Distributed and Self-organizing Systems Group • Prof. Gaedke

VSR | EDU

XML

XML

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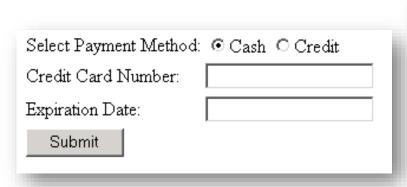
http://vsr.informatik.tu-chemnitz.de

TECHNISCHE UNIVERSITÄT CHEMNITZ

XForms (XForms Profile)

- XForms 1.0 (Second Edition)
  - W3C Recommendation 14 March 2006
  - XForms is an XML application
  - W3C: Represents the next generation of web forms
  - Idea: Model-View-Controller pattern
- Properties
  - Separation of Concerns – separates representation, control and content transfer
  - 3 models
    - XForms model
    - Instance data model
    - User Interface model
  - Enables reuse
  - Supports strong typing
  - Reduces interaction transfer and scripting
  - Device-independent
- Use – XForms should be integrated into existing markup languages
  - XForms requires a so-called host language
  - Examples of such host languages: XHTML or SVG

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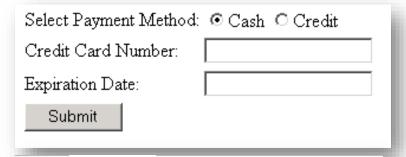WS19/20   2

XForms – Model

- Internal initial data space for the XForms processor
  - **XForms instance**: XML document
    - Initial form data – inline or externally referenced
    - Adheres to XML schema
  - Constraints are considered, i.e. for typing, visibility, simple formulae
  - Approach 80-20 to reduce scripting

```
<xforms:model>
  <xforms:instance>
    <ecommerce xmlns="">
      <method/>
      <number/>
      <expiry/>
    </ecommerce>
  </xforms:instance>
  <xforms:submission action="http://example.com/submit"
                     method="post" id="submit"
                     includenamespaceprefixes=""/>
</xforms:model>
```

Select Payment Method: ● Cash ○ Credit
Credit Card Number: [   ]
Expiration Date: [   ]
[Submit]

Example: Excerpt from W3C XForms specification

Interaction Structure & Elements

- **XForms GUI model**
  - Defines interaction structures and interaction elements
  - Defines device-independent interaction elements
  - Binds interaction elements to an XForms model

Example: Excerpt from W3C XForms specification

```xml
<select1 ref="method">
  <label>Select Payment Method:</label>
  <item>
    <label>Cash</label>
    <value>cash</value>
  </item>
  <item>
    <label>Credit</label>
    <value>cc</value>
  </item>
</select1>
<input ref="number">
  <label>Credit Card Number:</label>
</input>
<input ref="expiry">
  <label>Expiration Date:</label>
</input>
<submit submission="submit">
  <label>Submit</label>
</submit>
```

Interaction Element Representation

- ## Interaction element
  - Representation-independent description
  - Representation is realized by the XForms-processor

- ## Examples
  - <range>
  - <upload>

Example: Excerpt from W3C XForms specification

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Interaction Transfer

- Element **submit**

  - **Defines transfer to the endpoint**

  - Possibilities are currently very limited

  - Only: HTTP-GET and HTTP-POST

```
<xforms:submission action="http://www.example.com/buy.rb" method="post" id="s00" />
<xforms:bind nodeset="my:cc" relevant="../@as='credit'" required="true()" />
<xforms:bind nodeset="my:exp" relevant="../@as='credit'" required="true()" />
```

Transferred Data ➡

```
<ecommerce>
  <method>cc</method>
  <number>1235467789012345</number>
  <expiry>2001-08</expiry>
</ecommerce>
```

Example: Excerpt from W3C XForms specification

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XForms 1.1

- XForms 1.1 (Second Edition)
  - W3C Recommendation 20 October 2009
  - http://www.w3.org/TR/2009/REC-xforms-20091020/
- Properties
  - Extensible interaction transfer process
  - Transfer of data to SOAP-, REST-,ATOM- and not XML services
  - New data types and instance-model properties
  - New functions and XPath expressions
  - More extensive action processing (Turing-complete)
  - And much more...

