LINKED OPEN DATA AS A WAY TO SEMANTIC WEB – SOME EUROPEAN EXAMPLES

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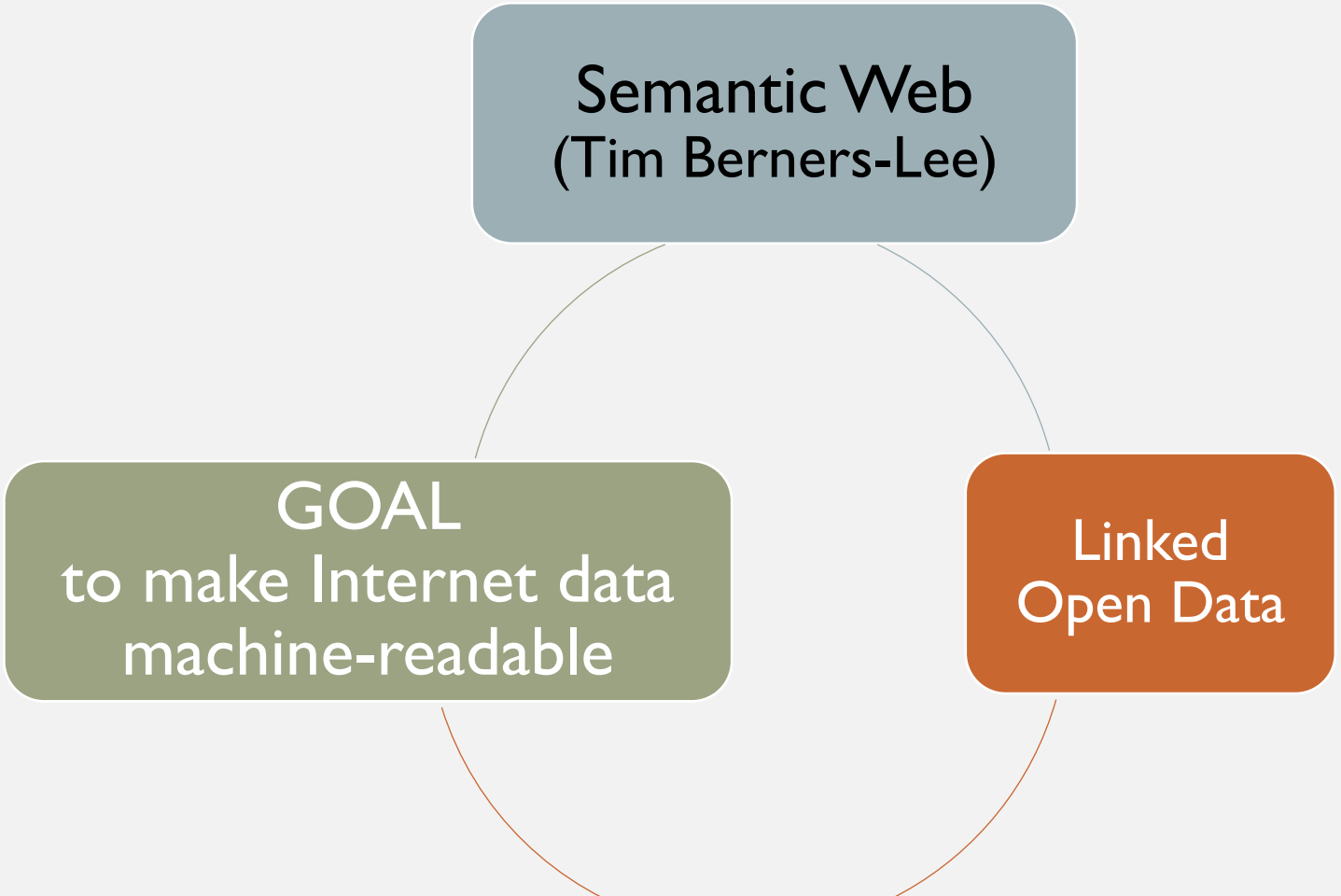
PLAN

- Semantic Web
- LOD
  - 5-star OD
- RDF
- Bibliographic data examples
  - Metadata
- Ontologies and authority data as LOD
- Public and private sector using of Open Data examples

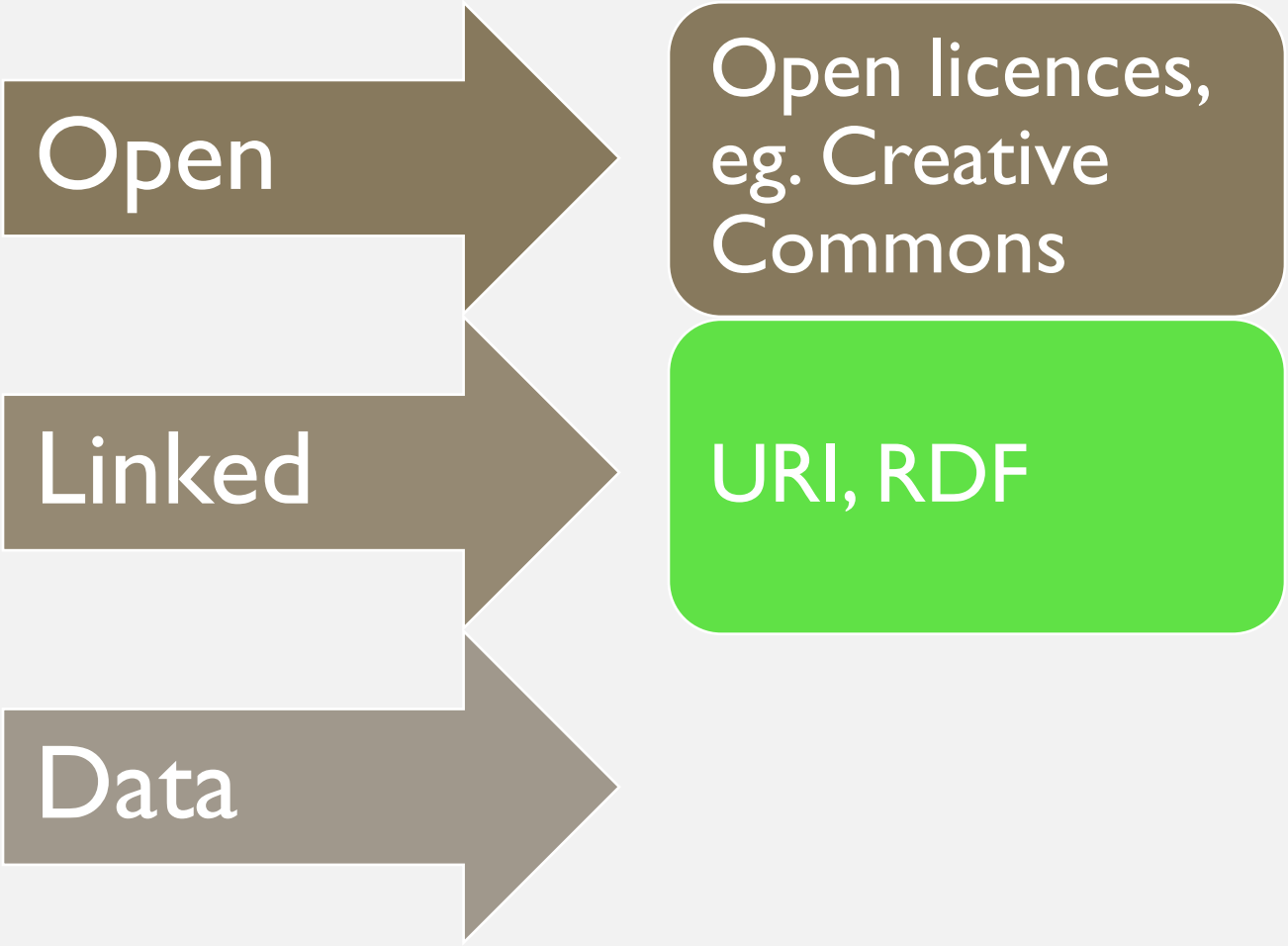
SEMANTIC WEB

SEMANTIC WEB



LINKED OPEN DATA

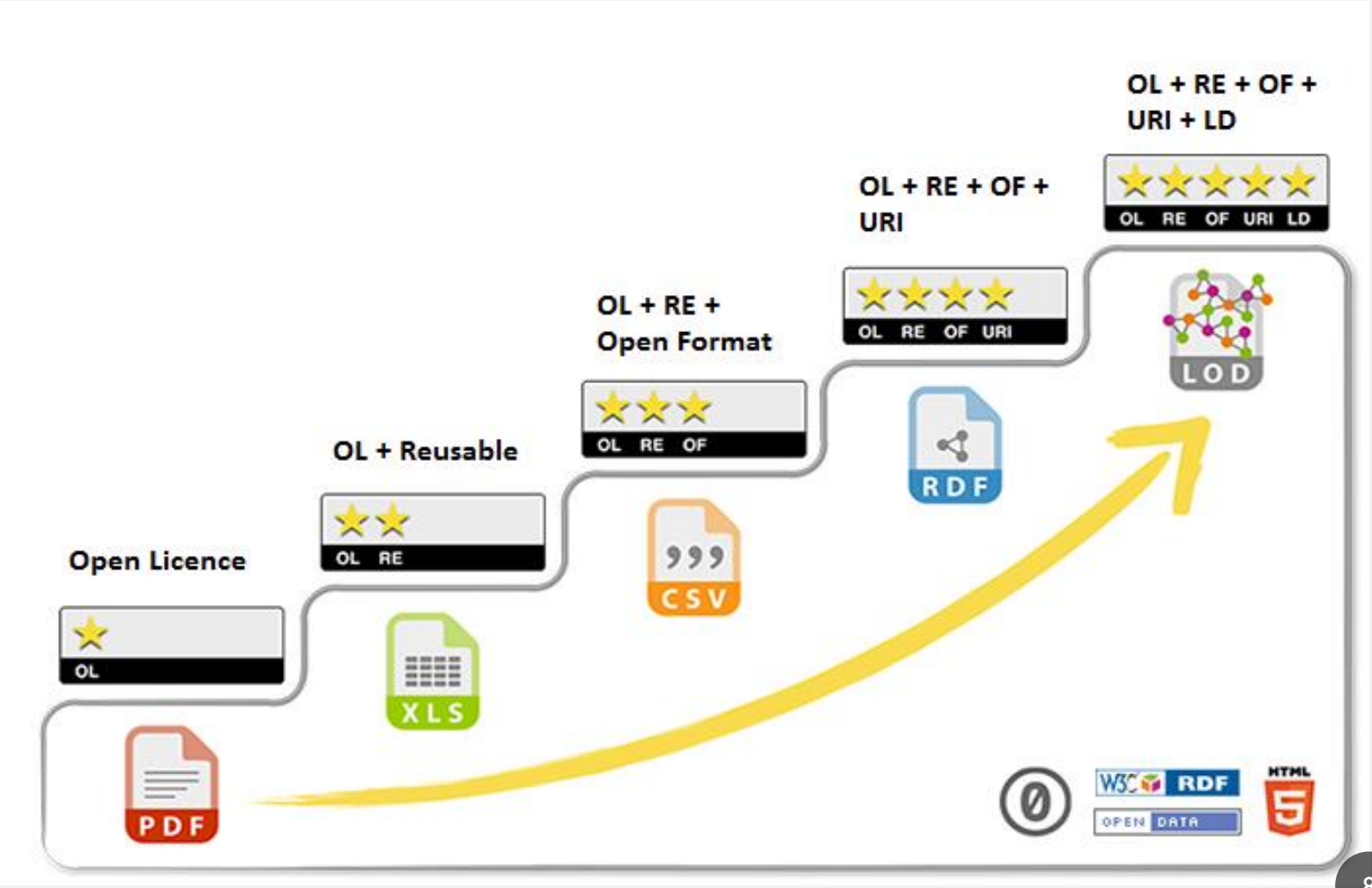
Open Linked Data



LINKED OPEN DATA

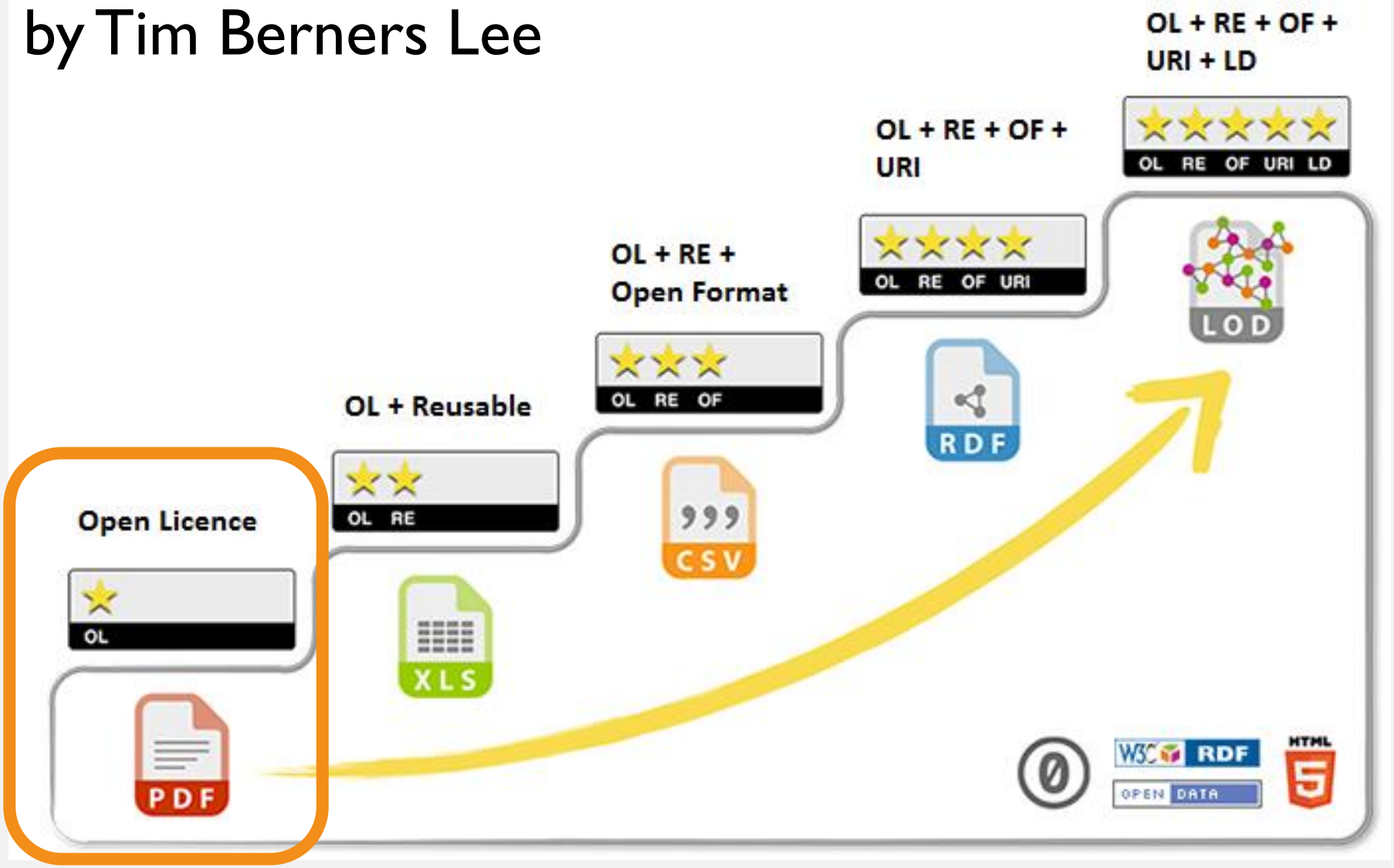
- structured data
- published online
- in order to be accessed automatically by computers
- in order to be queried and analyzed

5-star Open Data
[Tim Berners Lee]



[source: Hausenblas, M. (2012, January 22). 5-star Open Data. http://5stardata.info/en/].

