**Community Knowledge Graph (CKG)**

A CKG is a central infrastructure which acquires, integrates, shares and manages knowledge in the community by

1. mainly describing real world entities and their interrelations, organized in a graph,
2. based on possible classes and relations of entities in an community knowledge schema,
3. ensuring all basic functions through specific support processes and roles.
4. by
5. allows for potentially interrelating arbitrary entities with each other,
6. covers a multitude of community-related domains,
7. and eventually may generate new knowledge by analysis and reasoning.

**Motivation: How to store the results of scientific seminars?**

**State-of-the-Art Population Approaches**

<table>
<thead>
<tr>
<th>Line of research</th>
<th>Exemplary work</th>
<th>Research objectives</th>
<th>Main findings</th>
<th>Applicability</th>
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</thead>
<tbody>
<tr>
<td>Rule-based extraction</td>
<td>Freebase, Wikidata, digital libraries (Rahm e.a., CKM 2010)</td>
<td>Enrich structure and/or related events</td>
<td>Data model, Semantic architecture based on SPARQL, LOD services</td>
<td>Applicable for unstructured data</td>
</tr>
<tr>
<td>Collaborative annotation</td>
<td>OpenResearch collaborative annotation (Abraham e.a., DOAP 2016)</td>
<td>Enrich structure and/or related events</td>
<td>Data model, Semantic architecture based on SPARQL, LOD services</td>
<td>Applicable for unstructured data</td>
</tr>
<tr>
<td>Production of initially structured data</td>
<td>ADMS framework enabling SPARQL-AOP submissions (St-Claire e.a., ESWC 2015)</td>
<td>Enrich structure and/or related events</td>
<td>Data model, Semi-structured data</td>
<td>Applicable for unstructured data</td>
</tr>
<tr>
<td>Text analysis, data mining and machine learning</td>
<td>OntoWiki-based Prototype</td>
<td>Enrich structure and/or related events</td>
<td>Data model, Semi-structured data</td>
<td>Applicable for unstructured data</td>
</tr>
</tbody>
</table>
How to structure results of qualitative analysis?

- Research Objectives
- Research Methods
- Research Findings
- Future Work
- Critique

Research Action Types
- analyze
- collect
- conceptualize
- define

Lists of
- canonical items
- text items

Research Methods
- Action Research
- Argumentative Deductive Analysis
- Case Study
- Conceptual Deductive Analysis
- Design Science

Research Artifacts
- Application
- Agent
- Business Process
- Development Framework
- Documentation

Lists of
- scholarly papers
- publication events
- person
- organizations
- places

OntoWiki-based Prototype

- Content as of now
  - 35 scholarly papers
  - 12 publication events
  - 118 person
  - 49 organizations
  - 49 places

Next Steps towards a Knowledge Graph for the Research Group

- Develop stored queries in OntoWiki
  - for relevant competence questions
  - to facilitate informative views

- Design and develop information system
  - based on OntoWiki development framework
  - focused on research group use cases

- Implement semi-automatic process
  - based on the BPMN process engine Camunda
  - configure and implement open APIs

Approach for Semi-automatic KG Population

- Based on Camunda BPM
- DOIs as identifiers for scholarly articles and proceedings (CWS)
- Wikidata identifiers for all organizations and places
- ORCID identifiers for all authors
- If open identifiers are missing, internal ones are built from same name space
- Results of qualitative analysis (knowledge work) is recorded directly in OntoWiki GUI

Thank you for your attention

Get access:
- https://bmakewiki.th-brandenburg.de
- https://bmakewiki.th-brandenburg.de/spv
- https://github.com/bmake/scholarlygraph

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