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Homework

- Check out **XForms 2.0**
  - W3C Working Draft 7 August 2012
  - https://www.w3.org/TR/xforms20/

- What happened since then? How does Xforms 2.0 improve the current situation?

- What is trending and what's going on in general at W3C?

Chapter 22

WEB 3.0, LINKED DATA, AND THE LINKED DATA CLOUD

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Lecture XML ► Chapter 22: Web 3.0, Linked Data, and the Linked Data Cloud

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Evolution of (World Wide) Web

Tim Berners-Lee
- 1989/Nov. 1990 – Idea... Connecting people
- Information Management: Proposal
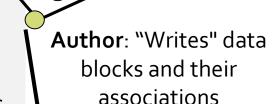- Simple connection of distributed documents

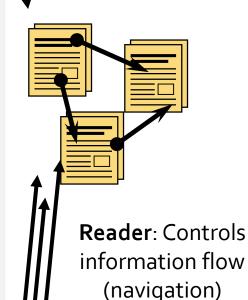**(Business) Proofs of concept:** 1994 Web applications (logs), 1995 Amazon, 1998 Google, 1999 RSS...

Author: "Writes" data blocks and their associations

Web 2.0 - Darcy DiNucci, Dale Dougherty, Tim O'Reilly
- 1999 "Fragmentation" (more channels), more interaction, 2004 Web2.0 Conference
- Collective intelligence

(Business) Proofs of concept: Amazon AWS-APIs, del.icio.us, wikipedia.com, blogs, flickr.com, youtube.com, programmable web, Devices, Social, Sharing, Mashups...
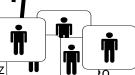
Reader: Controls information flow (navigation)

Photo Credits: Tim Berners-Lee(Enrique Dans, wikipedia.com); web2.0 (Markus Angermeier, flickr .com)

And… what's Web 3.0 #New??

Or: Web 3.0 is the 20 years of **Connecting People…**
in a more intelligent way

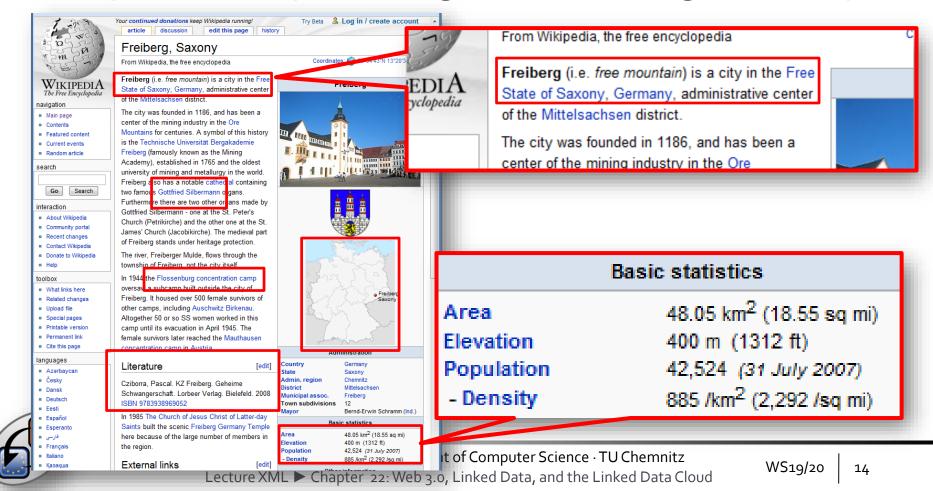# Linked Data #New #NotReallyNew

LINKED DATA STANDARDS

Img: **Tim Berners-Lee,** TED 2009 -- http://www.w3.org/2009/Talks/0204-ted-tbl/#(7)

