Using Topic Maps for Image Collections

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1. Outline of the Project Living Memory
2. Database Construction & Topic Mapping
3. Access Options
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The emerging Novartis Campus

Source: [http://www.novartis.ch/about/novartis/de/campus/](http://www.novartis.ch/about/novartis/de/campus/)
The image collection

The project *Living Memory*

**Work packages:**
1. Creation of visual resources
2. Database construction
3. Cataloguing & indexing of resources
4. Access options
5. Interface design
6. Usability testing
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First milestone reached

A semantic structure for image cataloguing & retrieval is established:

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<tr>
<th>Metadata Scheme</th>
<th>Cataloguing &amp; retrieval</th>
</tr>
</thead>
<tbody>
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<td>implemented in database</td>
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<tr>
<td>Thesaurus</td>
<td>Indexing</td>
</tr>
<tr>
<td>Topic Map</td>
<td>Navigation</td>
</tr>
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</table>

Thesaurus

- Based on the Art & Architecture Thesaurus (AAT)
- Main branches:
  - People → **Who** is on the image?
  - Objects → **Who**?
  - Activities → **What** are they doing?
  - Attributes → **How** are they?
  - Setting → **When** and where?

From thesaurus...

- People
  - <by profession>
    - architect
    - artist
    - interior designer
    - construction worker
- Architectural elements
  - building
    - <by function>
      - office building
      - research building
    - room
      - <by function>
        - office
        - laboratory
- Activity
  - Event
    - Exhibition
    - Opening ceremony
... to topic map

- People
  - Architect, artist, interior designer – has designed – building
  - Architect – is related to – artist, interior designer
- Architectural elements
  - Research building – contains – laboratory
  - Building – is inaugurated with – opening ceremony
- Activity
  - exhibition
  - opening ceremony

Populating the topic map

Architect

Artist

Interior designer

has designed

Building

<table>
<thead>
<tr>
<th>Instances</th>
<th>Assoc. roles</th>
<th>Instances</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diener Roger</td>
<td>Architect</td>
<td>Forum 3</td>
</tr>
<tr>
<td>Wiederin Gerald</td>
<td>Architect</td>
<td>Forum 3</td>
</tr>
<tr>
<td>Peach Seville</td>
<td>Int. Designer</td>
<td>Forum 3</td>
</tr>
<tr>
<td>Federle Helmut</td>
<td>Artist</td>
<td>Forum 3</td>
</tr>
<tr>
<td>Gehry Frank</td>
<td>Architect</td>
<td>Office Building 242</td>
</tr>
<tr>
<td>Krischanitz Adolf</td>
<td>Architect</td>
<td>Research Building 152</td>
</tr>
<tr>
<td>Märrli Peter</td>
<td>Architect</td>
<td>Visitors Center 157</td>
</tr>
</tbody>
</table>
Scoping the topic map

- Person
  - Int. Des.
  - Artist
  - Architect
  - Office Worker
- Arch. Elem.
  - Building
  - Office B.
  - Res. B.
- Activity
  - Office
  - Lab
  - Exhib.
  - Opening
- Event

Scoping the topic map

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Architecture
Scoping the topic map

Occurrences as database queries

Query Examples:
- Topic „Forum 3“ → ST = „Forum 3“
- Topic „idyl“ → ST = X AND CF A between (50-80)
  AND CF B between (200-255)
Semantic structure

Metadata Scheme
implemented in database

Thesaurus

Topic Map

Occurrences querying database

Subject terms

Topics Super-/subclass hierarchy

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Combining different access options

**Search (traditional):**
- Text-based search:
  - Formal metadata
  - Index terms
- Visual search:
  - Colour features
  - Intellectually assigned visual criteria

Refinement of search results

- Refine search:
  - ST = …
  - CF luminance between {80-150}
Continuing the search

Subject terms:
- Man, excavation worker, sitting, portrait, lying, tired, rest, food, bag

→ Continue search with ST „rest“:

Semantic search and browsing

Search (semantic):
- Text-based search for index terms
  - more precision
  - more recall
    - inclusion of superclasses
    - inclusion of associated terms

Browse:
- Topic Map
Questions to be solved

- Connection of topic map and database
- Use of scope
- Maintenance of the topic map