5-star Open Data
by Tim Berners Lee

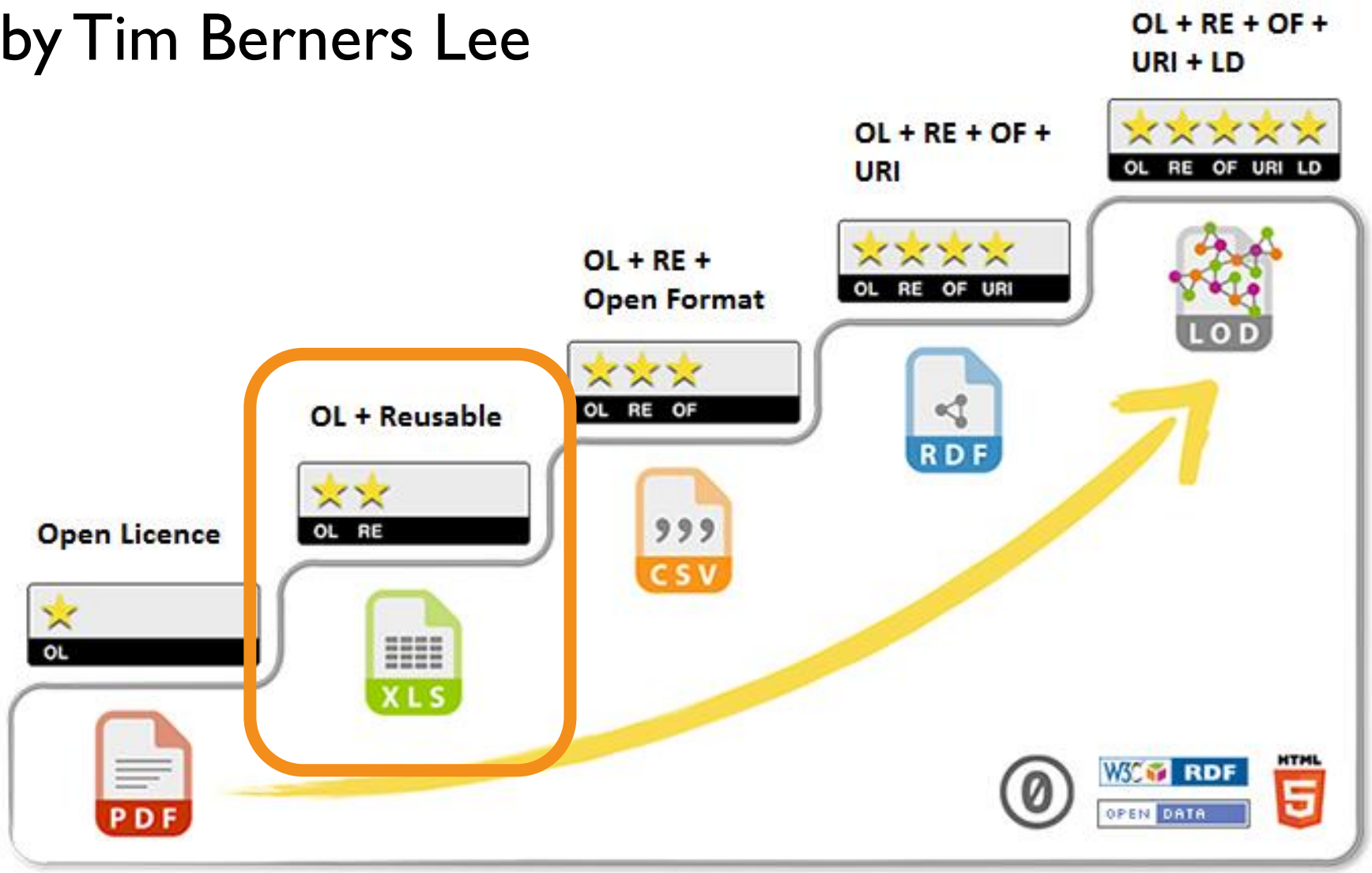


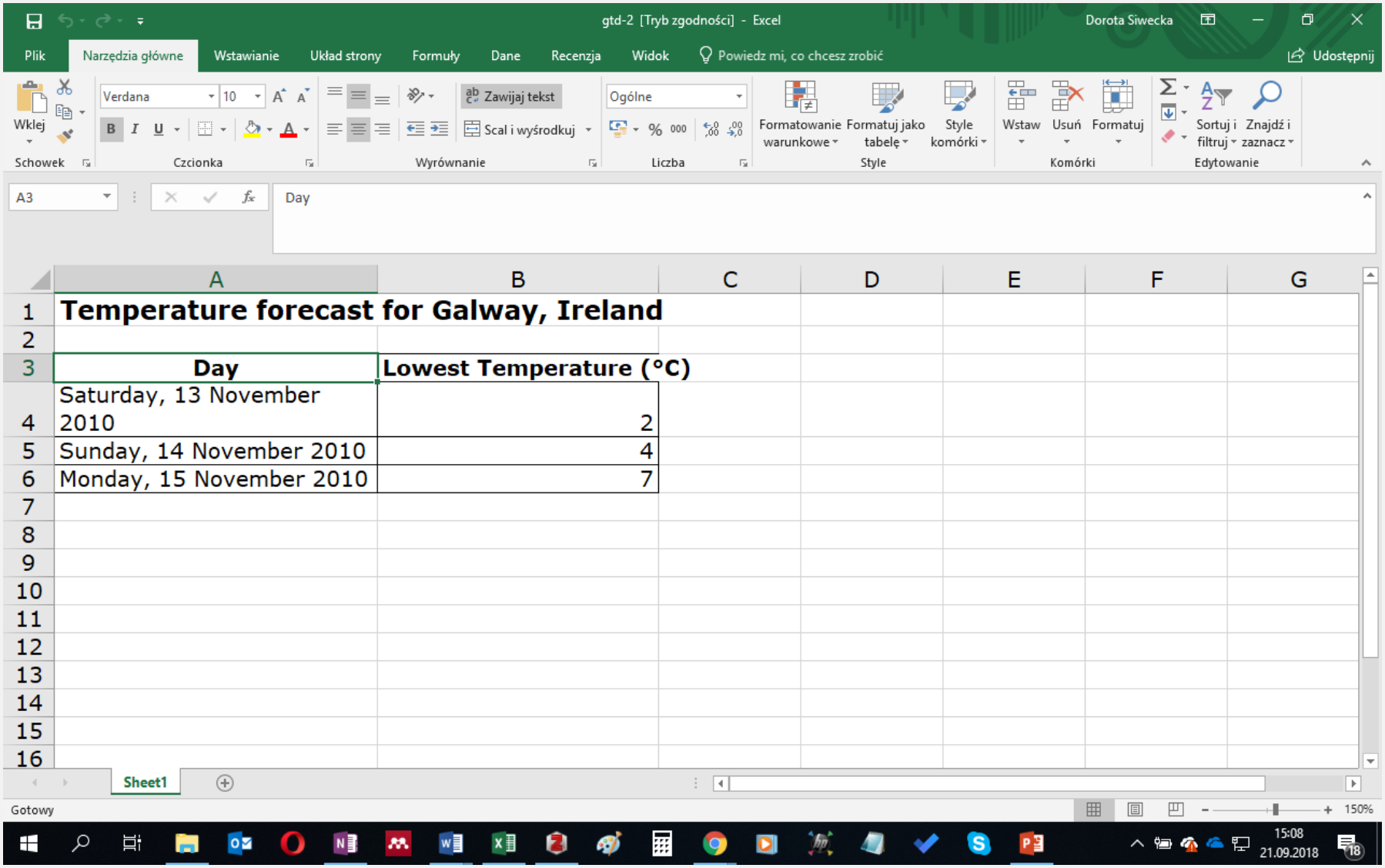
Aby zamknąć pełny ekran, naciśnij F11

Temperature forecast for Galway, Ireland

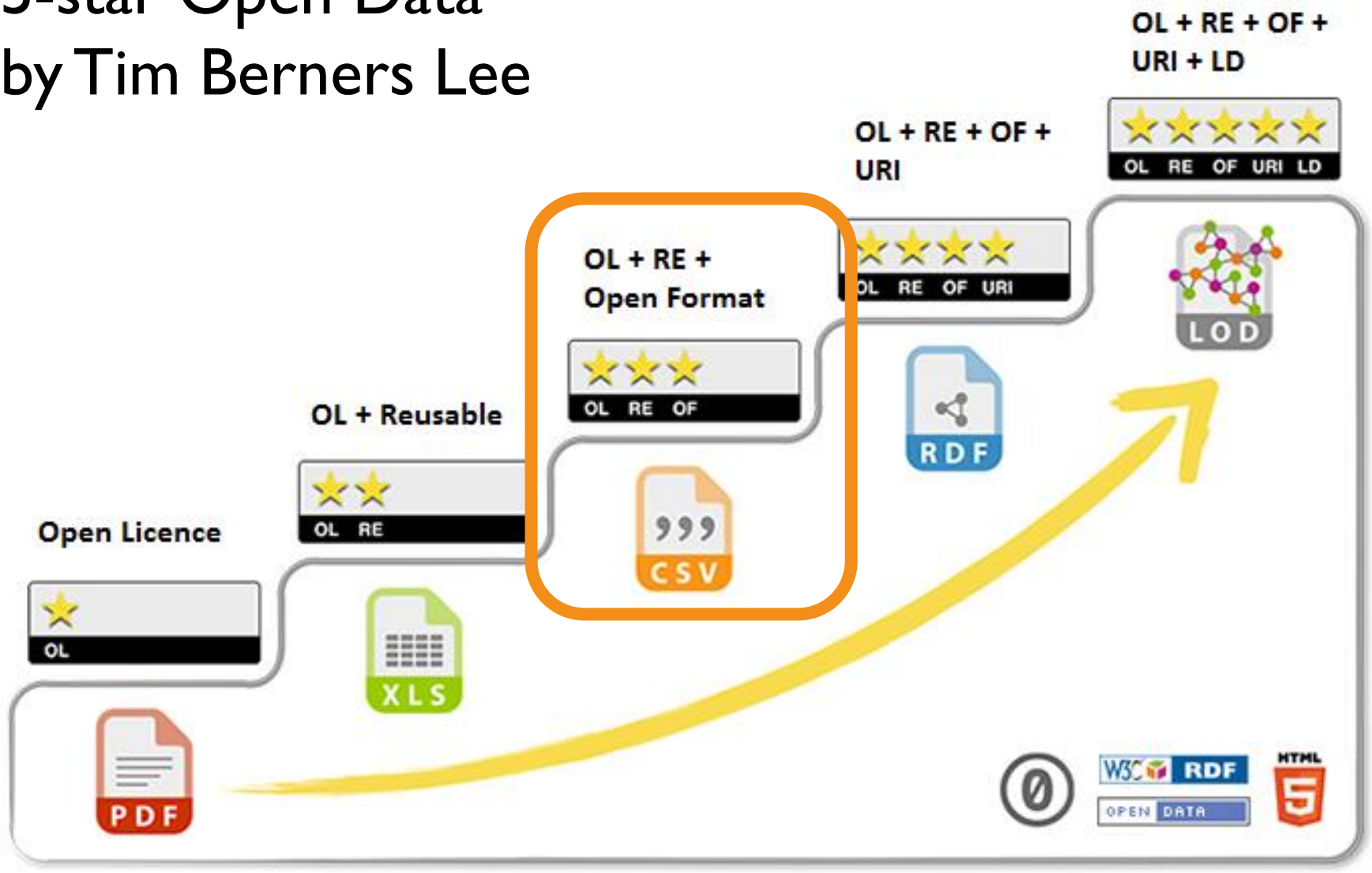
Day	Lowest Temperature (°C)
Saturday, 13 November 2010	2
Sunday, 14 November 2010	4
Monday, 15 November 2010	7

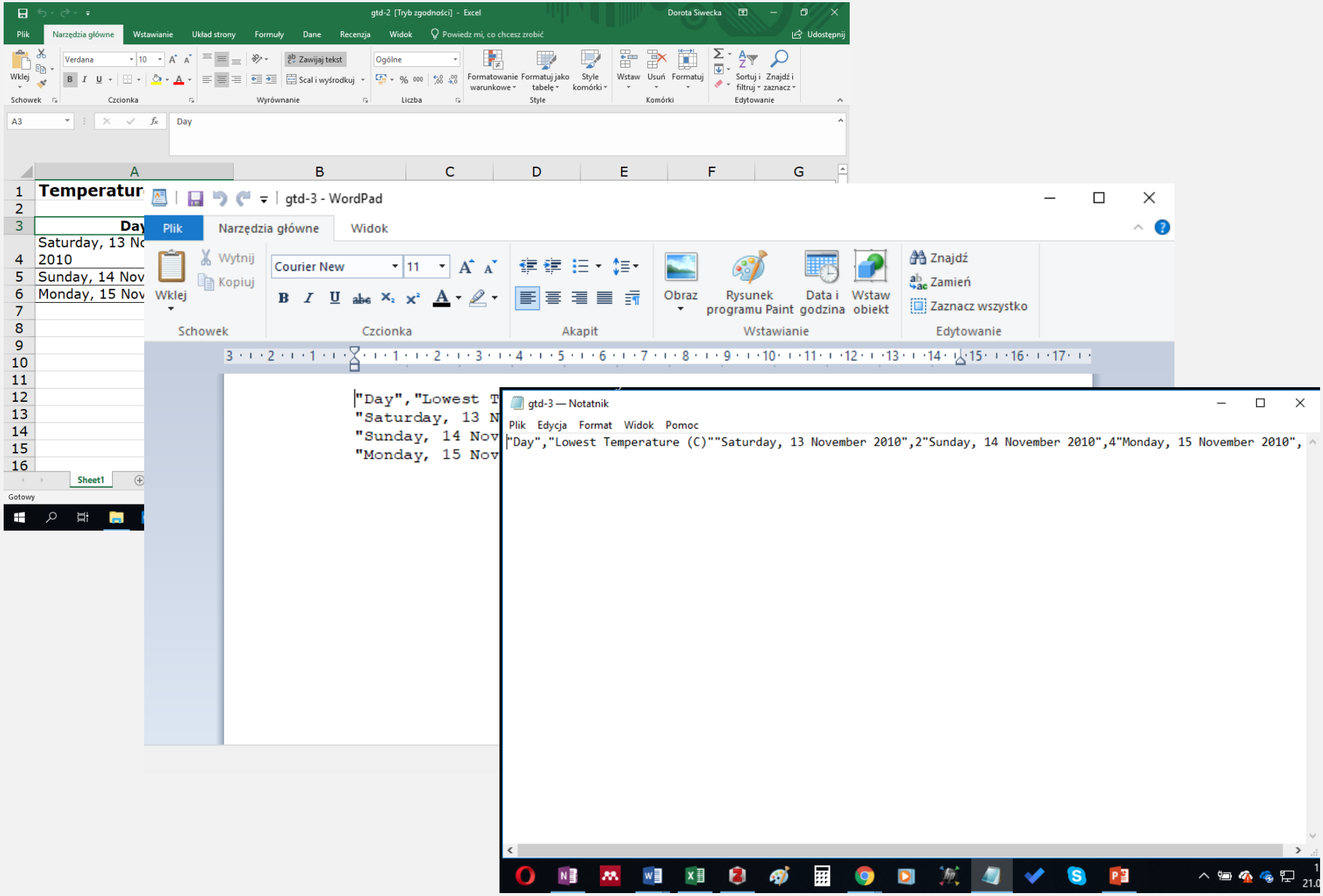
5-star Open Data
by Tim Berners Lee



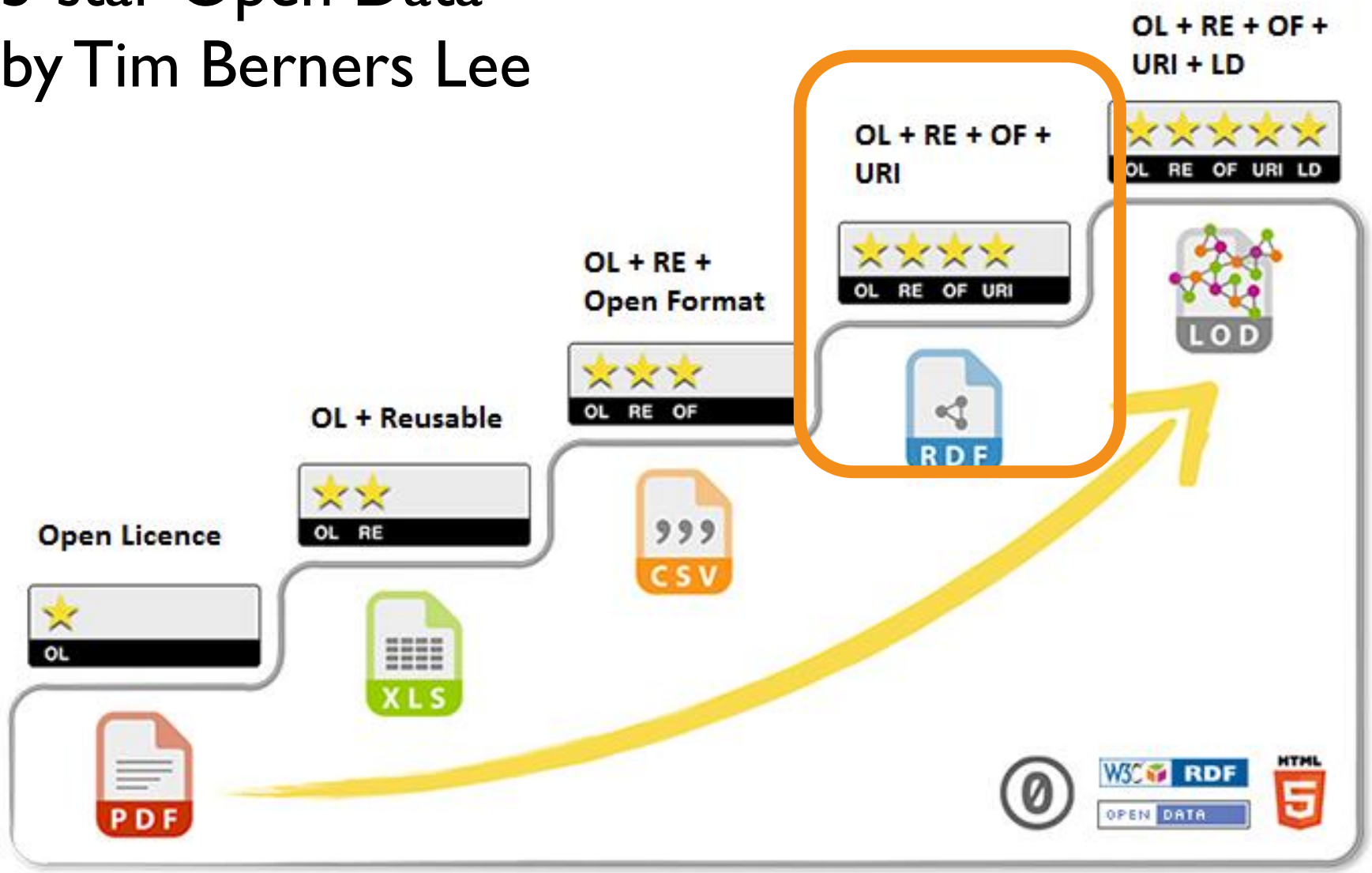

gtd-2 [Tryb zgodności] - Excel
Dorota Siwecka
Plik
Narzędzia główne
Wstawianie
Układ strony
Formuły
Dane
Recenzja
Widok
Powiedz mi, co chcesz zrobić
Udostępnij
Wklej
Verdana
10
Zawijaj tekst
Ogólne
Formatowanie warunkowe
Formatuj jako tabelę
Style komórki
Wstaw
Usuń
Formatuj
Sortuj i filtruj
Znajdź i zaznacz
Schowek
Czcionka
Wyrównanie
Liczba
Style
Komórki
Edytowanie
A3
Day
Temperature forecast for Galway, Ireland
Day
Lowest Temperature (°C)
Saturday, 13 November 2010
2
Sunday, 14 November 2010
4
Monday, 15 November 2010
7
Sheet1
Gotowy
150%
15:08
21.09.2018

5-star Open Data
by Tim Berners Lee




gtd-2 [Tryb zgodności] - Excel
Dorota Siwecka
Plik
Narzędzia główne
Wstawianie
Układ strony
Formuły
Dane
Recenzja
Widok
Powiedz mi, co chcesz zrobić
Udostępnij
Wklej
Verdana
10
Zawijaj tekst
Scal i wyśrodkuj
Ogólne
Formatowanie warunkowe
Formatuj jako tabelę
Style komórki
Wstaw
Usuń
Formatuj
Sortuj i filtruj
Znajdź i zaznacz
Schowek
Czcionka
Wyrównanie
Liczba
Style
Komórki
Edytowanie
A3
Day
Temperatur
Day
Saturday, 13 No
2010
Sunday, 14 Nov
Monday, 15 Nov
Sheet1
Gotowy
gtd-3 - WordPad
Plik
Narzędzia główne
Widok
Wytnij
Kopiuj
Wklej
Courier New
11
Schowek
Czcionka
Akapit
Obraz
Rysunek programu Paint
Data i godzina
Wstaw obiekt
Znajdź
Zamień
Zaznacz wszystko
Wstawianie
Edytowanie
"Day","Lowest T
"Saturday, 13 N
"Sunday, 14 Nov
"Monday, 15 Nov
gtd-3 — Notatnik
Plik Edycja Format Widok Pomoc
"Day","Lowest Temperature (C)""Saturday, 13 November 2010",2"Sunday, 14 November 2010",4"Monday, 15 November 2010",

5-star Open Data
by Tim Berners Lee



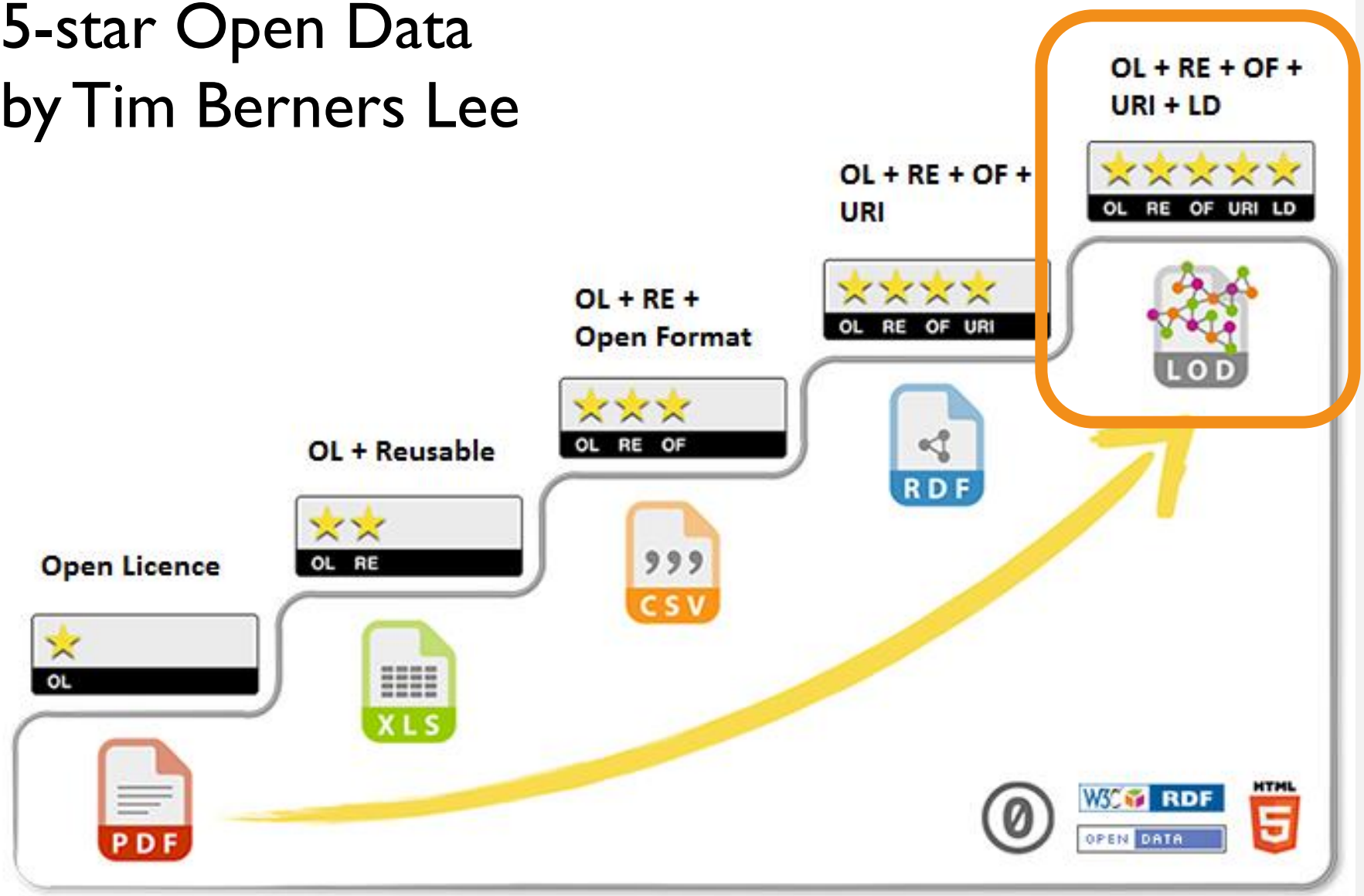
"#forecast20101113", "#forecast20101113" is a prediction for "2010-11-13T00:00:00Z" and so forth. You can change the order of these facts without altering their meaning.

TEMPERATURE FORECAST FOR GALWAY, IRELAND

Day	Lowest Temperature (°C)
Saturday, 13 November 2010	2
Sunday, 14 November 2010	4
Monday, 15 November 2010	7

```
<table border="1px">
  <tbody><tr>
    <th>Day</th>
    <th>Lowest Temperature (°C)</th>
  </tr>
  <tr rel="meteo:forecast" resource="#forecast20101113" class="highlight">
    <td>
      <div about="#forecast20101113" class="highlight">
        <span property="meteo:predicted" content="2010-11-13T00:00:00Z" datatype="xsd:dateTime" style="border: 1px dotted red;">Saturday, 13 N
      </div>
    </td>
    <td rel="meteo:temperature" class="highlight">
      <div about="#temp20101113" class="highlight">
        <span property="meteo:celsius" datatype="xsd:decimal" style="border: 1px dotted red;">2</span>
      </div>
    </td>
  </tr>
  <tr rel="meteo:forecast" resource="#forecast20101114" class="highlight">
    <td>
      <div about="#forecast20101114" class="highlight">
        <span property="meteo:predicted" content="2010-11-14T00:00:00Z" datatype="xsd:dateTime" style="border: 1px dotted red;">Sunday, 14 Nov
      </div>
    </td>
```

5-star Open Data
by Tim Berners Lee



Show embedded data

To view the embedded data encoded in RDFa, hover over the red-dotted areas. You can also view the data externally in the Graphite Browser, or other tools.

In this 5 star example, we used the Meteo vocabulary to represent the temperature forecasts. Each forecast has a URI (for example, 'forecast for Monday, 15 November 2010'), which can be used in another context. Additionally, through linking the place (`#Galway`) to the DBpedia entry Galway, we have disambiguated it. Eventually we provided context for the interpretation of the `#temp` through the respective typed links to DBpedia (Temperature and Celsius).

