**RO-Crate Time Series Exporter**

for the Building Consumption Data of KIT Campus North

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### Database Analysis

**How is the data structured? What does this field mean?**

- **Steps taken**
  - Exploring available data
  - Understanding the organization structure of the data
  - Understand who and why the data was collected
  - Check data for plausibility

- **Outcome**
  - Software artifacts
  - Data validation scripts
  - Data querying scripts

- **Involved Persons**
  - Project Team
  - Data Collectors (FM)
  - Stakeholders

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### Unified Domain Schema

**Unified Schema**

<table>
<thead>
<tr>
<th>Field</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>time</td>
<td>RFC3339</td>
</tr>
<tr>
<td>value</td>
<td>float</td>
</tr>
<tr>
<td>factor</td>
<td>float</td>
</tr>
<tr>
<td>building</td>
<td>string</td>
</tr>
<tr>
<td>consecutiveNumber</td>
<td>int</td>
</tr>
<tr>
<td>measuringType</td>
<td>enum</td>
</tr>
<tr>
<td>name</td>
<td>string</td>
</tr>
<tr>
<td>energyType</td>
<td>enum</td>
</tr>
<tr>
<td>quantity</td>
<td>QUDT.Quantity</td>
</tr>
<tr>
<td>unit</td>
<td>QUDT.Unit</td>
</tr>
<tr>
<td>granularity</td>
<td>ISO8601 ABNF</td>
</tr>
<tr>
<td>deactivated</td>
<td>boolean</td>
</tr>
<tr>
<td>locationDescription</td>
<td>string</td>
</tr>
</tbody>
</table>

**Steps taken**

- Identifying requirements on the data
- Agreement on shared vocabulary
- Def. a unified DB schema
- Def. the RO-Crate profile

**Outcome**

- Unified database schema

**Involved Persons**

- Project Team
- Stakeholders

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### Data Transformation

**Steps taken**

- Normalize field values
- Map field values to vocab terms
- Develop transformer software
- Deploy software as persistent service on our infrastructure

**Outcome**

- Unified database

**Involved Persons**

- Project Team

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### Service Development

**Steps taken**

- Defined REST API
- Determine programming language
- Identify required libraries
- Program

**Outcome**

- Webservice

**Involved Persons**

- Project Team

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### Outlook

**Steps taken**

- Include weather data of requested time period (in dev.)
- Generalize the service to export data from arbitrary databases as RO-Crates
  - Exploit the database from Energy Lab 2.0
  - Automatically crawl database schemas and identify semantically unknown fields
  - Create an UI to enable researchers defining the semantically unknown fields

**Outcome**

**Involved Persons**

- Project Team