Semantification of Query Interfaces to Improve Access to Deep Web Content

Arne Martin Klemenz, Klaus Tochtermann ZBW - Leibniz Information Centre for Economics

Presenter Arne Martin Klemenz Research Assistant

at

Semantic Digital Archives 2013 TPDL 2013, Valletta, Malta



Source: CLIR, Report of the Stanford Linked Data Workshop

Leibniz-Informationszentrum Wirtschaft Leibniz Information Centre for Economics

ZBW is part of the Leibniz Scientific Community

Overview

- Introduction
- Problem Statement
- Research Focus
- Summary









Semantic Web Vision



"[...] open up the knowledge and workings of humankind to meaningful analysis by software agents [...]"

Berners-Lee, T., Hendler, J., Lassila, O., et al. The semantic web. *Scientific American 284*, 5 (2001), 28-37

Image source: John S., James L. Knight Foundation, CC BY-SA 2.0

TBU Leibniz-Informationszentrum Wirtschaft Leibniz Information Centre for Economics



The current web



BUD Leibniz-Informationszentrum Wirtschaft Leibniz Information Centre for Economics





How can information be retrieved?



2 B U Leibniz-Informationszentrum Wirtschaft Leibniz Information Centre for Economics



How can information be retrieved?



Leibniz Information Centre

Wirtschaft

for Economics



How can information be retrieved?



TBUI Leibniz-Informationszentrum Wirtschaft Leibniz Information Centre for Economics



Research Focus



EBUI Leibniz-Informationszentrum Wirtschaft Leibniz Information Centre for Economics



Access to Deep Web Content



EBU Wirtschaft Leibniz Information Centre for Economics



Semantic Annotations



TBU Leibniz-Informationszentrum Wirtschaft Leibniz Information Centre for Economics





TBU Leibniz-Informationszentrum Wirtschaft Leibniz Information Centre for Economics

















Semantic Deep Web Service annotation real world	lexample
• defining content and field properties	
ECONBLE Find Economic Literature	
Search (all) Internet Sources Events SEARCH	fieldType: inputField fieldDomain: xsd:String fieldRange: http://schema.org/CreativeWork#all [AND] http://schema.org/Event#all fieldVocabulary:
STW Thesaurus for Economics:	
The thesaurus provides <u>vocabulary on any eco</u> standardized subject headings and about 19,00 individual keywords. You can also find technica politics, and geographic names. When selecting are sure to get results matching your search qu	nomic subject: more than 6,000 00 entry terms to support I terms used in law, sociology, or g terms from this vocabulary, you lery.

 \rightarrow using vocabularies to ensure a targeted content retrieval

TBUILeibniz-Informationszentrum
Wirtschaft
Leibniz Information Centre
for Economics



Semantic Deep Web Service annotation real world	example
• defining content and field properties	
ECONBLE Find Economic Literature	
Search (all) Internet Sources Events SEARCH	fieldType: inputField fieldDomain: xsd:String fieldRange: http://schema.org/CreativeWork#all [AND] http://schema.org/Event#all fieldVocabulary: fieldOperators: #STWthesaurus
	title: <u>http://schema.org/CreativeWork#headline</u> person: <u>http://schema.org/CreativeWork#author</u> language: <u>http://schema.org/CreativeWork#inLanguage</u> subject: <u>http://schema.org/CreativeWork#keyword</u>
\rightarrow targeted restriction (e.g.):	
language:"eng" subject:"business process"	

TBULeibniz-Informationszentrum
Wirtschaft
Leibniz Information Centre
for Economics





BW Leibniz-Informationszentrum Wirtschaft Leibniz Information Centre for Economics











EBU Leibniz-Informationszentrum Wirtschaft Leibniz Information Centre for Economics



Semantic Deep Web Services (Summary)



EBU Leibniz-Informationszentrum Wirtschaft Leibniz Information Centre for Economics



Semantic Deep Web Services (Summary)





- automatic invocation & execution of discovered SDWS based on field properties embedded to each query interface (SDWS)
- automatic query mapping
- targeted retrieval based on field vocabulary and operators



• BU Leibniz-Informationszentrum Wirtschaft Leibniz Information Centre for Economics



Semantic Deep Web Services (Summary)



TBU Leibniz-Informationszentrum Wirtschaft Leibniz Information Centre for Economics



Further Use Cases

Benefits / contributions

Wide range of applications:





Further Use Cases

Benefits / contributions

Wide range of additional applications; for example:

• extendable schema: restrict retrieval, specify licensing information ...

licensing information



• For which purpose may retrieved information be used?

• Is there a specific license under which the retrievable information can be used?

2BU Leibniz-Informationszentrum Wirtschaft Leibniz Information Centre for Economics



Future Work



BU Leibniz-Informationszentrum Wirtschaft Leibniz Information Centre for Economics

•





Arne Martin Klemenz Research Assistant a.klemenz@zbw.eu



Source: CLIR, Report of the Stanford Linked Data Workshop

TBUI Leibniz-Informationszentrum Wirtschaft Leibniz Information Centre for Economics



Credits

• Non-referenced images & cliparts



TBU Leibniz-Informationszentrum Wirtschaft Leibniz Information Centre for Economics