TEMPERATURE FORECAST FOR GALWAY, IRELAND

Day	Lowest Temperature (°C)
Saturday, 13 November 2010	2
Sunday, 14 November 2010	4
Monday, 15 November 2010	7

```
Lowest
                                    <a rel="rdfs:seeAlso" href="http://en.wikipedia.org/wiki/Temperature" resource="http://dbpedi
                                    (<span rel="owl:sameAs" resource="http://dbpedia.org/resource/Celsius" class="highlight">°C</
```

Created: 2012-01-22 by Michael | Last updated: 2015-08-31 by James | Code available via GitHub
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SEMANTIC WEB – FORMATS AND TECHNOLOGIES

RDF

RDFS

SKOS

SPARQL

Notation3

N-Triples

Turtle

OWL

RIF

JSON-LD

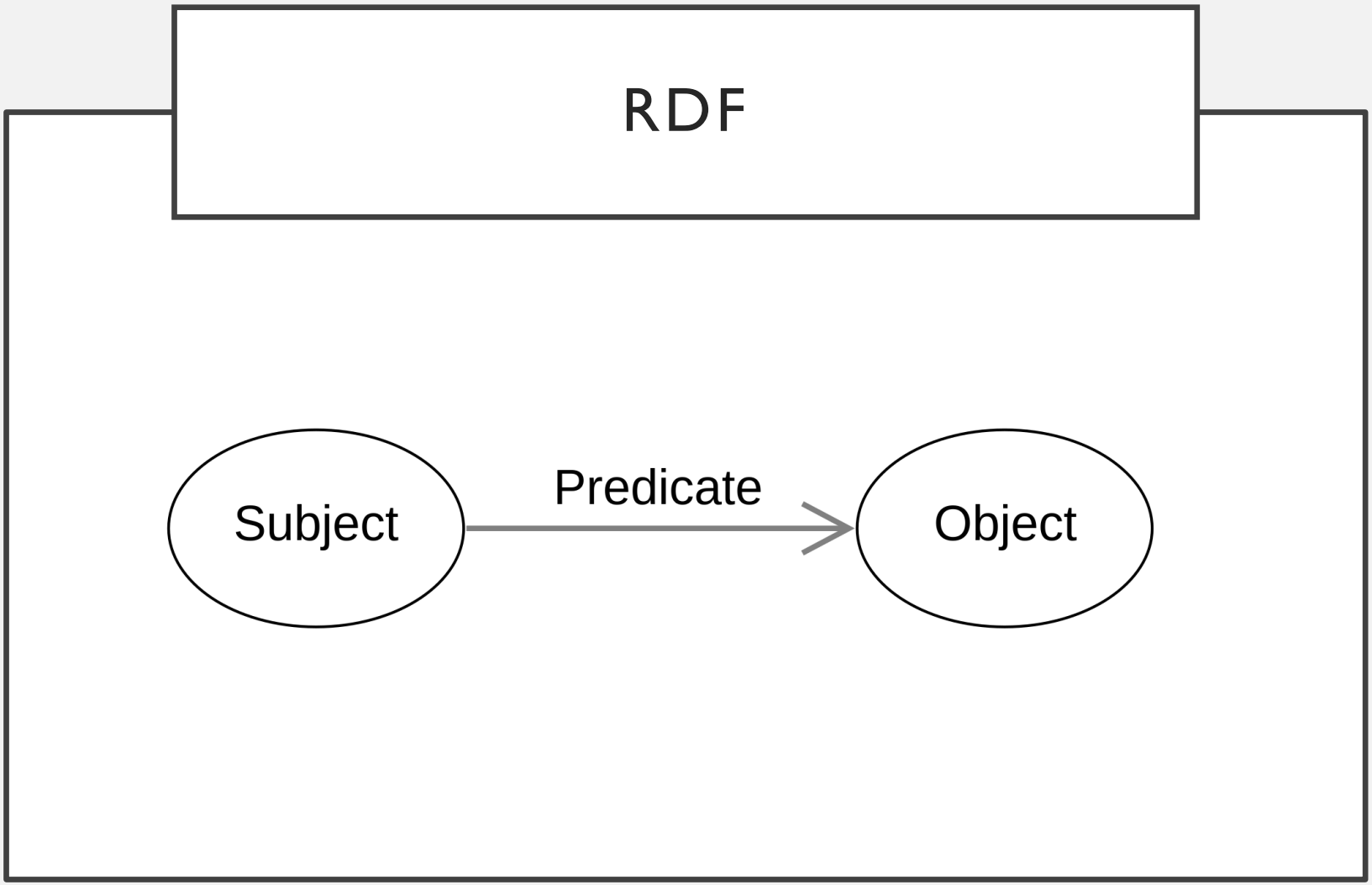
ActivityPub

RDF
- REOSURCE DESCRIPTION FRAMEWORK

a World Wide Web Consortium (W3C) standard

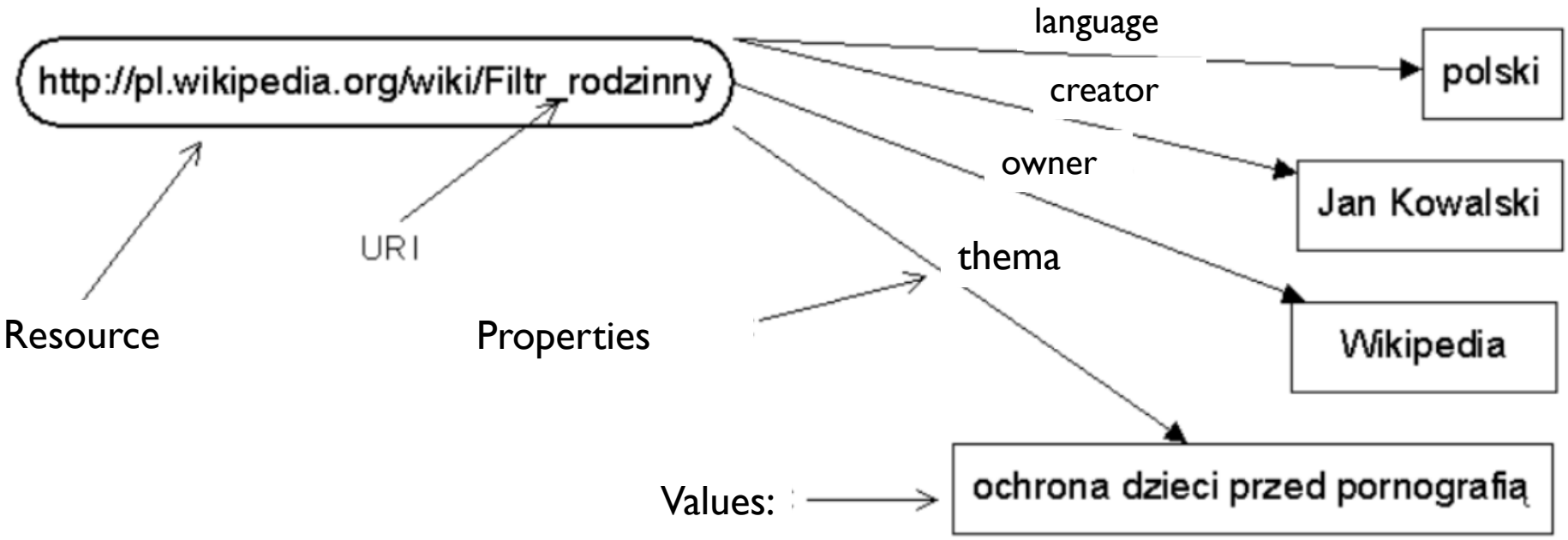
designed as a data model for metadata

has come to be used as a general method for description and exchange of graph data



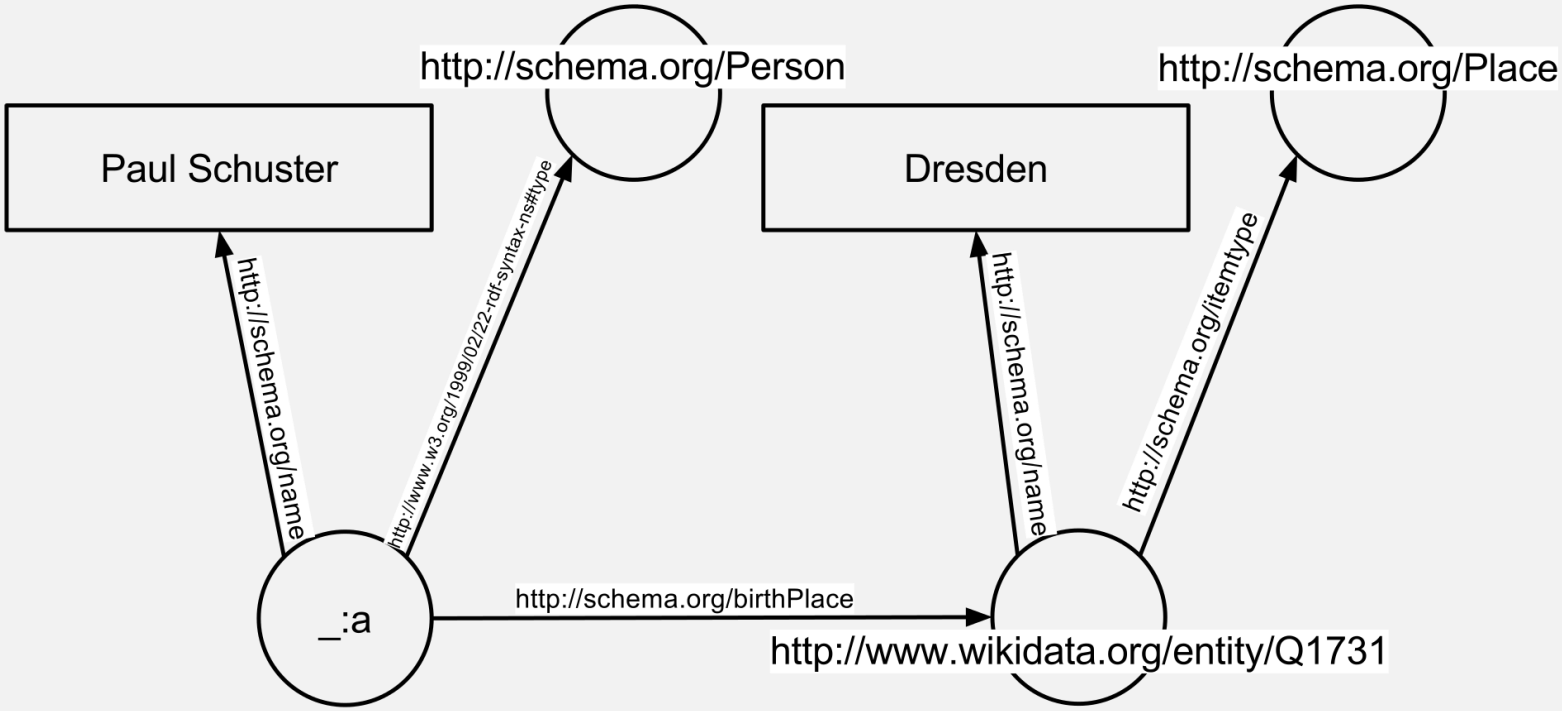
https://en.wikipedia.org/wiki/Resource_Description_Framework#/media/File:Basic_RDF_Graph.svg

RDF



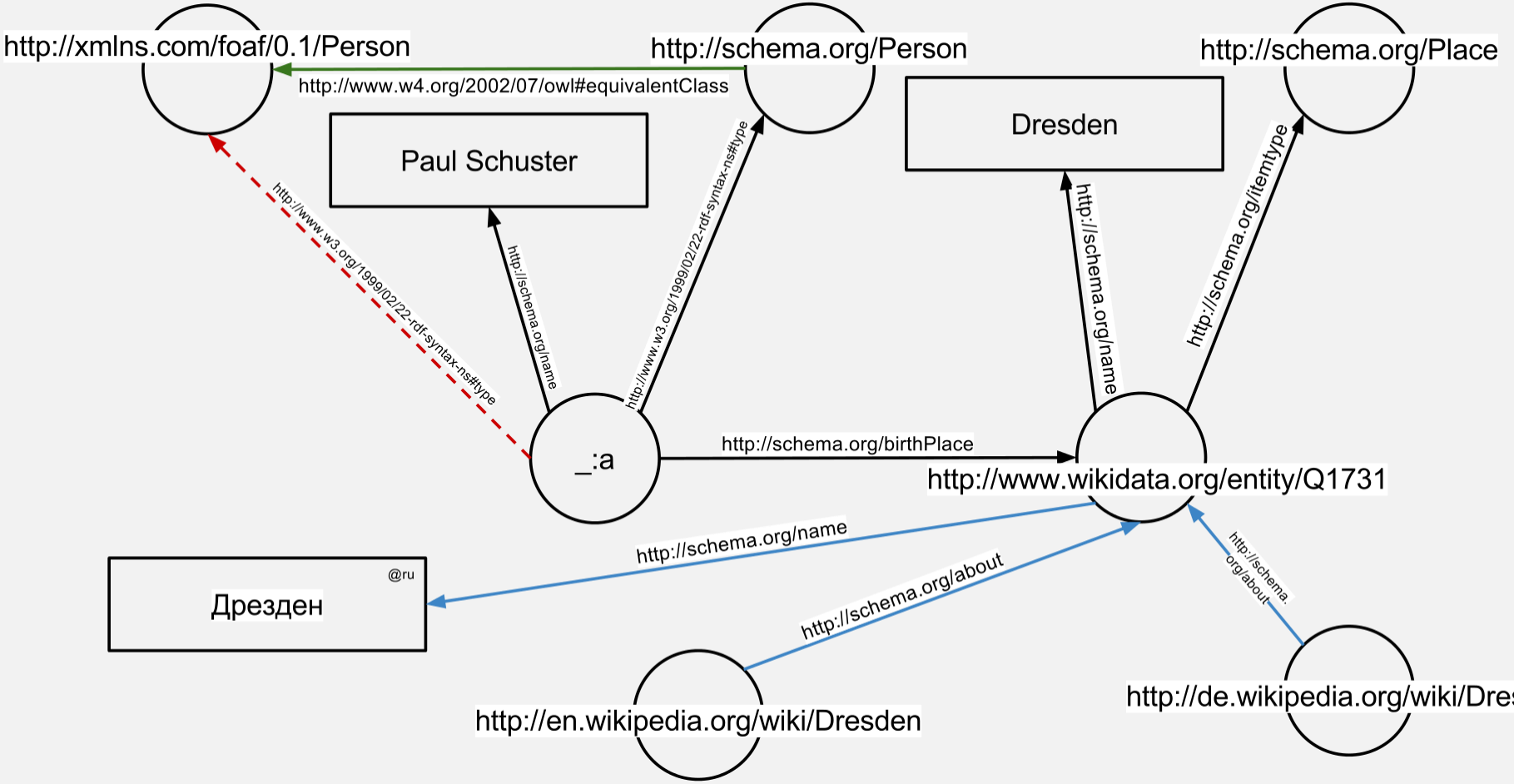
http://pl.wikipedia.org/wiki/Plik:Model_RDF_-_diagram_wyra%C5%BCe%C5%84.png

RDF



https://en.wikipedia.org/wiki/Semantic_Web#/media/File:RDF_example.svg

RDF

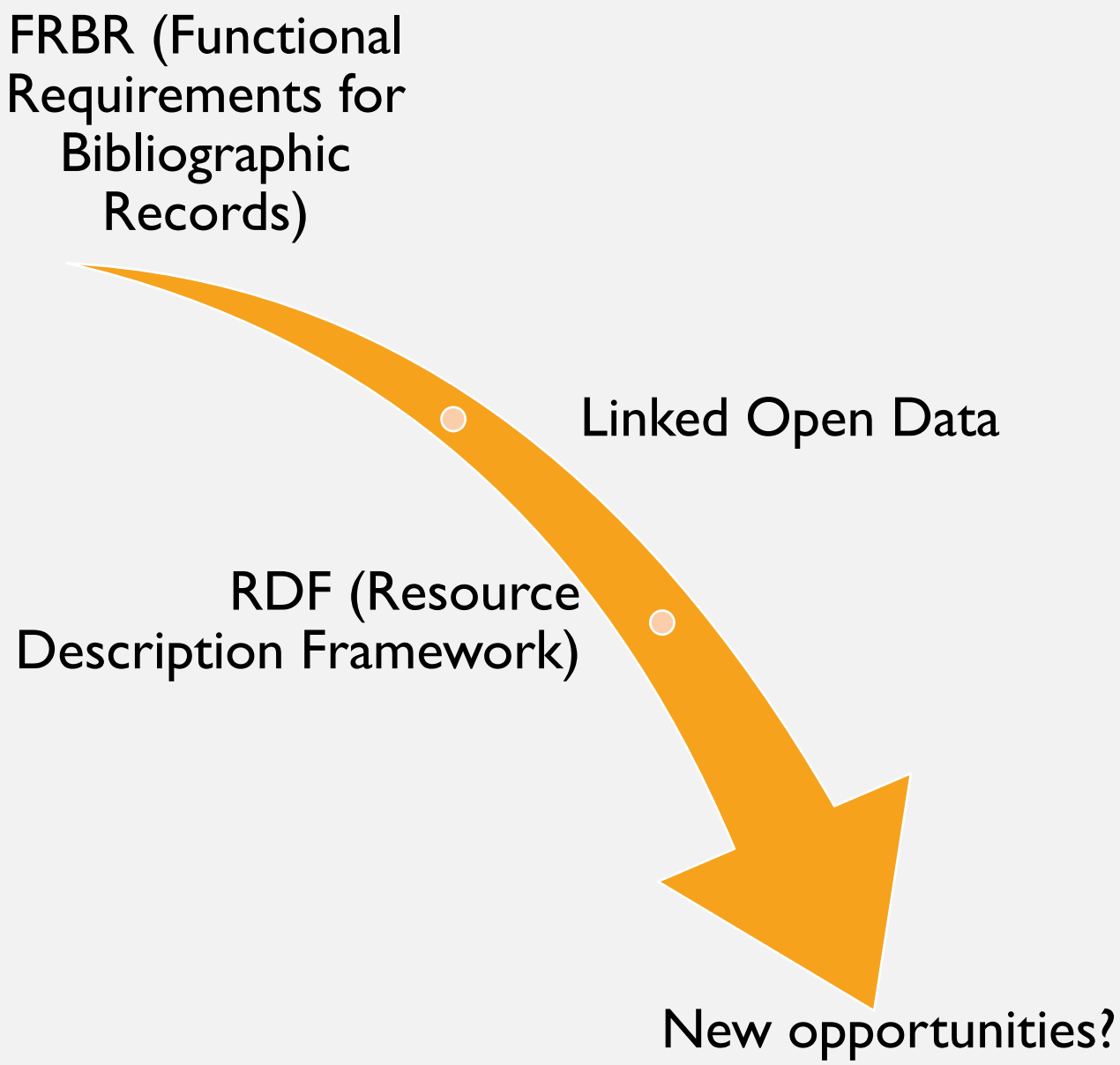


https://en.wikipedia.org/wiki/Semantic_Web#/media/File:RDF_example_extended.svg

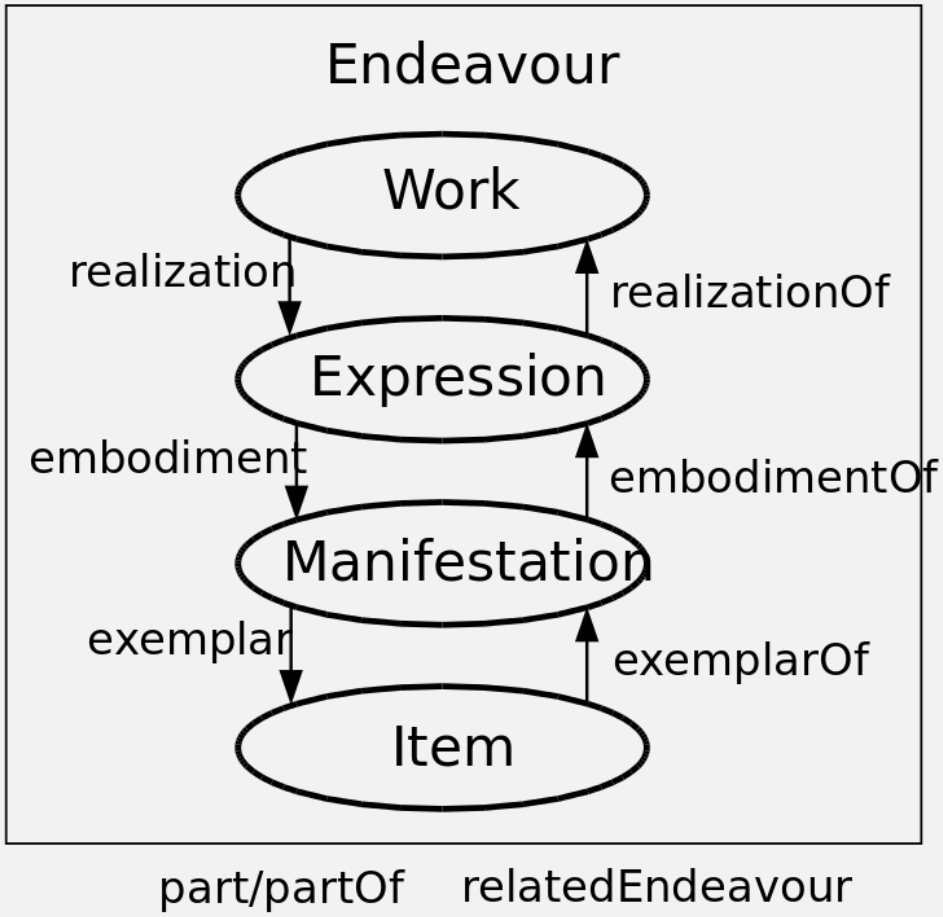
BIBLIOGRAPHIC DATA

In addition, "users" are not only people, but the systems and software that interact with metadata to provide services.

[On the Record: Report of the Library of Congress Working Group on the Future of Bibiliographic Control, 2008]


FRBR (Functional Requirements for Bibliographic Records)
Linked Open Data
RDF (Resource Description Framework)
New opportunities?