Linked Data... Closer Look

Web Address or **URL** – **HTTP URI, to be precise**
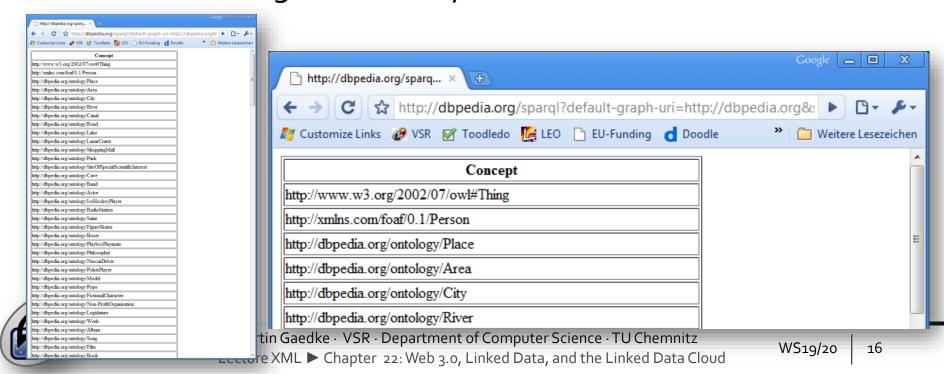
http://en.wikipedia.org/wiki/Freiberg,_Saxony

Subject
Predicate
Object

From Wikipedia, the free encyclopedia

Freiberg (i.e. *free mountain*) is a city in the Free State of Saxony, Germany, administrative center of the Mittelsachsen district.

The city was founded in 1186, and has been a center of the mining industry in the Ore

1186

http://concept.example.org/**City**

http://concept.example.org/**founded**

http://concept.example.org/**is**

http://en.wikipedia.org/wiki/Freiberg,_Saxony

http://concept.example.org/**belongsTo**

http://concept.example.org/**Saxony**

http://concept.example.org/**belongsTo**

http://concept.example.org/**Germany**
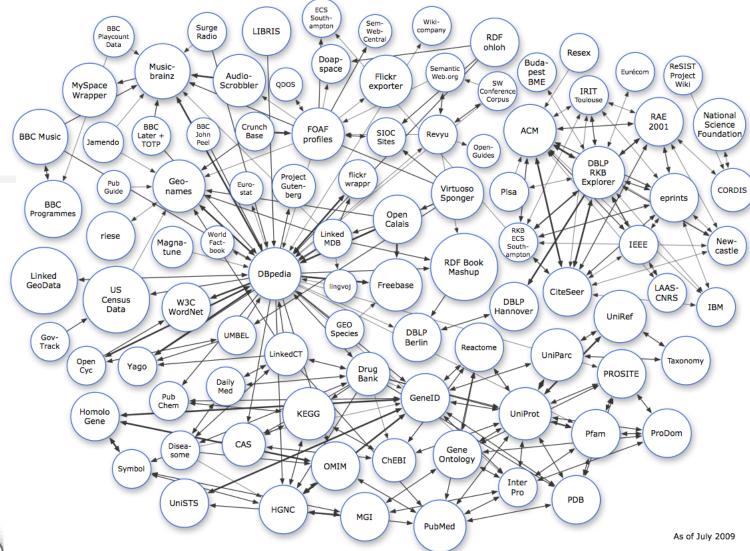
Linked Data… is simple

- Triple: **Subject** , **Predicate (Property)**, **Object**
  - i.e. <HTTP-URI>, <HTTP-URI>, <HTTP-URI>
- Works with abstraction concepts
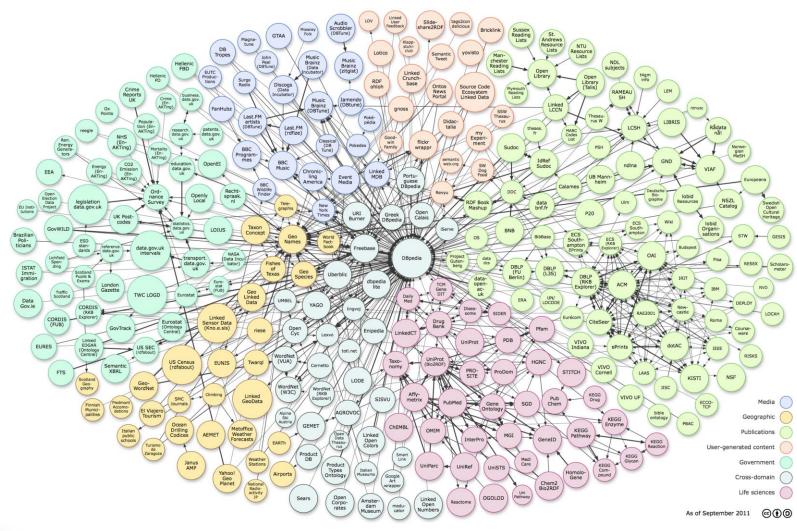 - Subjects, predicates are concepts,
    i.e. "belongs to" or "city"

