<td>13</td>
<td>Notarial Deeds</td>
<td>10</td>
</tr>
<tr>
<td>14</td>
<td>Payroll</td>
<td>7</td>
</tr>
<tr>
<td>15</td>
<td>Payroll of Russian Steam Navigation and Trading Company</td>
<td>14</td>
</tr>
<tr>
<td>16</td>
<td>Register of Maritime personnel</td>
<td>4</td>
</tr>
<tr>
<td>17</td>
<td>Register of Maritime workers (Matricole della gente di mare)</td>
<td>6</td>
</tr>
<tr>
<td>18</td>
<td>Sailors register (Libro de registro de marineros)</td>
<td>52</td>
</tr>
<tr>
<td>19</td>
<td>Seagoing Personnel</td>
<td>52</td>
</tr>
<tr>
<td>20</td>
<td>Students Register</td>
<td>10</td>
</tr>
</tbody>
</table>
Ontology-based data integration

- Creation of schema mappings (one per FAST CAT template)
  - that map the elements of a template (source schema) to elements of the SeaLiT Ontology (target schema)

- X3ML Toolkit
  - X3ML mapping definition language
  - 3M Editor (user interface)
  - X3ML Engine (transformation)
The SeaLiT Ontology
The SeaLiT Ontology

- An extension of CIDOC-CRM for the modelling of **Maritime History** information
  - It allows describing activities and information related to:
    - Ships and ship voyages
    - Employments and payments
    - Seafaring people
    - Teaching activities
  - It currently contains **46 classes** and **79 properties**
  - It was built *gradually* (source by source) by analyzing data in the records of each FAST CAT template, as well as by studying **competency questions** provided by the historians of SeaLiT

- Its **definition** and **RDFS** implementation are available through Zenodo (under a creative commons license)

  [https://doi.org/10.5281/zenodo.5964240](https://doi.org/10.5281/zenodo.5964240)

The SeaLiT Ontology – Modeling information about ships

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The SeaLiTOntology|52nd CIDOC CRM and 45th FRBR CRM meeting | 11 February 202
The SeaLiT Ontology – Modeling information about voyages
The SeaLiT Ontology – Modeling information about payments

E39 Actor \(\xrightarrow{\text{money provided by}}\) E7 Activity
\(\xrightarrow{\text{was mediated by}}\) E39 Actor
\(\xrightarrow{\text{money provided to}}\) E39 Actor
E97 Monetary Amount
\(\xrightarrow{\text{had money value}}\) E18 Physical Thing
\(\xrightarrow{\text{for thing}}\) E39 Actor
\(\xrightarrow{\text{for service}}\) Service
\(\xrightarrow{\text{for employment}}\) Employment
\(\xrightarrow{\text{for employment period}}\) E52 Time-spa
\(\xrightarrow{\text{has been agreed in}}\) Labour Contract
\(\xrightarrow{\text{for voyage}}\) Voyage
\(\xrightarrow{\text{has been agreed in}}\) E29 Design or Procedure
\(\xrightarrow{\text{started}}\) Recruitment
\(\xrightarrow{\text{ended}}\) Discharge
service provided by
employment provided by

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direct subclass property
The SeaLiT Ontology – Modeling information about persons
The SeaLiT Ontology – Modeling information about teaching activities
Application
Semantic network exploration with ResearchSpace

https://www.researchspace.org/

http://rs.sealitproject.eu/ (work in progress)
Semantic network exploration with ResearchSpace

http://rs.sealitproject.eu/ (work in progress)


Conclusion and Next Steps
Conclusion and Next Steps

- **SeaLiT Ontology**
  - An extension of CIDOC-CRM for the modeling and integration of *maritime history* information
  - Built gradually by
    - analyzing large amounts of primary data (*archival sources of maritime history*)
    - considering *real needs of maritime historians* working in a large research project (SeaLiT)

  **DOI:** https://doi.org/10.5281/zenodo.5964240  
  **Namespace:** http://www.sealitproject.eu/ontology/

- **Next steps**
  - All constructs and scope notes are open to further elaboration / improvement
  - Ontology extension/revision when new relevant sources appear and are analyzed
  - Happy to discuss collaborations for continuing the work 😊
Thank you!

Feel free to contact us:
- Athina Kritsotaki (athinak@ics.forth.gr)
- Pavlos Fafalios (fafalios@ics.forth.gr)