FRBR – Functional Requirements for Bibliographic Records



https://en.wikipedia.org/wiki/Functional_Requirements_for_Bibliographic_Records#/media/File:FRBR-Group-1-entities-and-basic-relations.svg

FRBR – Functional Requirements for Bibliographic Records

Work	Distinct intelectual or artistic creation		
	„The Witcher" → „Krew elfów" as a concept		
Expression	he specific intellectual or artistic form that a work takes each time it is 'realized		
	„Krew elfów" (original Polish version)	„Krev elfů" (Czech translation by Stanislav Komárek)	Blood of elves (English translation by Danusia Stok)
Manifestation	the physical embodiment of an expression of a work		
	„Wiedźmin" published in Warsaw in 1994	„Krev elfů" published in Petřvald in 2016	„Blood of elves" published in London in 2010
Item	a single exemplar of a manifestation		
	BUWr, 987977 I	Czech NL, 002877973	BL, BLL01017782111

BIBLIOGRAPHIC METADATA

Statue of a Czech philosopher, covered with flowers, his eyes blindfolded and with a Czechoslovak flag in his hand

europeana

https://www.europeana.eu/pl/item/180/10622_8900405C_D7D6_4193_B91F_2426200A19F8_cho?lang=en

Warto wiedzieć | Wszystkie metadane

Instytucja dostarczająca	International Institute of Social History
Temat	Foreign intervention ; Warsaw Pact
Rodzaj przedmiotu	Photo ; Photograph
Dostawca	International Association of Labour History Institutions
Licencja na media w tym rekordzie (chyba że określono inaczej)	http://rightsstatements.org/vocab/InC/1.0/
Treści dodane przez użytkowników	false
Data wydania	1968, August.
Okres	1968-1968
Miejsca	Praha (Czechoslovakia) ; International
Identyfikator	http://hdl.handle.net/10622/8900405C-D7D6-4193-B91F-2426200A19F8#cho ; 781939
Język	nld ; nl
Kraj dostarczający	Netherlands
Nazwa Kolekcji	180_IALHI_antifa
Data utworzenia rekordu	2020-03-31T12:04:57.526Z
Data zaktualizowania rekordu	2020-03-31T12:04:57.526Z

METADATA
= data about data

METADATA

They describe the materials found in databases

Thanks to this, they allow you to search for materials

They may relate to **formal features** …

- author
- title
- place of publication
- date of publication

… or features related to the **topic**

- keywords
- subject headings
- descriptors
- classification symbols

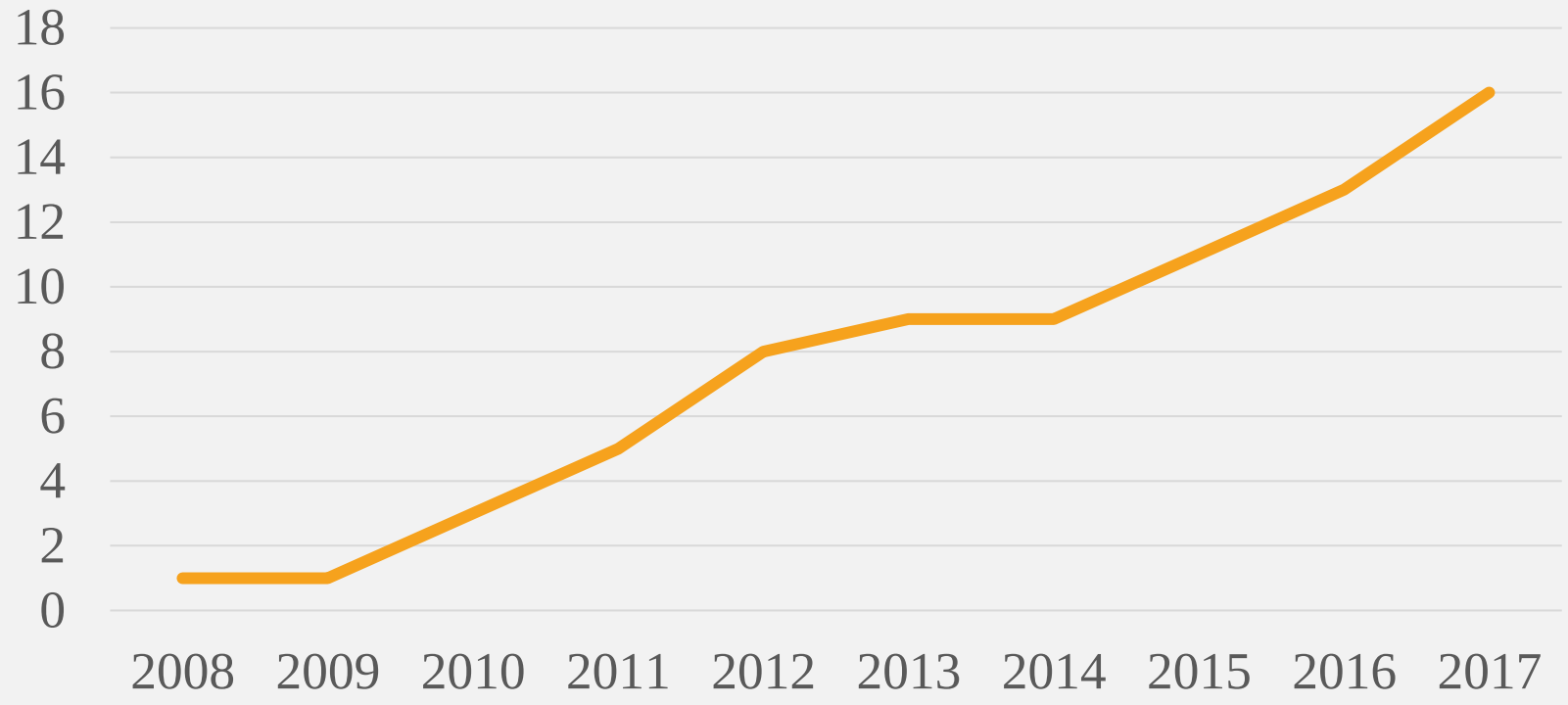
HOW LIBRARIES TAK PART IN CREATING SEMANTIC WEB?

projects aimed at publishing open data for re-use

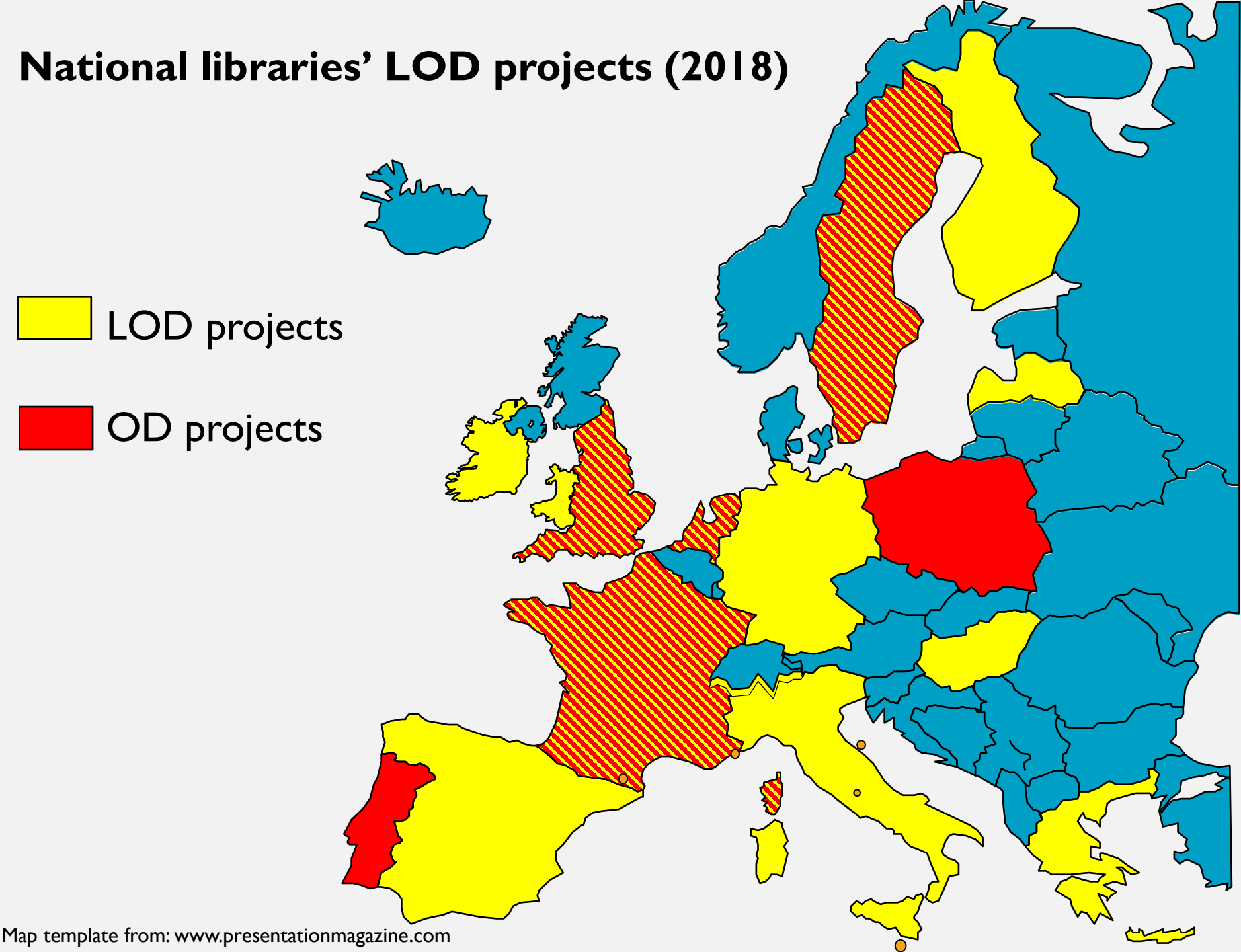
- Librarian's data formats, i.e. MARC, DC…
- Semantic Web formats, i.e. RDF/XML, JSON,

publishing different kind of data as **Linked Open Data**

Number of LOD projects implemented by national libraries in Europe between 2008-2017



National libraries' LOD projects (2018)



Map template from: www.presentationmagazine.com

EXAMPLES OF LIBRARIES'S LOD PROJECTS

- Deutche Nationalbibliothek – 2010
- British National Bibliography – 2012
- Danish Bibliographic Center – 2012
- Bibliotheque nationale de France – data.bnf.fr, https://catalogue.bnf.fr/
- Biblioteca Nacional de España – datos.bne.es
- Europeana

Size of the data sets

Finland – Fennica-LD	1 mln Finnish works; 4 mln RDF tripples
France – data.bnf.fr	2 mln authors; 8 mln works
Spain – datos.bne.es	4 mln bibliographic records; 4 mln authoritative records; 30 mln RDF tripples
Netherlands – GGC-Thesauri als linked data	3 mln records
Ireland – Linked Logainm	1,3 mln RDF tripples
Hungary – Az Országos Széchényi Könyvtár a szemantikus weben	19,3 mln RDF tripples
Great Britain – The British National Bibliography as Linked Open Data	3,9 mln records

Source of data

National catalogue

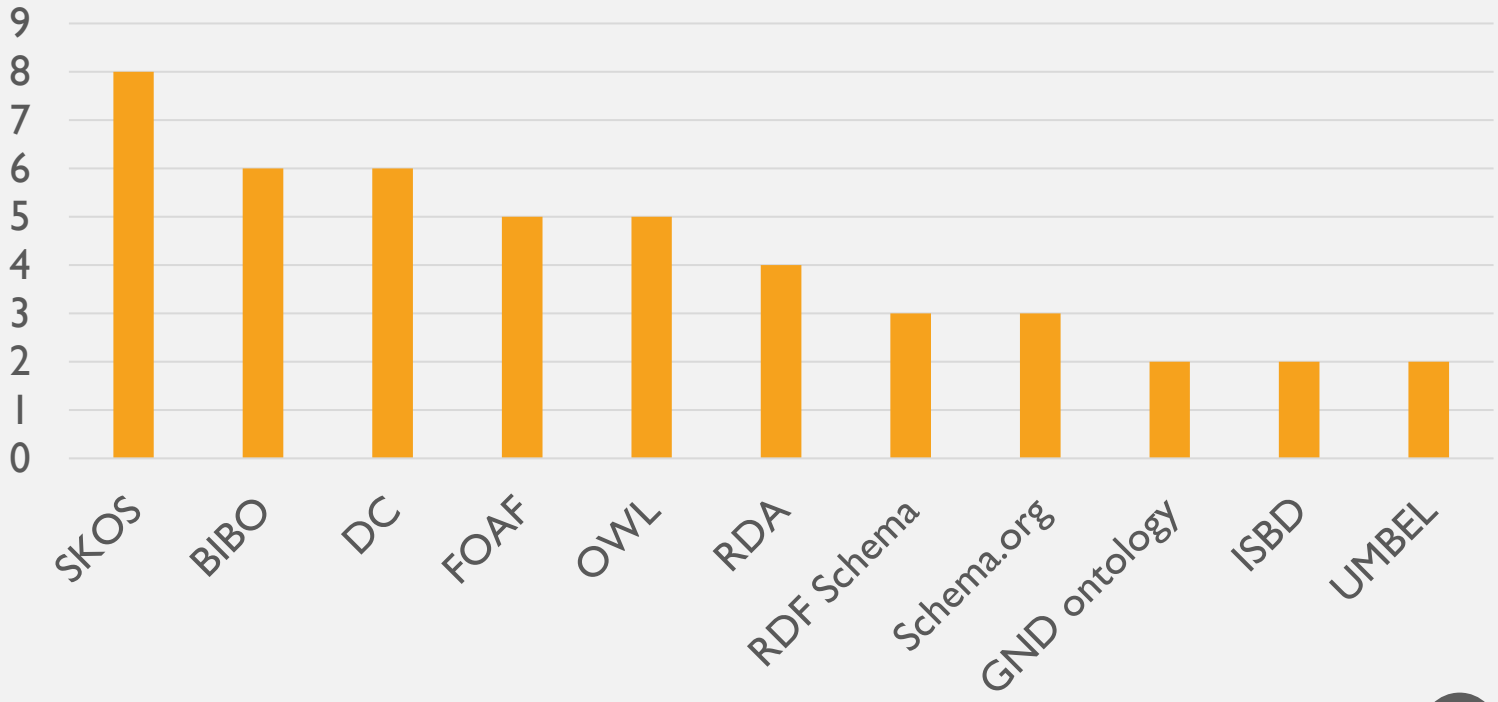
Authority files

Digital libraries

Other library collections

Thesauri, ontologies…

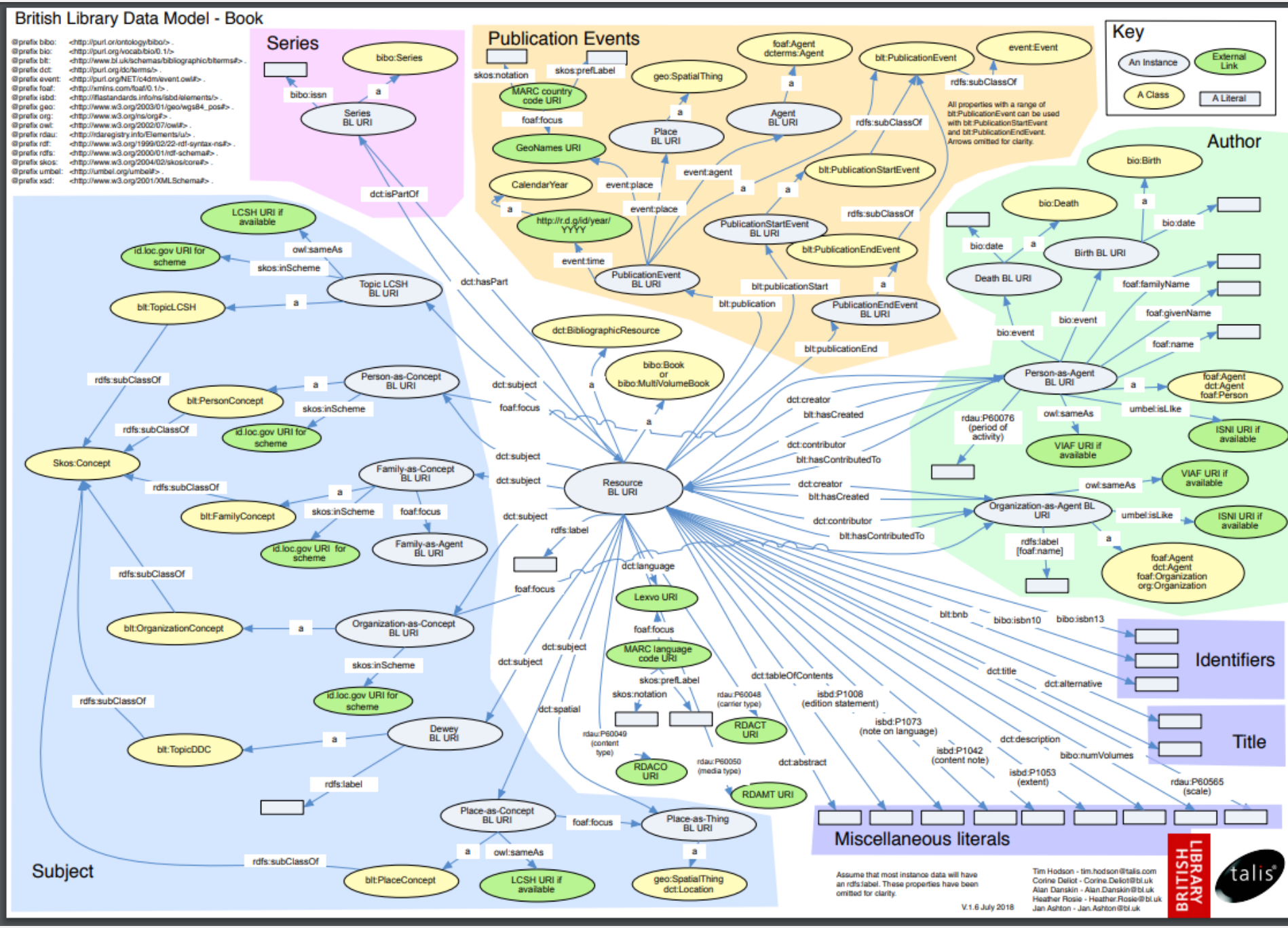
Number of LOD projects of European national libraries that have been using specific patterns in data modeling



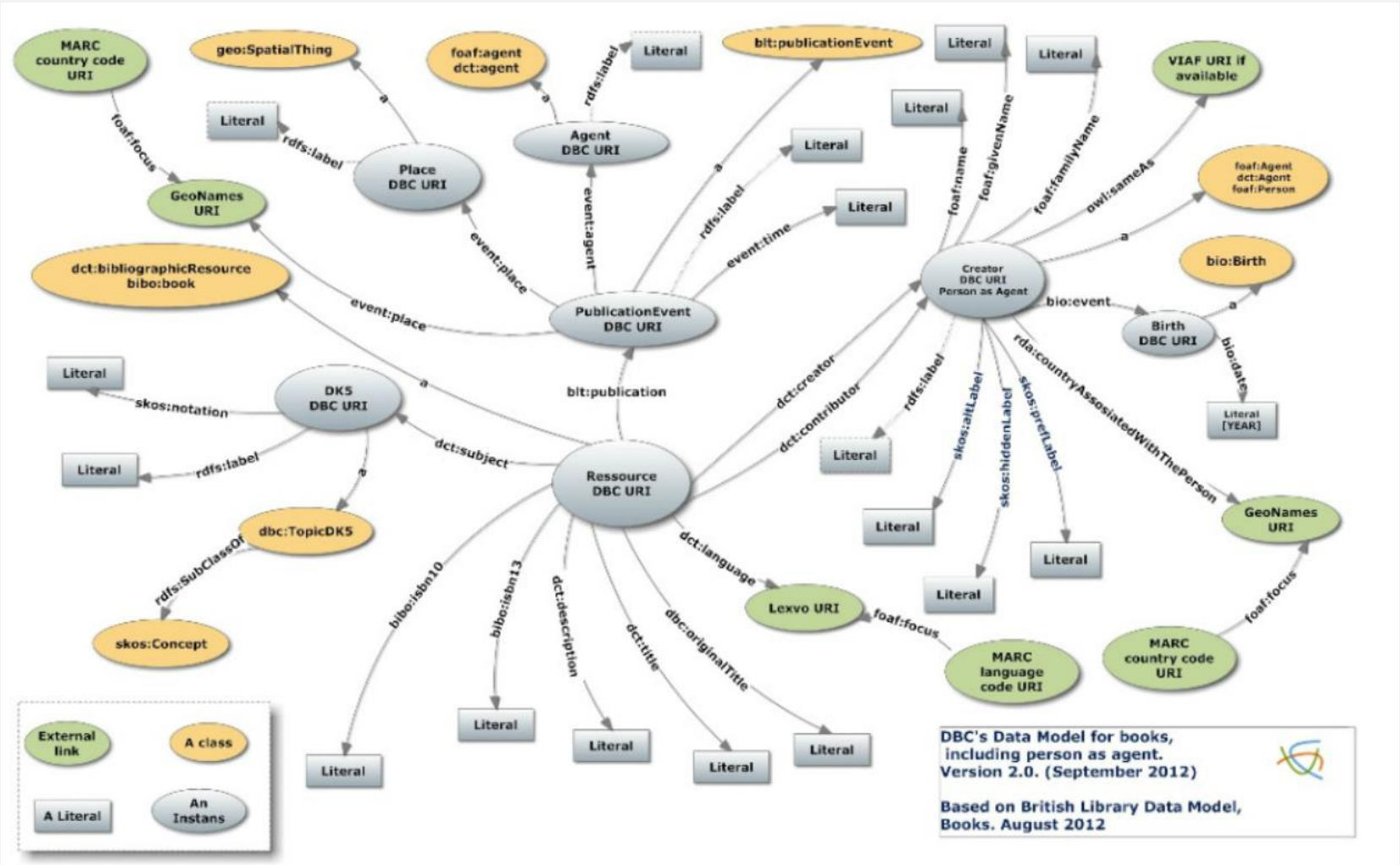
Using SKOS shcemas in LD proejcts

To create a dala model

To create links to other KOS o the Web


British Library Data Model - Book
@prefix bibo: <http://purl.or/ontology/bibo/> .
@prefix bio: <http://purl.org/vocab/bio/0.1/> .
@prefix blt: <http://www.bl.uk/schemas/bibliographic/blterms#> .
@prefix dct: <http://purl.org/dc/terms/> .
@prefix event: <http://purl.org/NET/c4dm/event.owl#> .
@prefix foaf: <http://xmlns.com/foaf/0.1/> .
@prefix isbd: <http://iflastandards.info/ns/isbd/elements/> .
@prefix geo: <http://www.w3.org/2003/01/geo/wgs84_pos#> .
@prefix org: <http://www.w3.org/ns/org#> .
@prefix owl: <http://www.w3.org/2002/07/owl#> .
@prefix rdau: <http://rdaregistry.info/Elements/u/> .
@prefix rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#> .
@prefix rdfs: <http://www.w3.org/2000/01/rdf-schema#> .
@prefix skos: <http://www.w3.org/2004/02/skos/core#> .
@prefix umbel: <http://umbel.org/umbel#> .
@prefix xsd: <http://www.w3.org/2001/XMLSchema#> .
Series
bibo:Series
bibo:issn
a
Series BL URI
dct:isPartOf
Publication Events
skos:notation
skos:prefLabel
MARC country code URI
foaf:focus
geo:SpatialThing
foaf:Agent dcterms:Agent
blt:PublicationEvent
event:Event
rdfs:subClassOf
Agent BL URI
Place BL URI
GeoNames URI
CalendarYear
event:place
event:agent
blt:PublicationStartEvent
http://r.d.g/id/year/YYYY
event:time
PublicationStartEvent BL URI
blt:PublicationEndEvent
PublicationEvent BL URI
blt:publicationStart
blt:publication
PublicationEndEvent BL URI
blt:publicationEnd
All properties with a range of blt:PublicationEvent can be used with blt:PublicationStartEvent and blt:PublicationEndEvent. Arrows omitted for clarity.
Key
An Instance
External Link
A Class
A Literal
Author
bio:Birth
bio:Death
bio:date
Birth BL URI
Death BL URI
foaf:familyName
foaf:givenName
foaf:name
bio:event
Person-as-Agent BL URI
foaf:Agent dct:Agent foaf:Person
umbel:isLike
ISNI URI if available
owl:sameAs
VIAF URI if available
rdau:P60076 (period of activity)
Organization-as-Agent BL URI
rdfs:label [foaf:name]
foaf:Agent dct:Agent foaf:Organization org:Organization
LCSH URI if available
id.loc.gov URI for scheme
owl:sameAs
skos:inScheme
Topic LCSH BL URI
blt:TopicLCSH
dct:hasPart
dct:BibliographicResource
bibo:Book or bibo:MultiVolumeBook
Person-as-Concept BL URI
blt:PersonConcept
Skos:Concept
rdfs:subClassOf
dct:subject
foaf:focus
Family-as-Concept BL URI
blt:FamilyConcept
Family-as-Agent BL URI
Resource BL URI
dct:creator
blt:hasCreated
dct:contributor
blt:hasContributedTo
dct:language
rdfs:label
Lexvo URI
MARC language code URI
blt:OrganizationConcept
Organization-as-Concept BL URI
Dewey BL URI
blt:TopicDDC
Place-as-Concept BL URI
Place-as-Thing BL URI
blt:PlaceConcept
geo:SpatialThing dct:Location
Subject
blt:bnb
bibo:isbn10
bibo:isbn13
Identifiers
dct:title
dct:alternative
dct:tableOfContents
isbd:P1008 (edition statement)
isbd:P1073 (note on language)
isbd:P1042 (content note)
isbd:P1053 (extent)
dct:description
bibo:numVolumes
rdau:P60565 (scale)
Title
skos:prefLabel
skos:notation
rdau:P60048 (carrier type)
RDACT URI
rdau:P60049 (content type)
RDACO URI
rdau:P60050 (media type)
RDAMT URI
dct:abstract
dct:spatial
Miscellaneous literals
Assume that most instance data will have an rdfs:label. These properties have been omitted for clarity.
V.1.6 July 2018
Tim Hodson - tim.hodson@talis.com
Corine Deliot - Corine.Deliot@bl.uk
Alan Danskin - Alan.Danskin@bl.uk
Heather Rosie - Heather.Rosie@bl.uk
Jan Ashton - Jan.Ashton@bl.uk
BRITISH LIBRARY
talis