Linked Data… is simply out there

As of July 2009

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Linked Open Data (LOD)

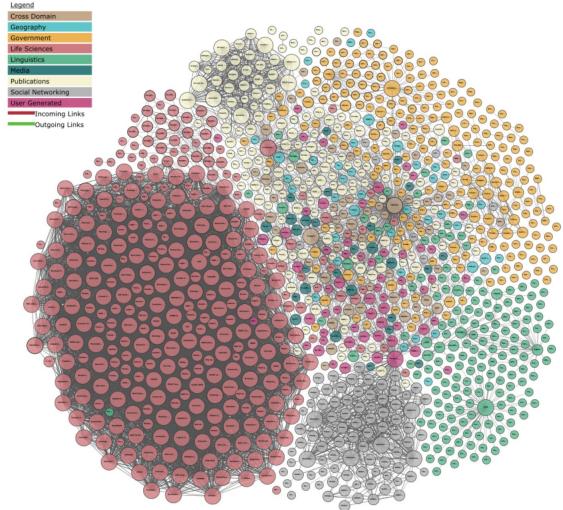Picture by: Richard Cyganiak Anja Jentzsch - http://richard.cyganiak.de/2007/10/lod/

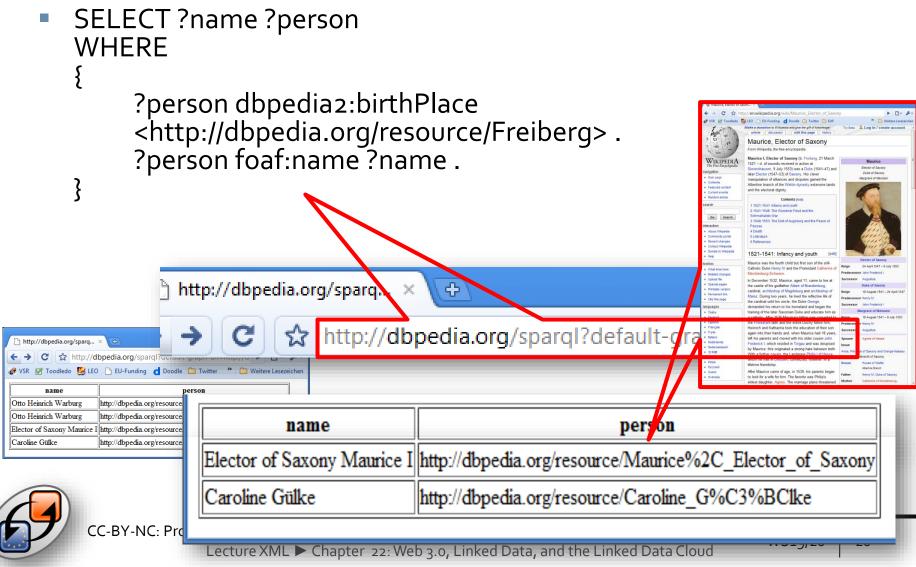# The Linking Open Data cloud diagram

Last updated: 2017-08-22

Legend
- Cross Domain
- Geography
- Government
- Life Sciences
- Linguistics
- Media
- Publications
- Social Networking
- User Generated
- Incoming Links
- Outgoing Links

Linked Data… Business #Chances

- http://dbpedia.org – **Search** in Wikipedia's Linked Data
- SELECT ?name ?person
  WHERE
  {

  ?person dbpedia2:birthPlace
  <http://dbpedia.org/resource/Freiberg> .
  ?person foaf:name ?name .

  }

name	person
Elector of Saxony Maurice I	http://dbpedia.org/resource/Maurice%2C_Elector_of_Saxony
Caroline Gülke	http://dbpedia.org/resource/Caroline_G%C3%BClke

Linked Data... Business #Trends

- Linked (Open) Data – developments & users

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Next topic at the moment is SoLiD

Source: Screenshot https://solid.inrupt.com

Chapter 23

A LITTLE LOOK BEHIND THE SCENES

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Lecture XML ► Chapter 23: A little look behind the scenes

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