Bringing the „STW Thesaurus for Economics“ on to the Web of Linked Data

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Linked Data on the Web
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www.zbw.eu
Contents

1) ZBW and STW Thesaurus for Economics
2) Project goals
3) Conversion to SKOS
4) STW web application
5) STW web services
6) Further directions
• German National Library of Economics (ZBW) / Leibniz Information Centre for Economics is the world’s largest economics library
• STW Thesaurus for Economics was developed in the nineties by four economics institutions as “Standard-Thesaurus Wirtschaft”, funded by German government, for the purpose of unifying the use of subject headings in economics
• now maintained by ZBW as a controlled vocabulary of about 5,800 terms in German and English
Project goals

• Bring the STW on to the Web
• Support users in subject oriented searches
• Allow easy third party reuse of the data

Assumptions:
• To publish the STW in a standard format
  not easy - no standard or widely agreed upon serialization format for thesauri exists; upcoming ISO 25964 is still a work in progress. SKOS was already in place and looked promising
• To publish it under an open license
  we chose Creative Commons (by-nc-sa)
Conversion to SKOS

• SKOS proved to be extensible enough to cover even the non-standard features of the STW
• e.g. subclassing of skos:Concept for descriptors and subject categories allowed a unified skos:narrower/skos:broader hierarchy of concepts and the separation for output and for custom integrity checks
• all further work accomplished on a SKOS representation of the thesaurus
V.05.06 Financial Markets

V.05.06 Finanzmärkte (german)

broader

- V.05 Money and Financial Markets

narrower

- V.05.06.01 Money Market
- V.05.06.02 Securities Markets
- V.05.06.03 Forward Market
- V.05.06.04 Foreign Exchange Market

Descriptors

- Arbitrage
- Arbitrage pricing
- Beta Estimate
- Bid-ask spread
- Bubbles
- Capital asset pricing model
- Commodity exchange
- Credit market
- Effective rate
- Efficient-market hypothesis
- Euromarket
- Exchange
- Exchange listing
- Financial crisis
- Financial derivative
Financial crisis

Finanzmarktkrise (german)

used for: Financial instability

Narrower Terms

- Banking crisis
- Currency crisis
- Stock market crash

Broader Terms

- Economic crisis

Related Terms

- International financial market

Subject Categories

- V.05.06 Financial Markets
- V.07.07 International Financial Markets
1. Entwicklungen der Weltwirtschaft im Kontext der Finanzmarktkrise
   / Michael Landesmann. - Wien : WiW, 2009
2. Eine wirtschaftsethische Kommentierung der Finanzkrise
   / Lin-hi Nick. - In: Forum Wirtschaftsethik, Bd. 17 (2009), 1, S.20-27
3. Kann der internationale Tourismusmarkt wachsen trotz globaler Kreditmarktkrise?
   / Galyna Trillenberg. - In: Berichte, Bd. 19 (2009), 182/183, S.95-108
4. Finanzmarktkrise : Stabilität der Euro-Zone in Gefahr?
   / Dirk Meyer. - In: Orientierungen zur Wirtschafts- und Gesellschaftspolitik, Bd. 119 (2009), 1, S.49-53
5. Auswirkungen der Finanz(markt)krise auf die Unternehmensbewertung
   / Christian Zwiemer. - In: IRZ, Bd. 4 (2009), 4, S.139-141
6. Tarifpolitischer Jahresbericht 2009 : Tarifpolitik in der Finanzmarktkrise
   / Reinhard Bispinck. - In: WSI-Mitteilungen, Bd. 62 (2009), 4, S.210-217
7. Krise der Finanzmarkte, Krise der Risikoidentifikation
   / Beat Weber. - In: Proklaus, Bd. 39 (2009), 1, S.141-159
8. Weltweite Finanz- und Konjunkturkrise treibt die deutsche Wirtschaft in eine tiefe Rezession
   / Institut für Wirtschaftsforschung <Halle, Saale> / Arbeitskreis Konjunktur. - In: Wirtschaft im Wandel, Bd. 15 (2009), 1, S.12-43
9. Profitability of technical analysis in the Singapore stock market : before and after the Asian financial crisis
   / James J. Kung. - In: Journal of economic integration, Bd. 24 (2009), 1, S.135-150
10. Optimal reserve management and sovereign debt
    / Laura Alfaro. - In: Journal of international economics, Bd. 77 (2009), 1, S.23-36

Word Type Count
financial crisis subject/regional headings [SHD] 5096
STW web services

Experimental services at http://zbw.eu/beta/stw-ws targeted at retrieval support  
(does not aim to cover the complete SKOS model)

/synonyms  
takes any string, returns synonym terms, eg.
http://zbw.eu/beta/stw-ws/synonyms?query=free+trade+zone

STW Web Service Query Results

<table>
<thead>
<tr>
<th>synonym</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;Free trade zone&quot; @en</td>
</tr>
<tr>
<td>&quot;Foreign trade zone&quot; @en</td>
</tr>
<tr>
<td>&quot;Export processing zone&quot; @en</td>
</tr>
<tr>
<td>&quot;Foreign-trade zone&quot; @en</td>
</tr>
</tbody>
</table>
STW web services: /suggest

/suggest
powers STW website
STW web services: /suggest SPARQL query

http://zbw.eu/beta/stw-ws/suggest?query=asset

```
SELECT DISTINCT ?term ?concept ?prefLabel
WHERE {
  {
    ?concept rdf:type zbwext:Descriptor .
    FILTER (regex(str(?term), "^$query\" , "i")) .
    FILTER (langMatches(lang(?prefLabel), "$lang\")) .
  }
  UNION {
    ?concept rdf:type zbwext:Descriptor .
    FILTER (regex(str(?term), "^$query\" , "i")) .
    FILTER (langMatches(lang(?prefLabel), "$lang\")) .
  }
}
ORDER BY ?term
LIMIT 10
```
Further directions

- To provide interfaces and widgets to select and aggregate descriptors
  - for retrieval (e.g. to provide canned expressions like "financial crisis" OR "banking crisis" OR "stock market crash")
    - to include narrower terms for searches in fields with controlled values
    - to add synonyms for full text searches
  - for indexing (e.g. to support authors in tagging their uploaded papers on document servers)
- To create or make use of existing mappings to other vocabularies in economics, e.g. the classification of the "Journal of Economic Literature" (JEL), and put them on to the web
- To enrich other library applications with semantic markup
Conclusions

- SKOSifying and publishing an existing vocabulary as RDF(a) opens it up to the web and can make it useful far beyond the scope of a single organisation.
- For the field of economics and its resources, the STW provides an interlinking hub and an initial entry point into the web of the linked data.
- For ZBW and other libraries, it opens up a broad range of more extensive applications, possibly in cooperation with interested people from the linked data community.
- Well defined technologies and practices made it possible.
Thank you!

Questions?

Links:
http://zbw.eu/stw
http://zbw.eu/beta/stw-ws

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