DANISH BIBLIOGRAPHIC CENTER



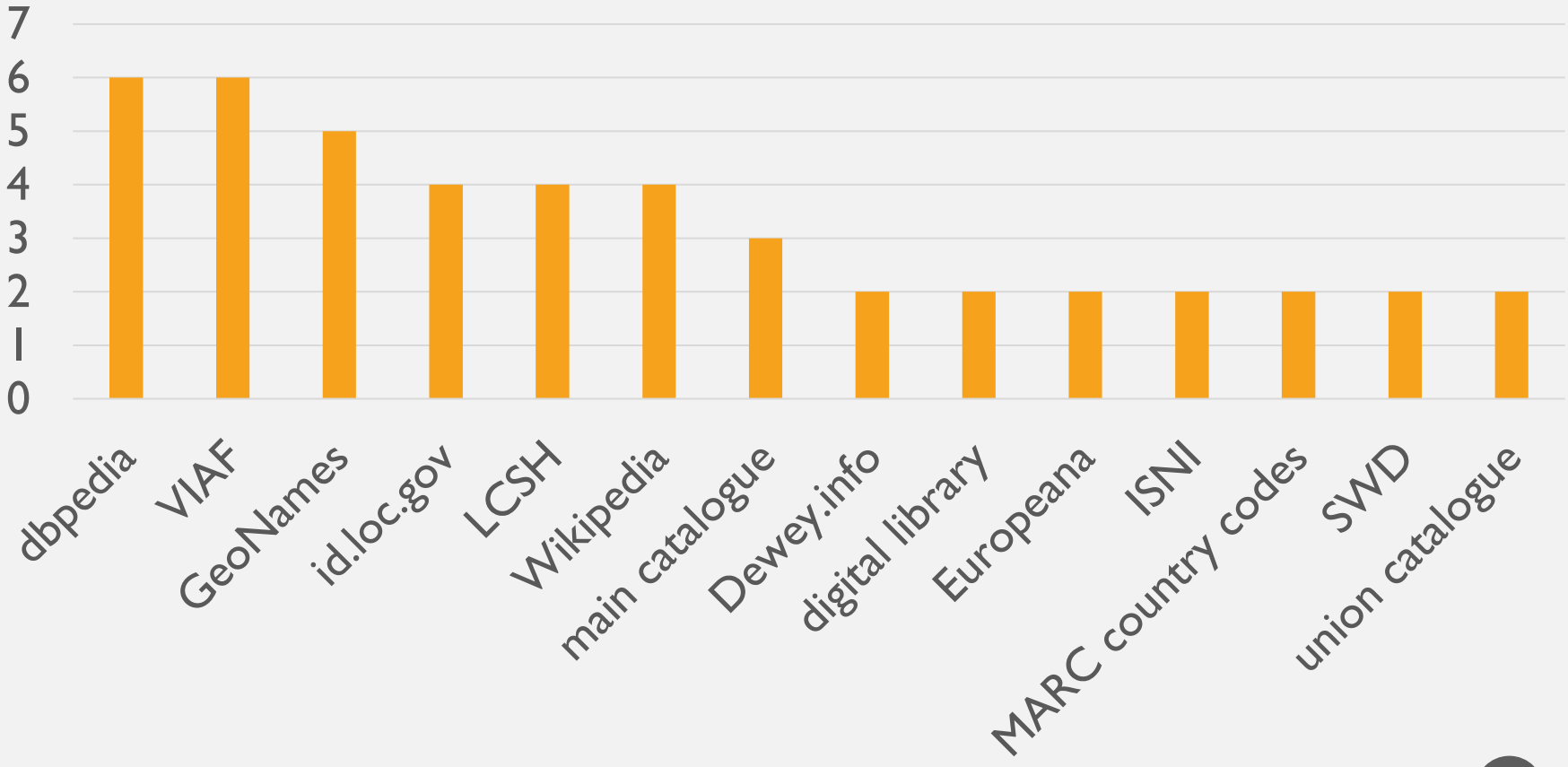
źródło: http://oss.dbc.dk/plone/linked-data/DBCdatamodel_v2.pdf

Using SKOS shcemas in LD proejcts

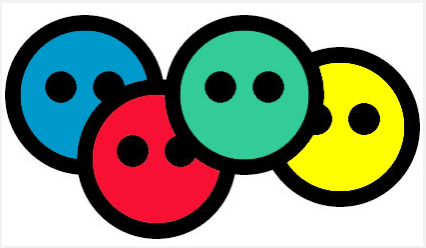
To create a dala model

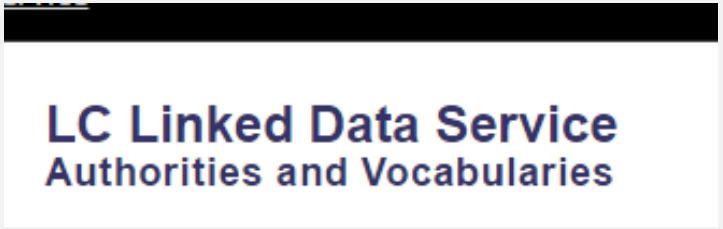
To create links to other KOS o the Web

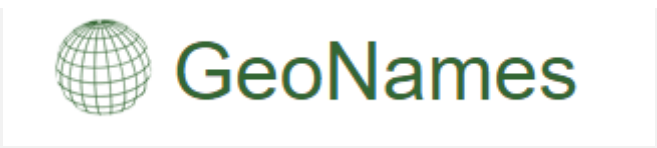
Number of LOD projects of European national libraries linking to resources on the Internet (2018)

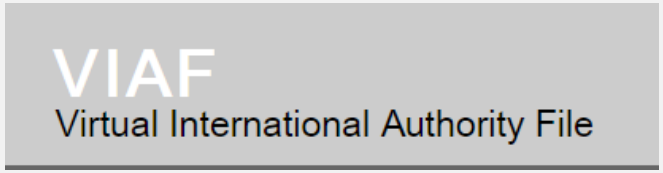


THE MOST POPULAR LINKING









Smith-Yoshimura, K. (2016). Analysis of International Linked Data Survey for Implementers. *D-Lib Magazine*, *22*(7/8)

AUTHORITY DATA AS LOD

Rådata nå! — Norwegian personal name authorities as linked data

About

The Rådata nå! data set is a collection of around 9 million triples representing around 1.5 million personal names. The data was created by a joint project between BIBSYS and NTNU University Library with funding from ABM-Utvikling (the Norwegian Archive, Library and Museums authority). The data is structured as linked data.

Getting the data

The data is available via a public SPARQL endpoint and as a bulk download.

Examples

- Henrik Ibsen
- Ivar Aasen

License

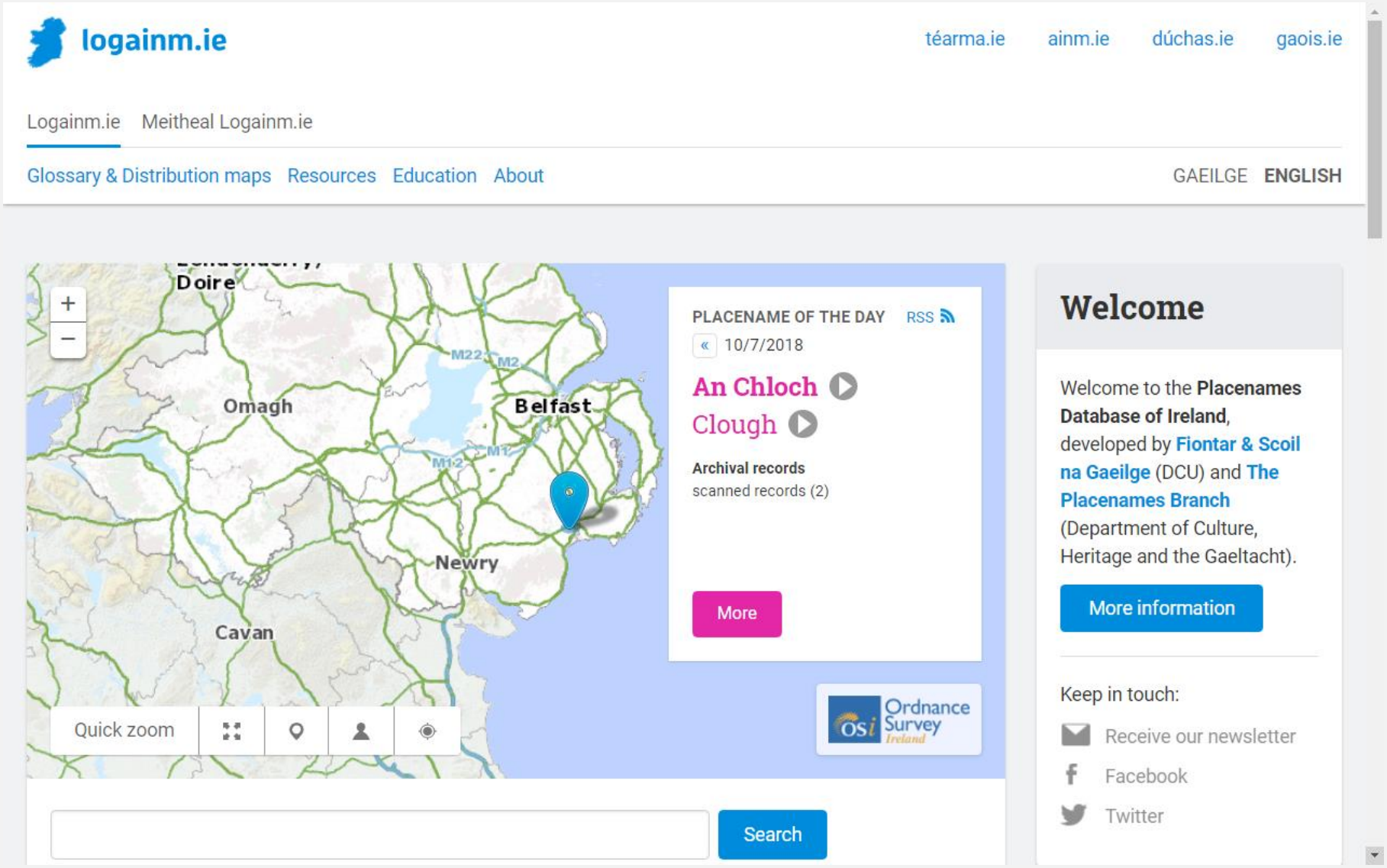
We have published this dataset under the Public Domain Dedication and License (PDDL) "Public Domain for data/databases" license. That means that you are free:

- To Share: To copy, distribute and use the database.
- To Create: To produce works from the database.
- To Adapt: To modify, transform and build upon the database.

There are no requirements or limitations. Read about the license here: http://www.opendatacommons.org/licenses/pddl/summary/.

Contacts

- support@bibsys.no



https://www.logainm.ie/en/

http://finto.fi

CLASSIFICATION AS LOD

a multilingual classification system for cultural content

ICONCLASS as Linked Open Data

Every notation in ICONCLASS is associated with a Uniform Resource Identifier (URI) that is unique to that subject heading. For example the concept "Communication of Thought" has a notation of 52D1 and thus the URI becomes: http://iconclass.org/52D1 If you click on the aforementioned link, you are redirected to a HTML representation of that concept, fit for human consumption.

It is also possible to retrieve machine-readable formats, by either appending '.rdf' or '.json' to the URI. This will redirect you to either a SKOS/RDF or JSON representation of the concept. For example http://iconclass.org/52D1.rdf or http://iconclass.org/52D1.json

If you need to retrieve the data for notations containing 'keys' like a 25F23(+46) sleeping lion ensure that you properly encode the + sign in the URL. The link becomes: http://iconclass.org/25F23(LION)(%2B46).json Note how the + sign has been replaced with the characters %2B For more information have a look at the Wikipedia article for Percent Encoding. You have to do the same for names, like: 11H(BASIL THE GREAT)

Retrieving texts for multiple notations in one HTTP call

You can get the text that go with a list of notations in one go, by calling the URL /json/ or /rdf/ with a list of 'notation' parameters for which you would like the data. Here is an example: http://iconclass.org/json/?notation=25FF&notation=51A

Do you want the raw data?

Please don't start scraping away, or fire up the scripts. There are about 1.3 million notations in ICONCLASS (with all keys and children full expanded). You can download a dump of the database in RDF N-Triple form from this link: http://iconclass.org/data/iconclass.nt.gz. (MD5 of the latest file b2913be32dc729ae17d5816e02b22401) The file is 19MB compressed and expands to 340MB. This datafile does not contain all the expanded notations including keys. The size would mushroom, so we are trying to figure out a better way to also make the expanded data available. Please feel free to send me suggestions.
Thanks to Tobias Helms from the GBV for suggesting that we remove the date from the download filename so that automated downloads can just regularly ping the file. I have included an explicit MD5 hash of the file on a link too in case you want to check if there has been changes.
Thanks to Michiel Hildebrand for pointing out that notation literals need quotes too.

Page last edited on: 18 September 2015
Mail: eposthumus@gmail.com

License

ICONCLASS is made available under the Open Database License: http://opendatacommons.org/licenses/odbl/1.0/. Any rights in individual

MUSEUMS AND LOD

Screenshot of the prototype

Posted on 13 March 2011

Creating an Amsterdam Time Machine with the AdLib API

A four-hour sprint to create a chronological painting gallery from the Amsterdam Museum collection.

MiracleThings

Projects

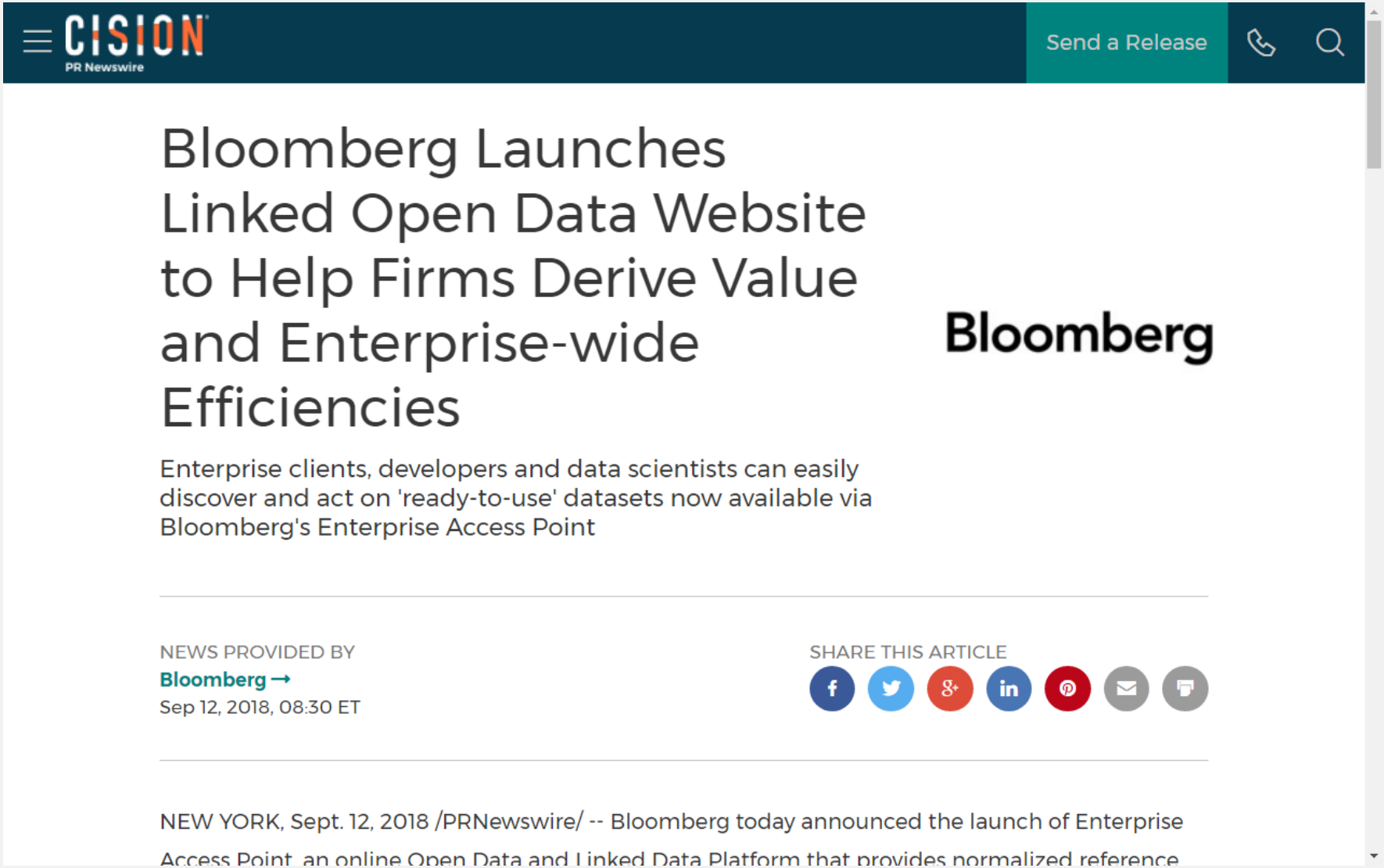
Technologies

Get in touch

See also

https://miraclethings.nl/amsterdamtimemachine/

COMMERCIAL COMPANIES

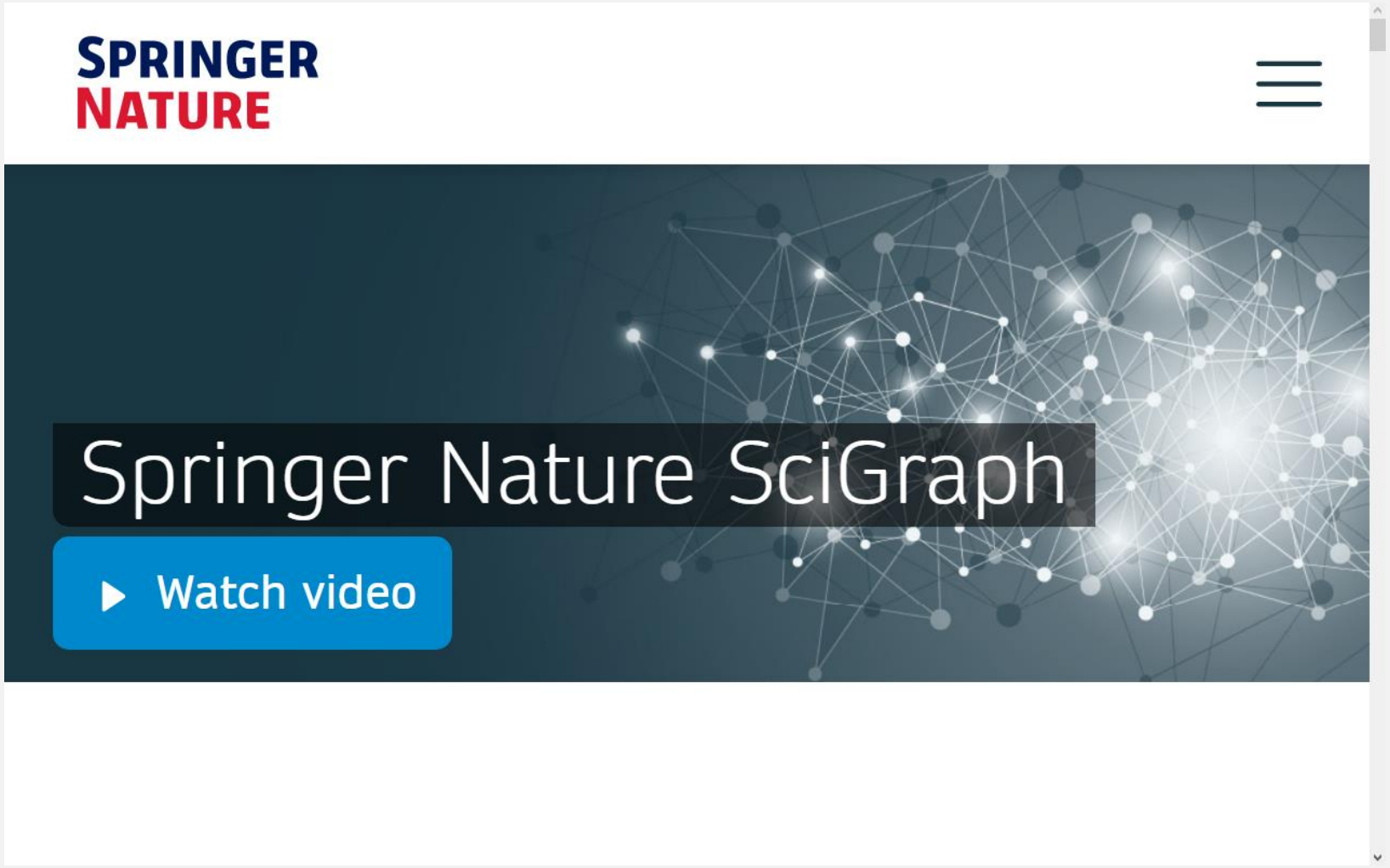


https://www.prnewswire.com/news-releases/bloomberg-launches-linked-open-data-website-to-help-firms-derive-value-and-enterprise-wide-efficiencies-300710983.html

OPEN ACCESS REPOSITORIES AND LOD

https://www.econstor.eu/

PUBLISHERS AND LOD

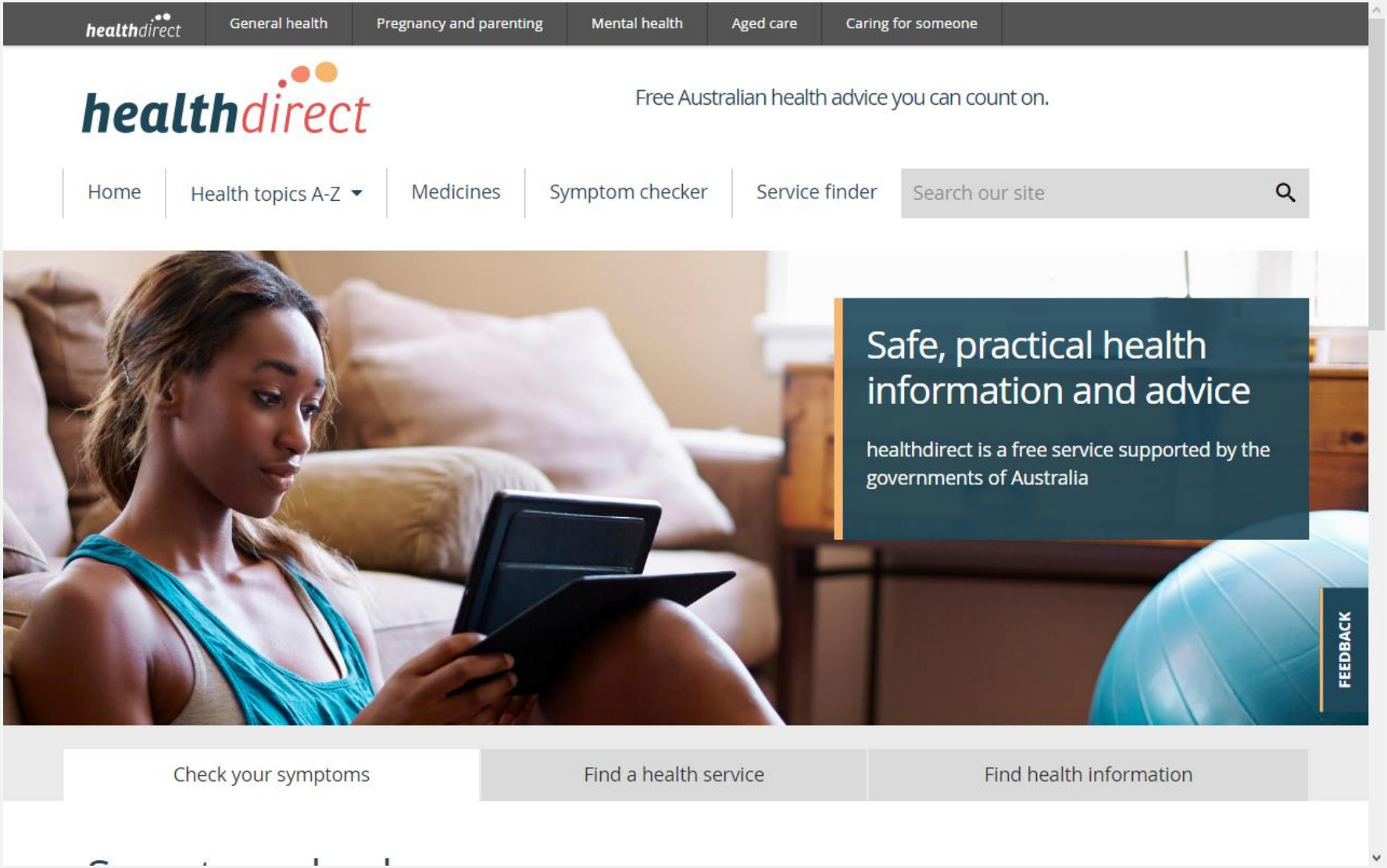


http://www.springernature.com/gp/researchers/scigraph

WHO USES LOD?

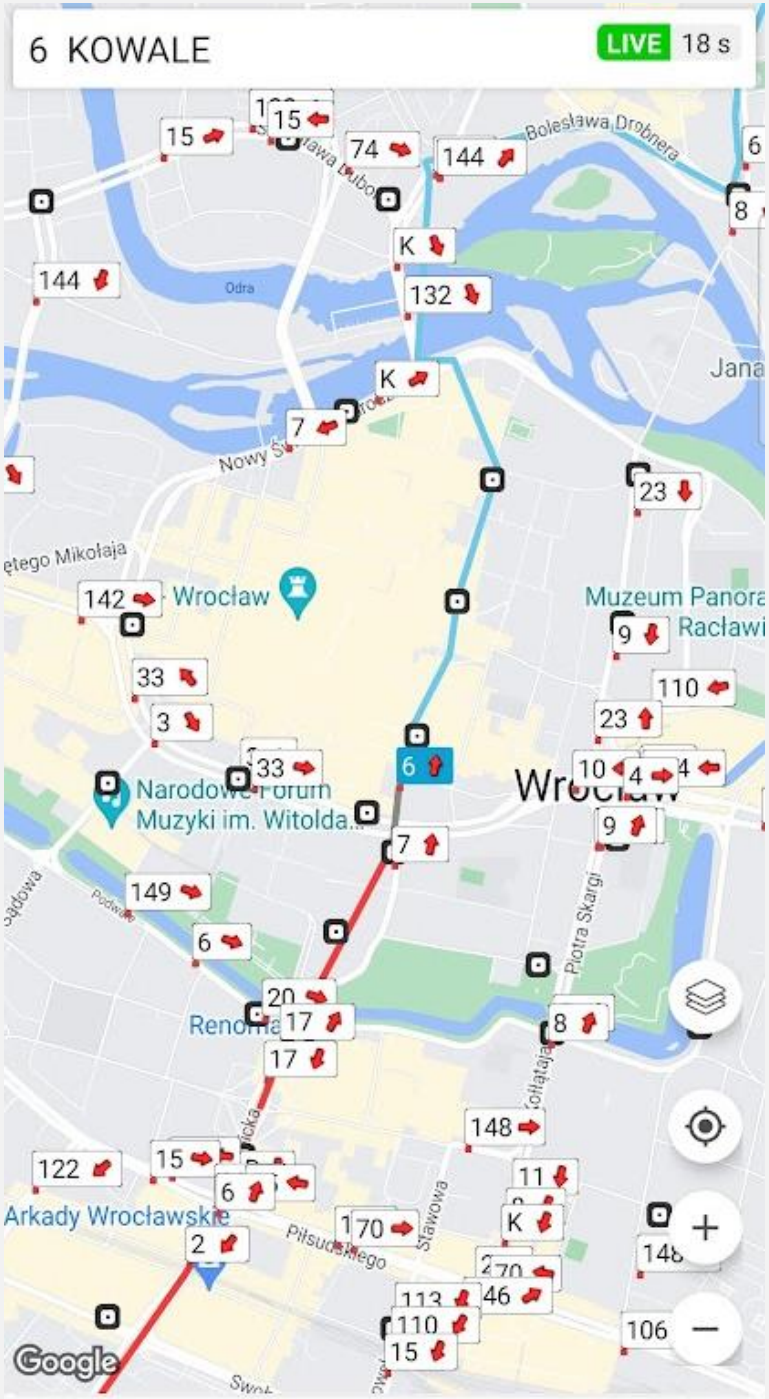
- Watson Marketing (IBM)
- Siri (Apple)
- BBC News
- Wolters Kluwer

HOW OPEN DATA CAN BE USED?



HOW OPEN DATA CAN BE USED?

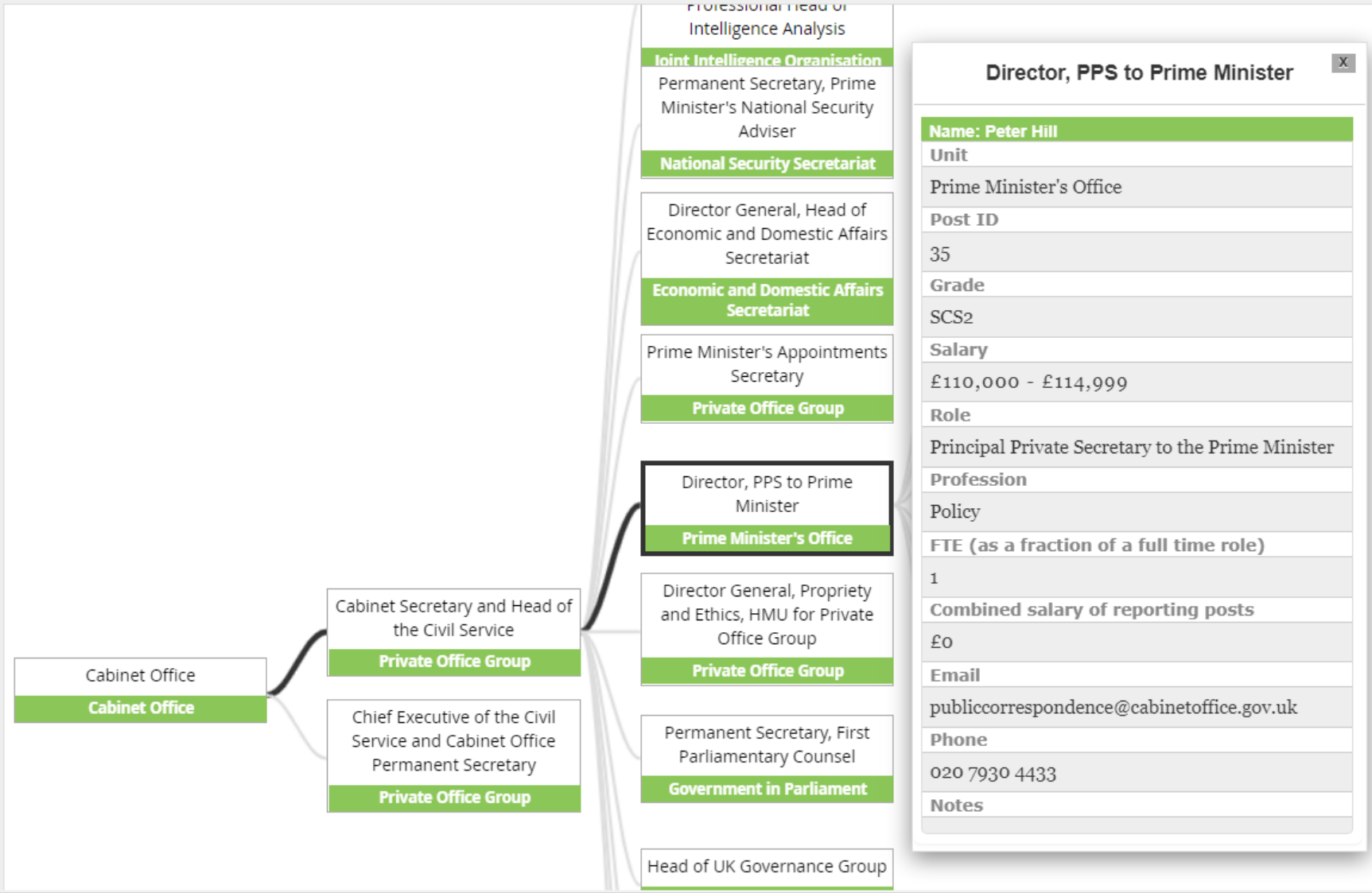
http://buslive.pl/



HOW OPEN DATA CAN BE USED?

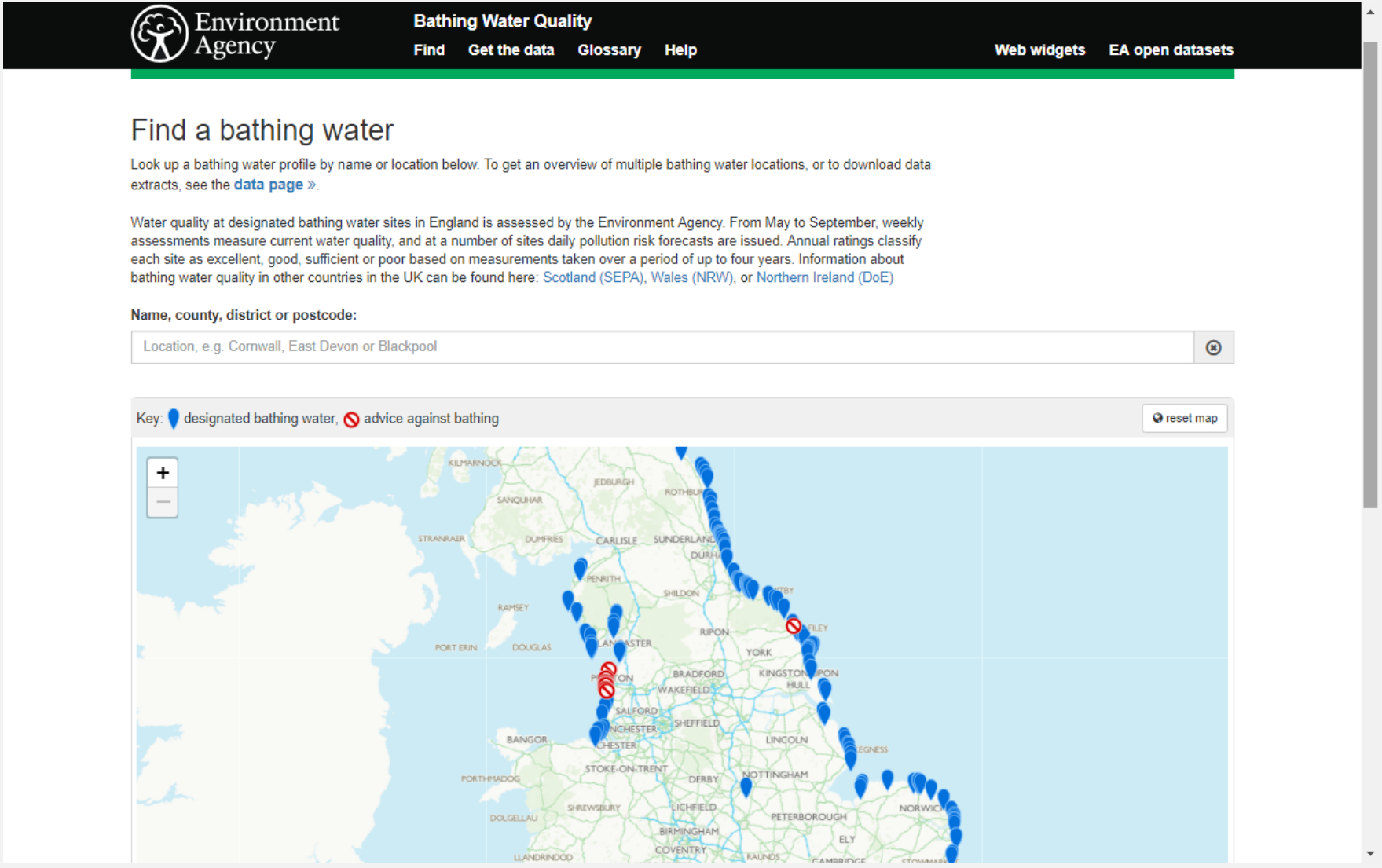
http://nacoidamojepieniadze.pl/

OPEN DATA IN PUBLIC SECOTR



https://data.gov.uk/organogram/cabinet-office

OPEN DATA IN PUBLIC SECOTR



Źródło: http://environment.data.gov.uk/bwq/profiles/

Hackathon of Polish Ministry of Digitization and National Library (2016)

- Application to get things done faster at government offices
- Application used to find cheaper substitutes for reimbursed drugs
- A game based on data about the city budget of Wroclaw

EVERYDAY IMPACT

Koninklijke Bibliotheek
Nationale bibliotheek van Nederland

NL | EN
Menu

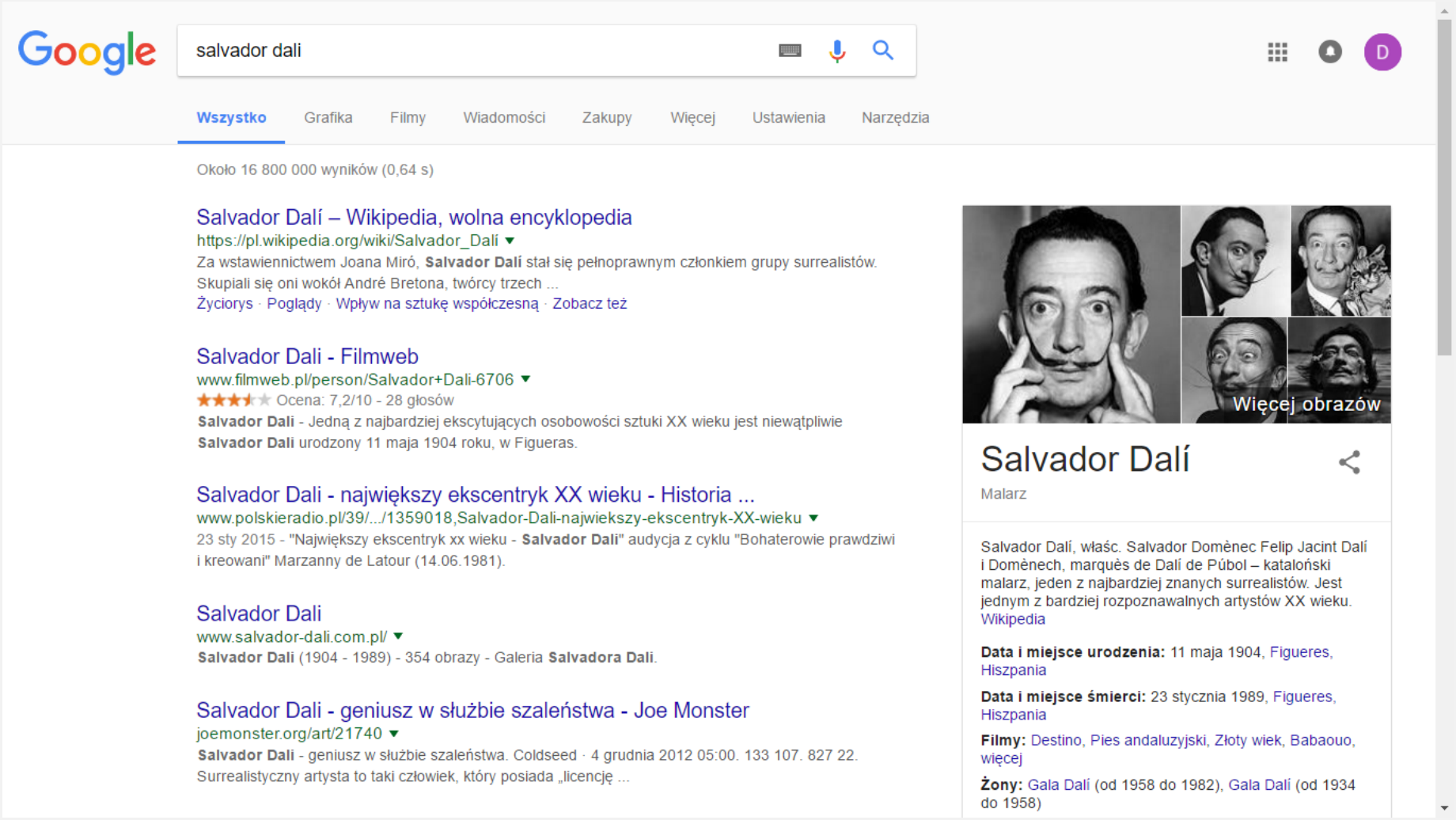
Home › Nieuws › Nieuwsarchief 2012 › KB-app 'Hier was het nieuws' nu ook voor Android

KB-app 'Hier was het nieuws' nu ook voor Android

De Koninklijke Bibliotheek (KB) lanceerde twee weken geleden met veel succes de *app* *Hier was het nieuws. *De *app* is onder de aandacht gebracht door diverse media en inmiddels bijna 20.000 keer gedownload.

Met de *app* kunt u overal in Nederland historische informatie oproepen over de plek waar u bent. Een ongeluk, brand of misdaad? Een oproer, optocht of onthulling? U leest het direct in historische krantenartikelen. De *app* is vanaf vandaag ook beschikbaar voor Android. Deze video laat zien wat u

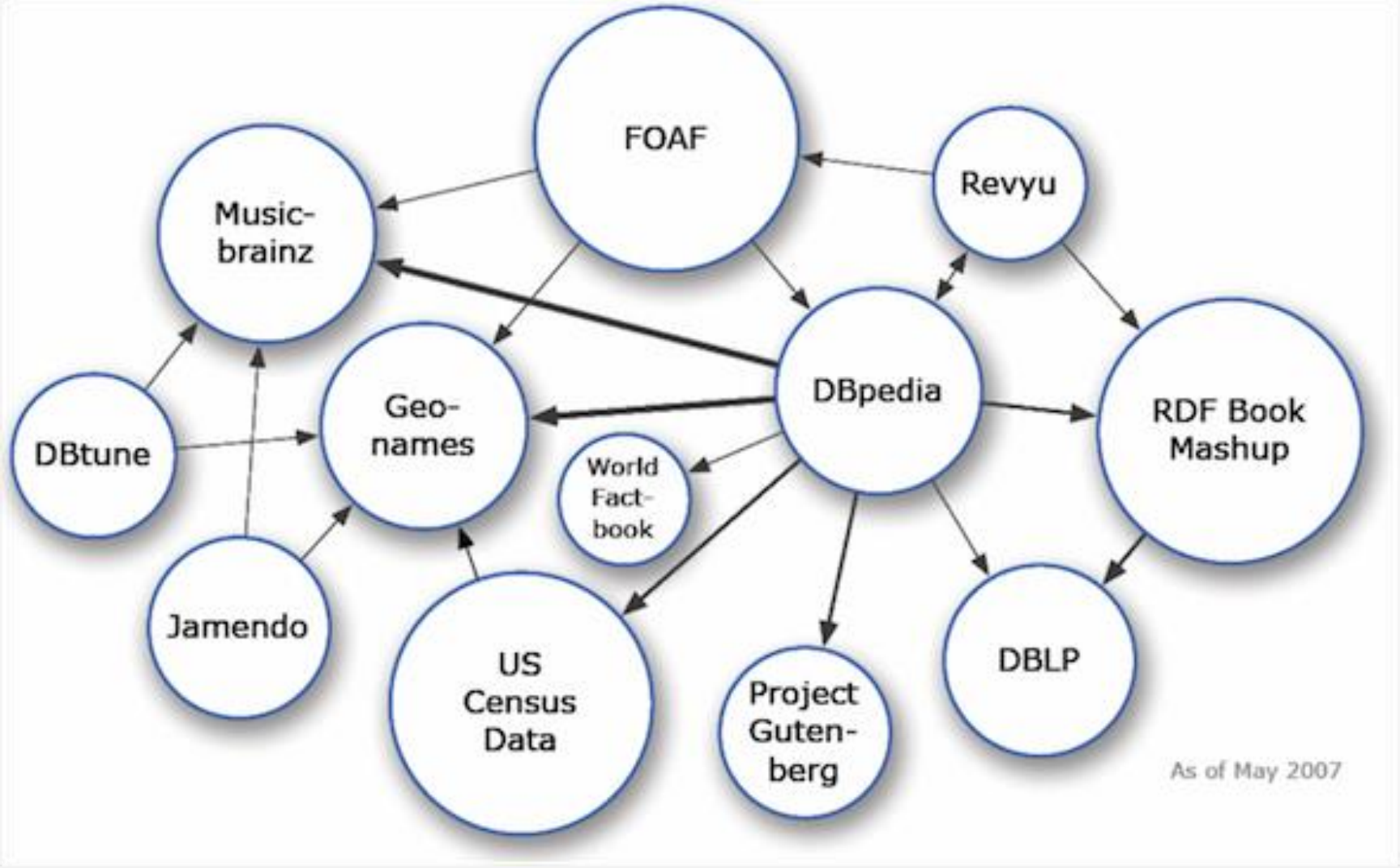
EVERYDAY IMPACT



HOW TO PROVIDE LOD

- Web pages
- *Content negotiation*
- Dump files
- SPARQL endpoint
- SPARQL query editor
- Apps

LOD CLOUD


FOAF
Music-
brainz
Revyu
DBtune
Geo-
names
DBpedia
RDF Book
Mashup
World
Fact-
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US
Census
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Guten-
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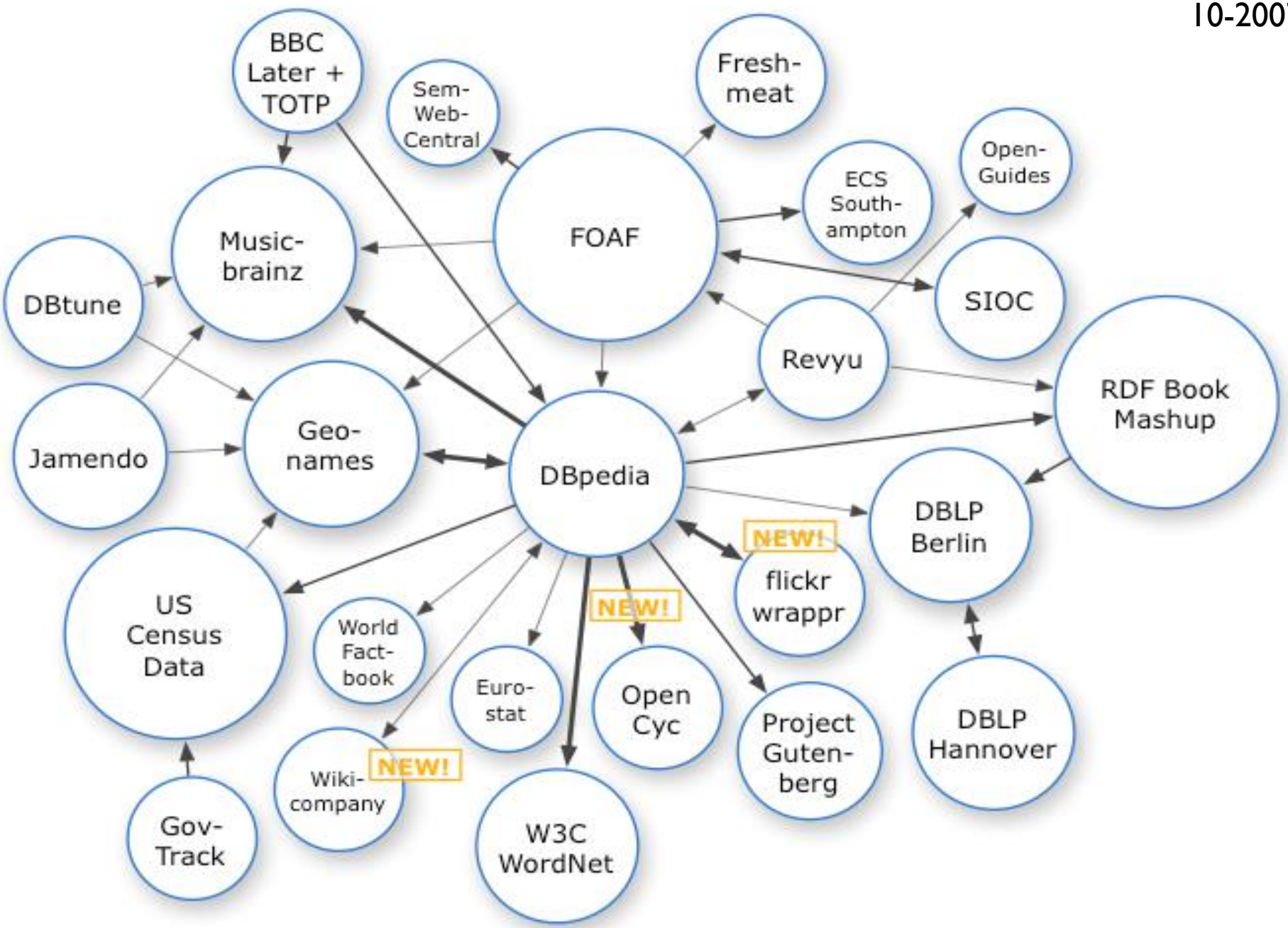
DBLP
As of May 2007

10-2007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Sem-Web-Central
Fresh-meat
Open-Guides
ECS South-ampton
FOAF
Music-brainz
DBtune
SIOC
Revyu
RDF Book Mashup
Jamendo
Geo-names
DBpedia
DBLP Berlin
NEW!
flickr wrappr
US Census Data
World Fact-book
NEW!
Euro-stat
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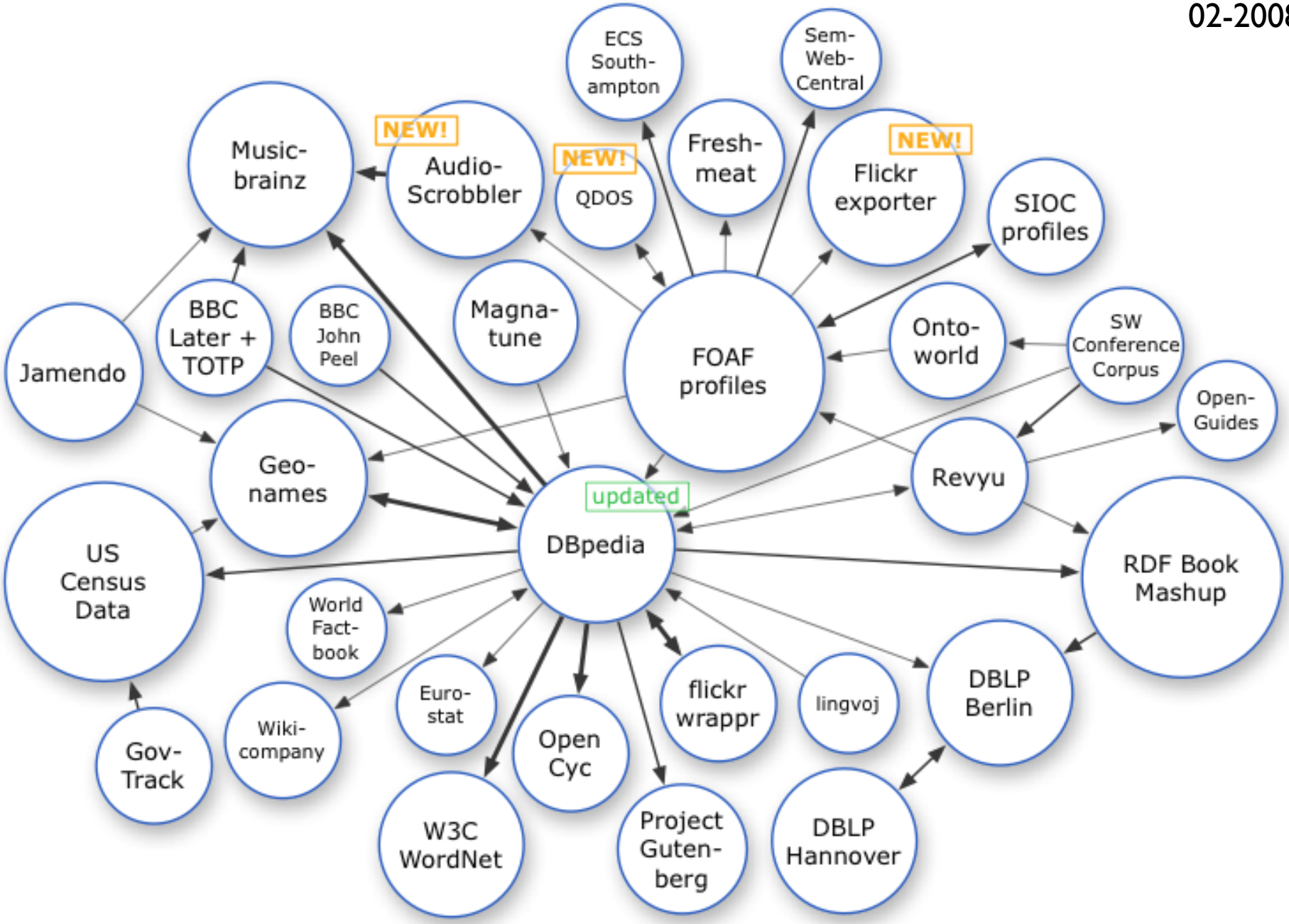
Project Guten-berg
DBLP Hannover
Wiki-company
NEW!
Gov-Track
W3C WordNet

02-2008


ECS South-ampton
Sem-Web-Central
Music-brainz
NEW!
Audio-Scrobbler
NEW!
QDOS
Fresh-meat
NEW!
Flickr exporter
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Jamendo
BBC Later + TOTP
BBC John Peel
Magna-tune
FOAF profiles
Onto-world
SW Conference Corpus
Open-Guides
Geo-names
updated
DBpedia
Revyu
US Census Data
RDF Book Mashup
World Fact-book
Euro-stat
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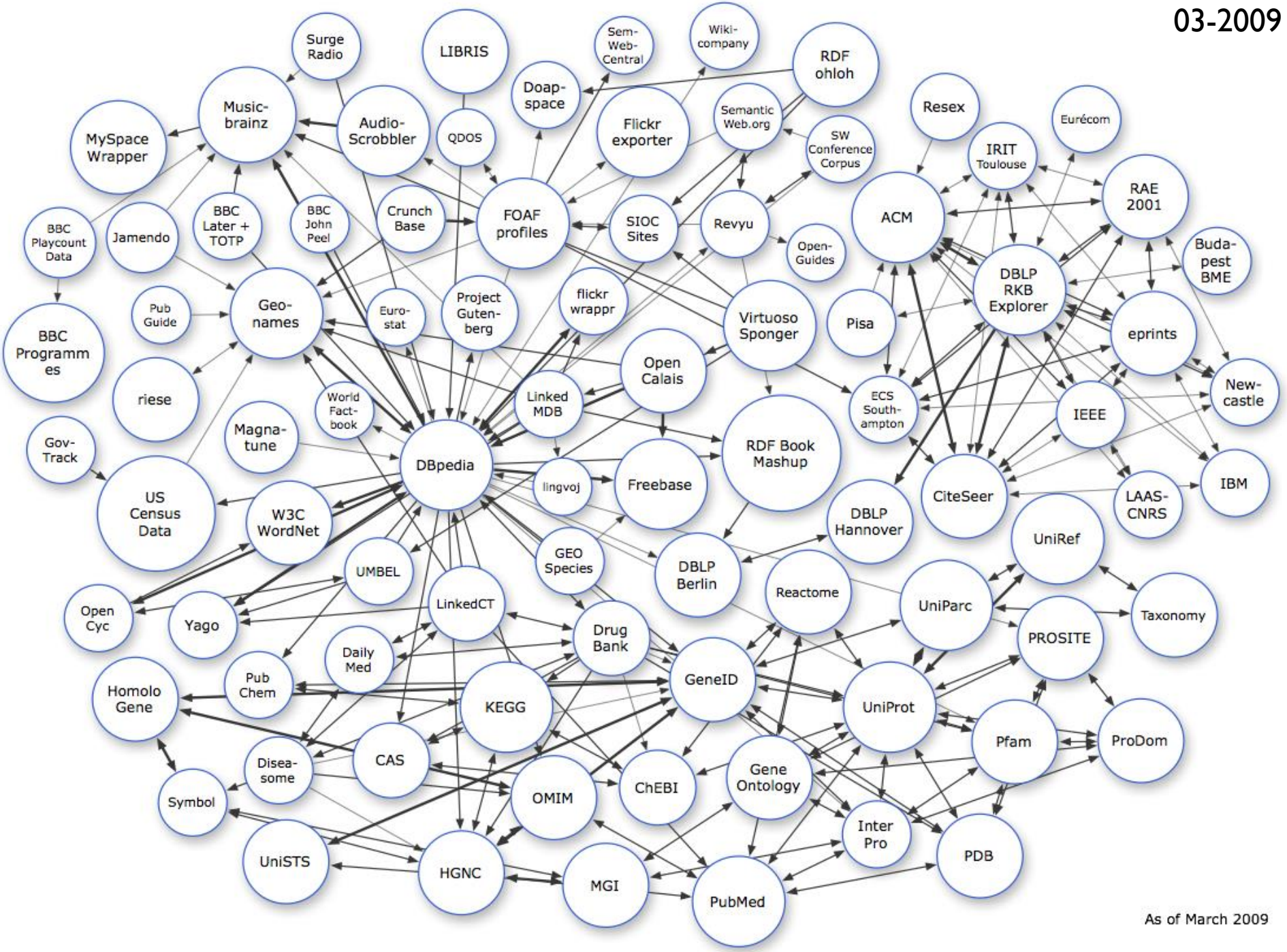
W3C WordNet
Project Guten-berg
DBLP Hannover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Audio-Scrobbler
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SW Conference Corpus
Resex
Eurécom
IRIT Toulouse
MySpace Wrapper
BBC Playcount Data
Jamendo
BBC Later + TOTP
BBC John Peel
Crunch Base
FOAF profiles
SIOC Sites
Revyu
Open-Guides
ACM
RAE 2001
Buda-pest BME
DBLP RKB Explorer
Pub Guide
Geo-names
Euro-stat
Project Guten-berg
flickr wrappr
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BBC Programm es
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World Fact-book
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Open Calais
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IEEE
New-castle
Gov-Track
Magna-tune
DBpedia
RDF Book Mashup
lingvoj
Freebase
CiteSeer
LAAS-CNRS
IBM
US Census Data
W3C WordNet
DBLP Hannover
UniRef
UMBEL
GEO Species
DBLP Berlin
Reactome
UniParc
Taxonomy
Open Cyc
Yago
LinkedCT
Drug Bank
PROSITE
Daily Med
Pub Chem
GeneID
UniProt
Homolo Gene
KEGG
Pfam
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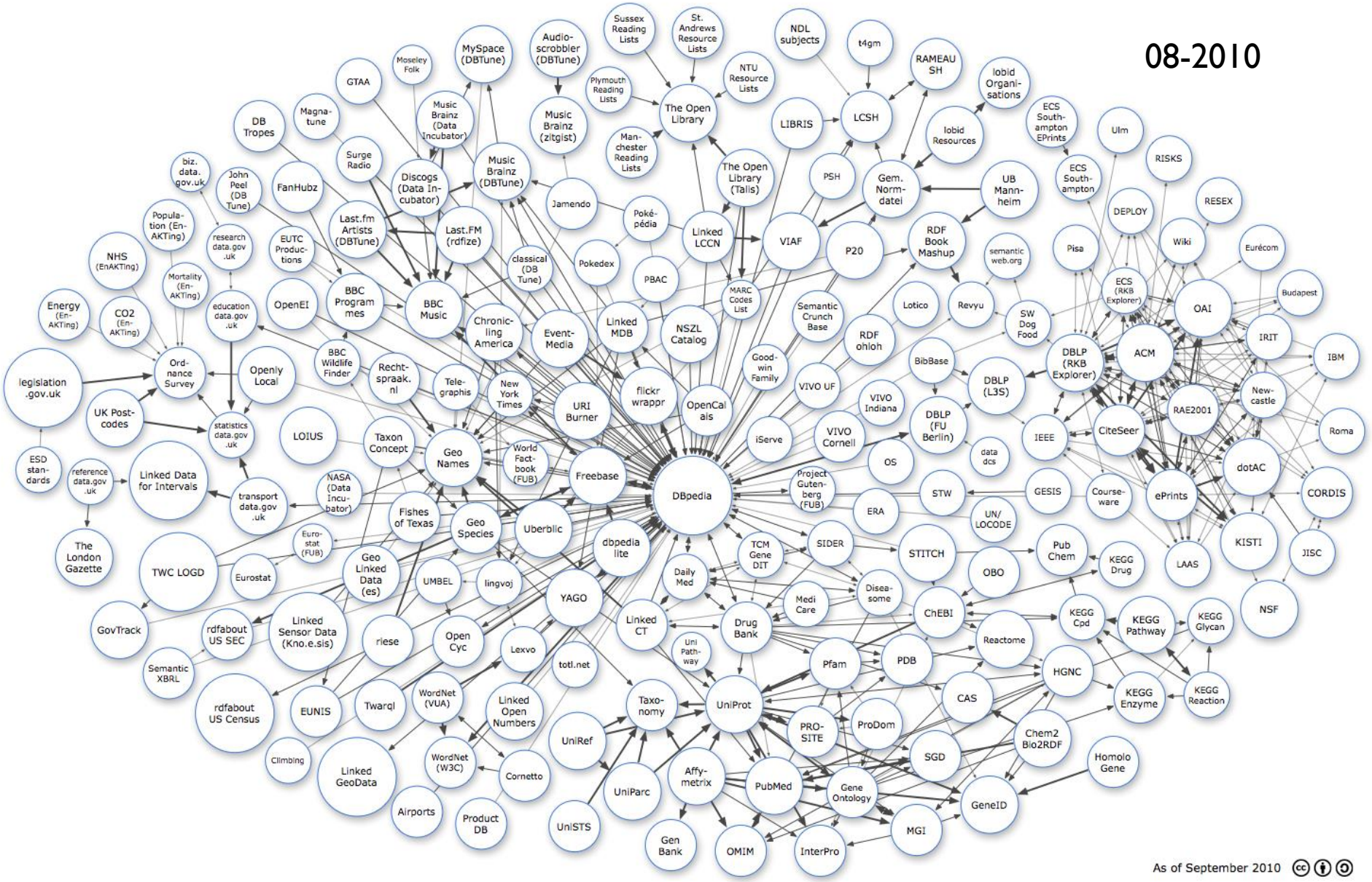
As of March 2009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Uberblic
YAGO
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Drug Bank
UniProt
Taxo-nomy
Affy-metrix
PubMed
Gene Ontology
GeneID
MGI
OMIM
InterPro
Gen Bank
UniSTS
UniParc
UniRef
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WordNet (W3C)
Cornetto
Product DB
Airports
Linked GeoData
Climbing
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EUNIS
Twarql
Semantic XBRL
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GovTrack
TWC LOGD
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The London Gazette
Eurostat
UMBEL
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Open Cyc
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Linked CT
Daily Med
Uni Path-way
Drug Bank
Medi Care
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ChEBI
Reactome
PDB
Pfam
CAS
HGNC
KEGG Enzyme
KEGG Reaction
KEGG Cpd
KEGG Pathway
KEGG Glycan
KEGG Drug
OBO
Pub Chem
STITCH
SIDER
TCM Gene DIT
UN/ LOCODE
ERA
STW
GESIS
Course-ware
ePrints
dotAC
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IEEE
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MARC Codes List
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RAMEAU SH
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NDL subjects
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LIBRIS
The Open Library (Talis)
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NTU Resource Lists
St. Andrews Resource Lists
Sussex Reading Lists
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Jamendo
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BBC Program mes
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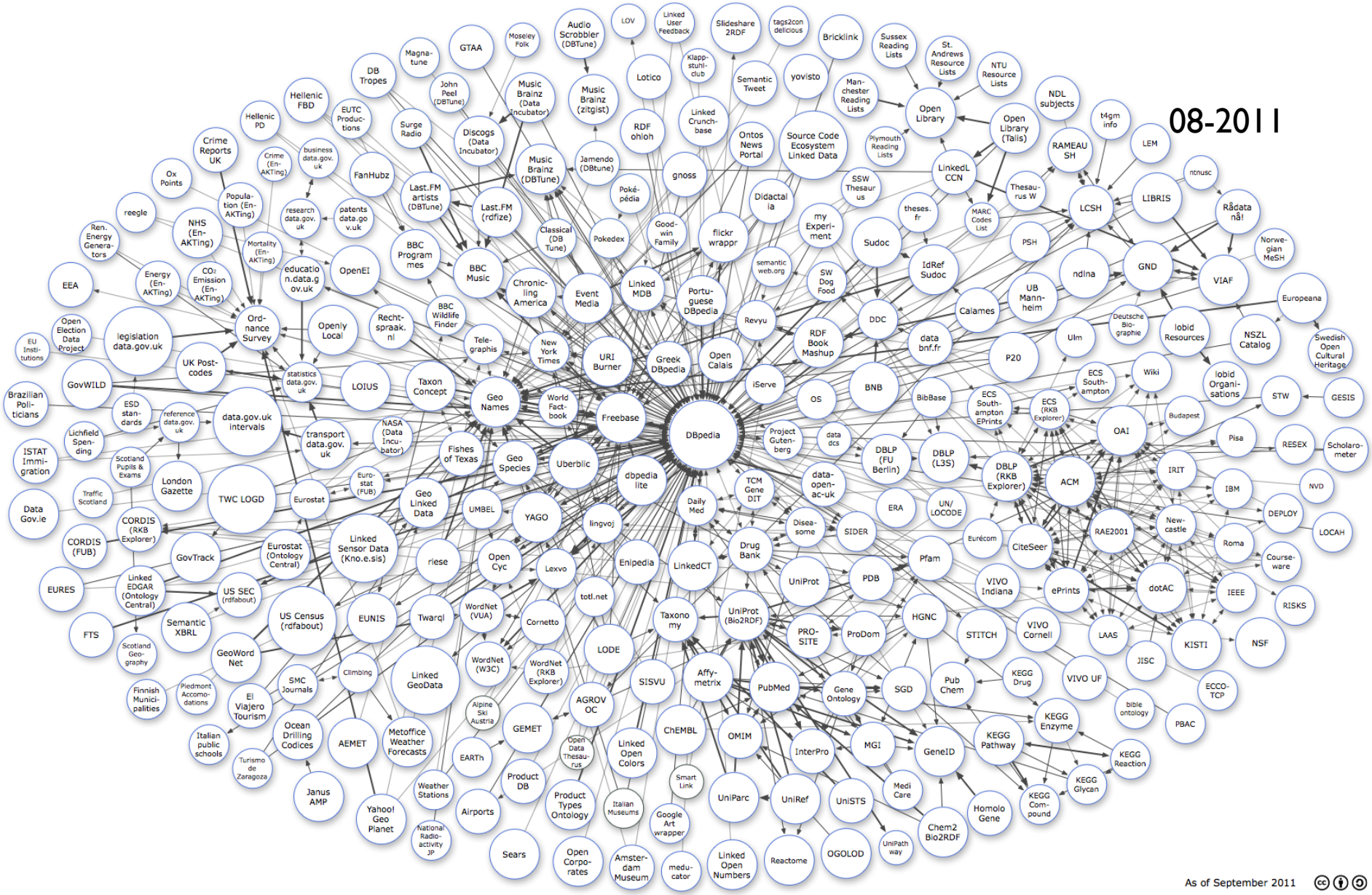
As of September 2010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Amsterdam Museum
medu-cator
Open Corpo-rates
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Product DB
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Sears
Weather Stations
National Radio-activity JP
Yahoo! Geo Planet
Janus AMP
Ocean Drilling Codices
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Metoffice Weather Forecasts
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El Viajero Tourism
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Italian public schools
Piedmont Accomo-dations
Finnish Munici-palities
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US SEC (rdfabout)
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JISC
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ISTAT Immi-gration
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Fishes of Texas
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NASA (Data Incu-bator)
statistics data.gov.uk
LOIUS
Taxon Concept
Geo Linked Data
GovWILD
UK Post-codes
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EU Insti-tutions
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BBC Wildlife Finder
Tele-graphis
New York Times
URI Burner
Greek DBpedia
Open Calais
iServe
OS
BNB
BibBase
ECS South-ampton
ECS South-ampton EPrints
ECS (RKB Explorer)
Wiki
Deutsche Bio-graphie
Ulm
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Calames
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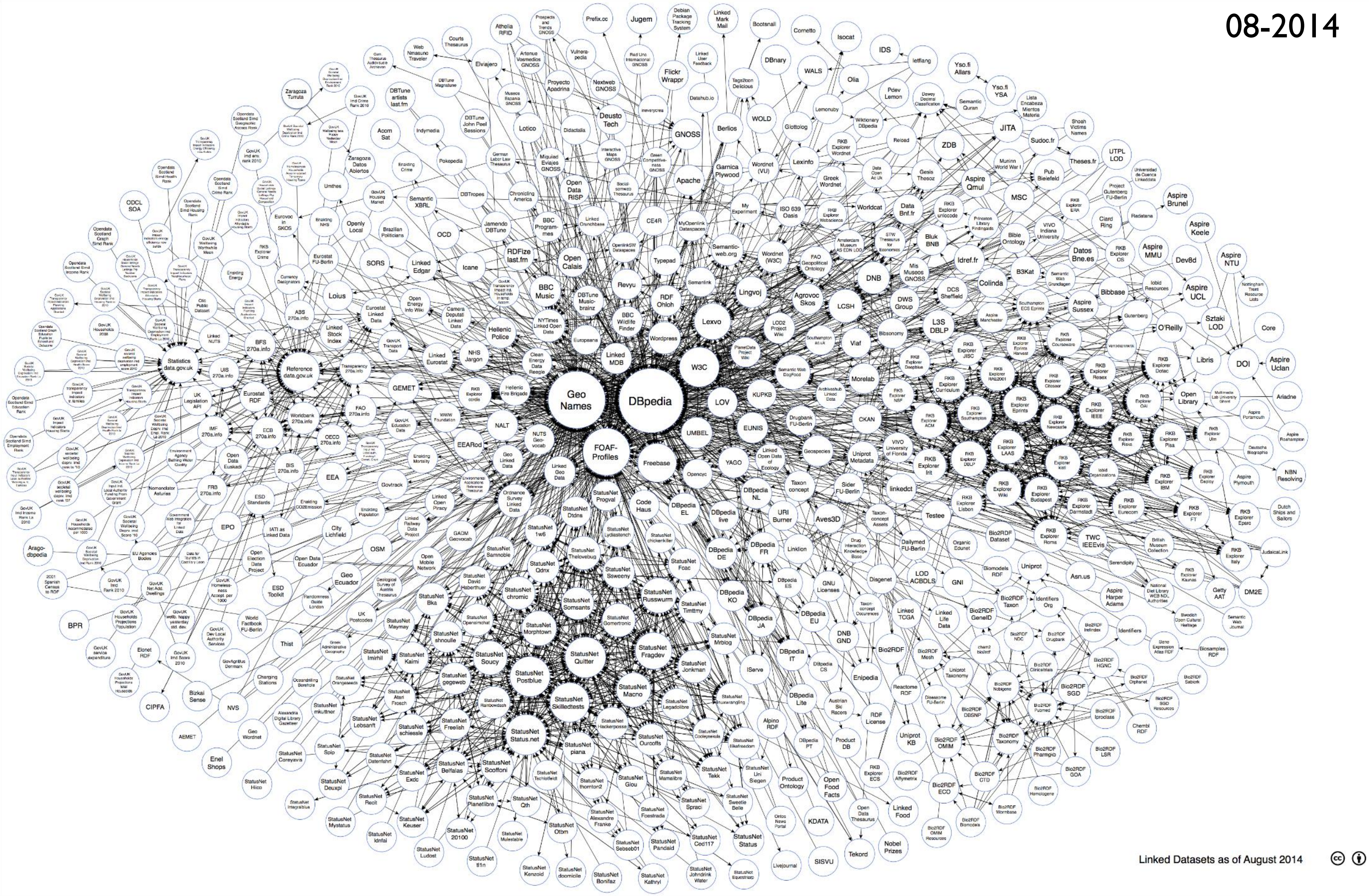
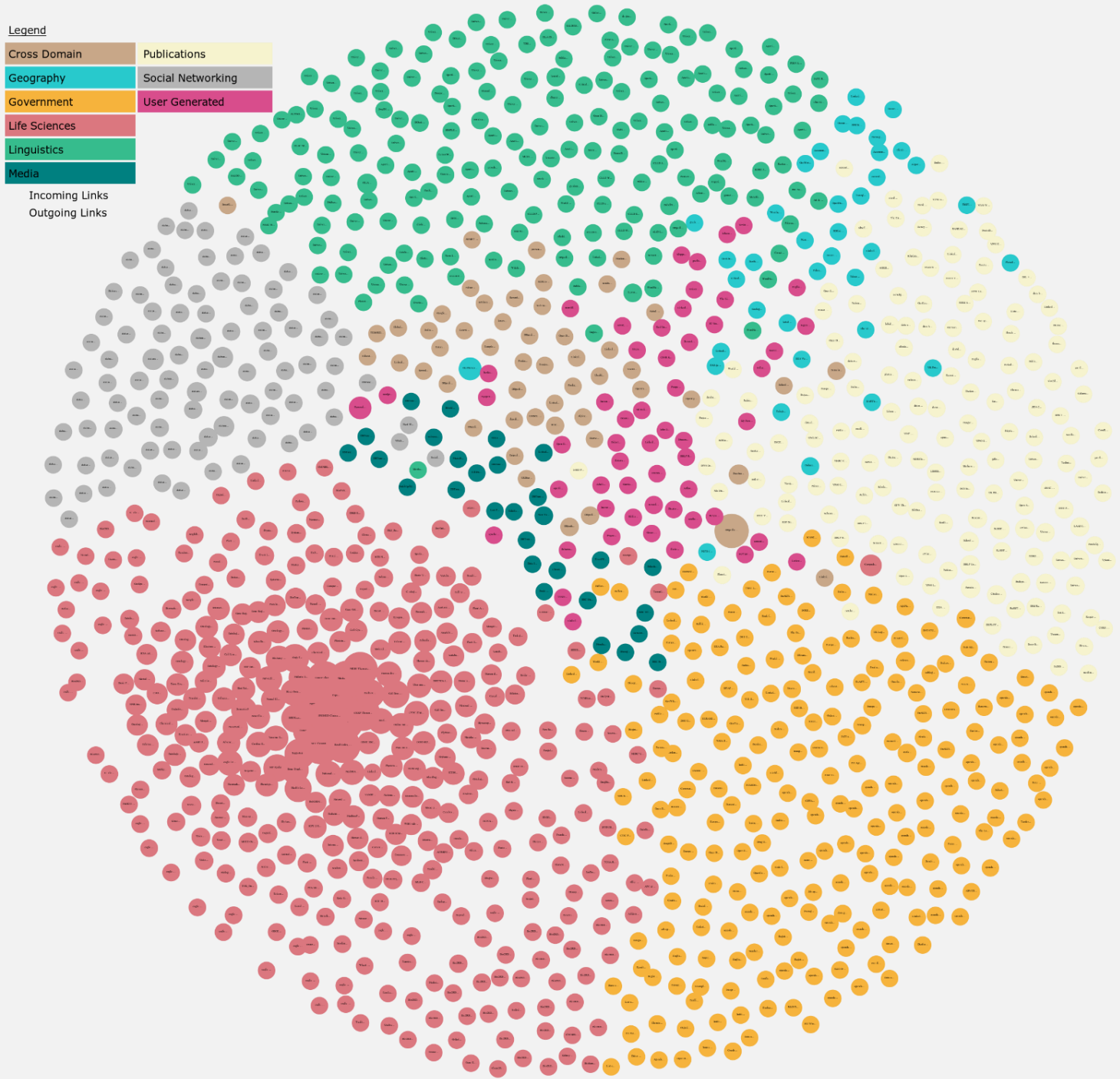
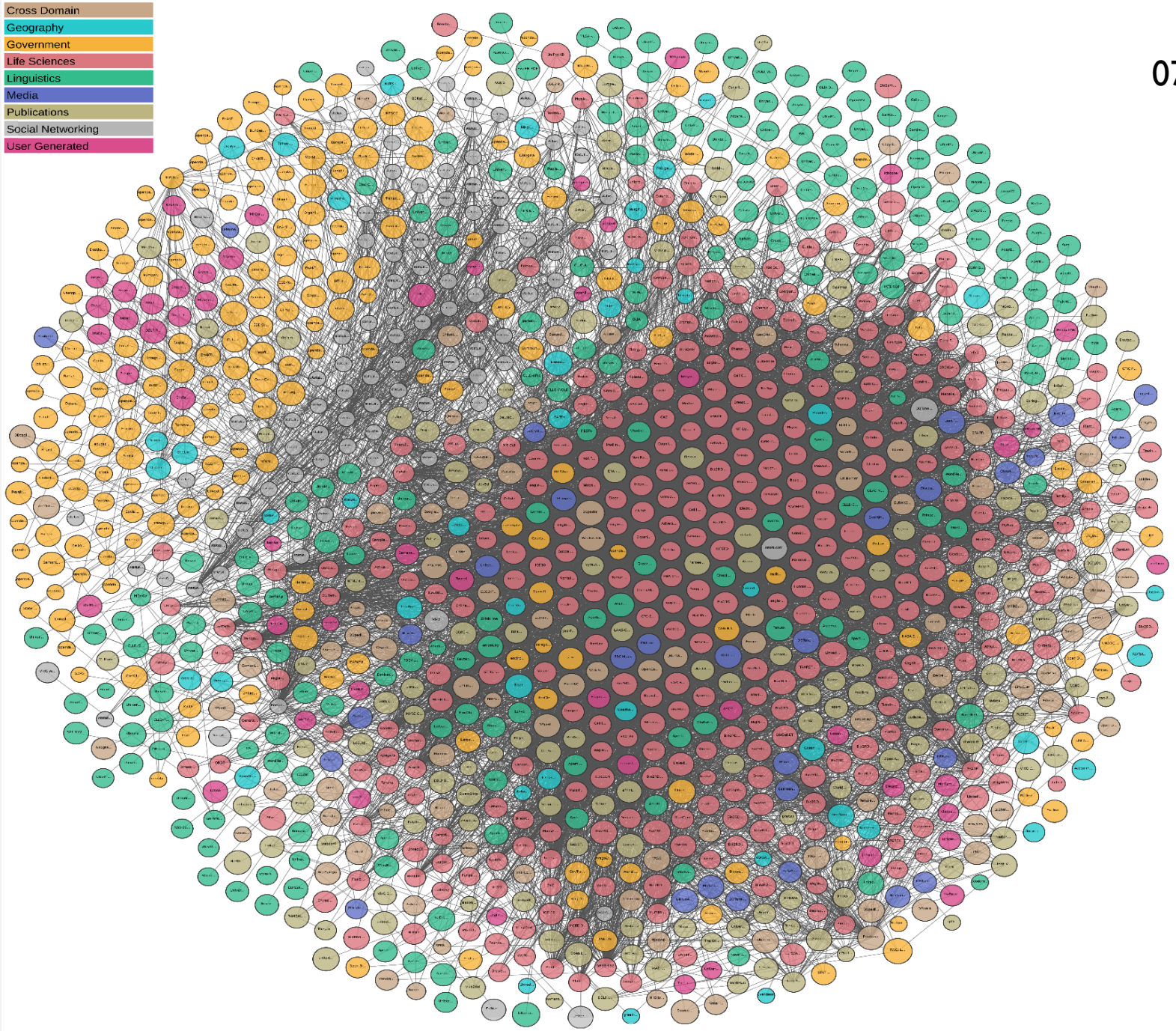
SSW Thesaurus
LinkedL CCN
Open Library
Open Library (Talis)
Sussex Reading Lists
St. Andrews Resource Lists
NTU Resource Lists
Man-chester Reading Lists
Plymouth Reading Lists
Source Code Ecosystem Linked Data
Ontos News Portal
Didactalia
my Experiment
SW Dog Food
semantic web.org
flickr wrappr
Good-win Family
Portu-guese DBpedia
Linked MDB
Event Media
Chronic-ling America
BBC Music
BBC Programmes
Classical (DB Tune)
Pokedex
Poké-pédia
Jamendo (DBtune)
Music Brainz (DBTune)
Last.FM (rdfize)
Last.FM artists (DBTune)
gnoss
RDF ohloh
Linked Crunch-base
Music Brainz (zitgist)
Music Brainz (Data Incubator)
Discogs (Data Incubator)
Surge Radio
FanHubz
EUTC Produc-tions
Hellenic FBD
Hellenic PD
Crime Reports UK
Ox Points
Crime (En-AKTing)
business data.gov.uk
research data.gov.uk
patents data.gov.uk
Popula-tion (En-AKTing)
NHS (En-AKTing)
reegle
Ren. Energy Genera-tors
Energy (En-AKTing)
CO2 Emission (En-AKTing)
Mortality (En-AKTing)
educatio n.data.g ov.uk
OpenEI
EEA
DB Tropes
Magna-tune
John Peel (DBTune)
GTAA
Moseley Folk
Audio Scrobbler (DBTune)
LOV
Linked User Feedback
Slideshare 2RDF
tags2con delicious
Bricklink
Lotico
Klapp-stuhl-club
Semantic Tweet
yovisto
As of September 2011

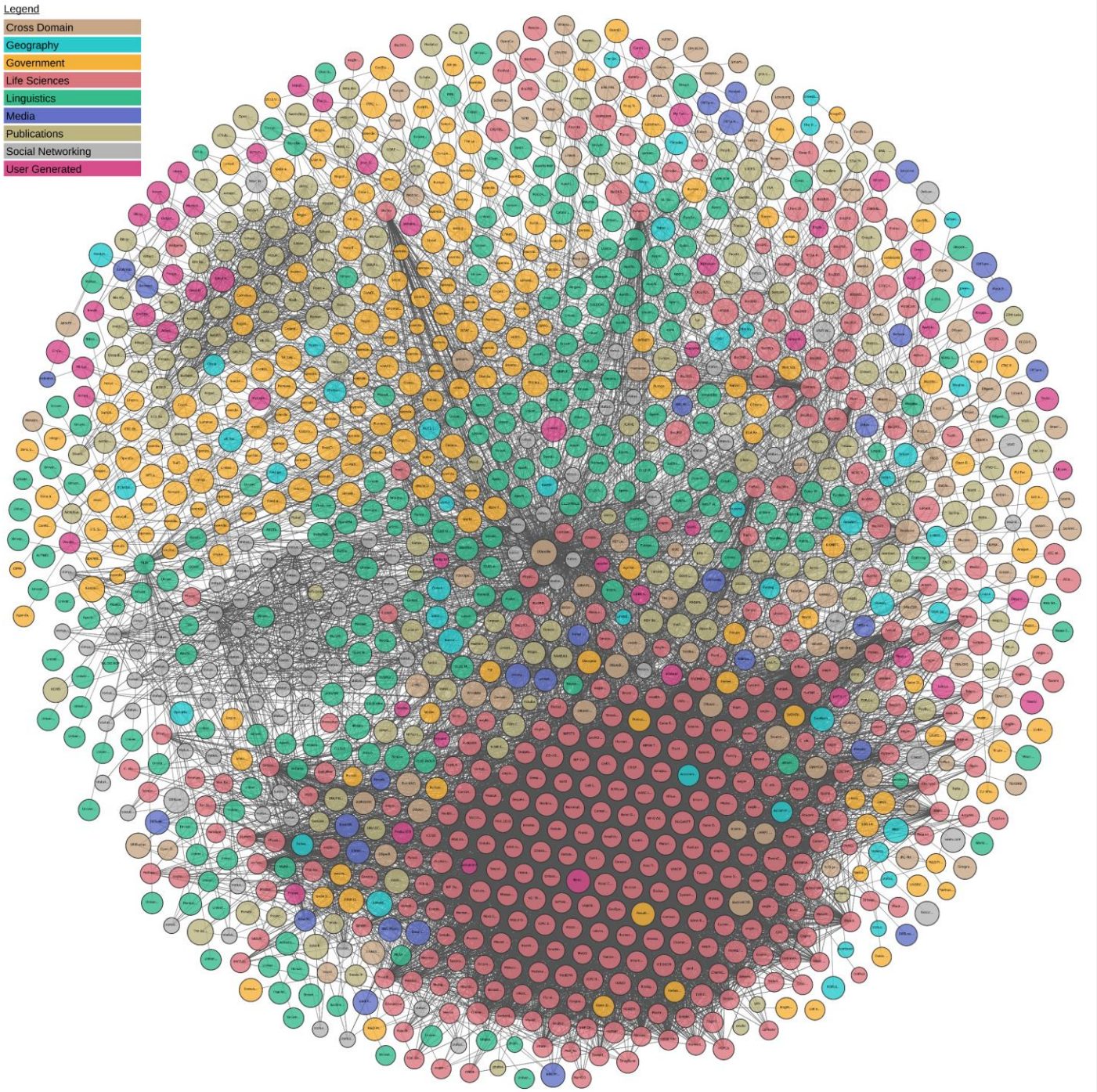
08-2014



Linked Datasets as of August 2014


Legend
Cross Domain
Geography
Government
Life Sciences
Linguistics
Media
Publications
Social Networking
User Generated
Incoming Links
Outgoing Links
01-2017

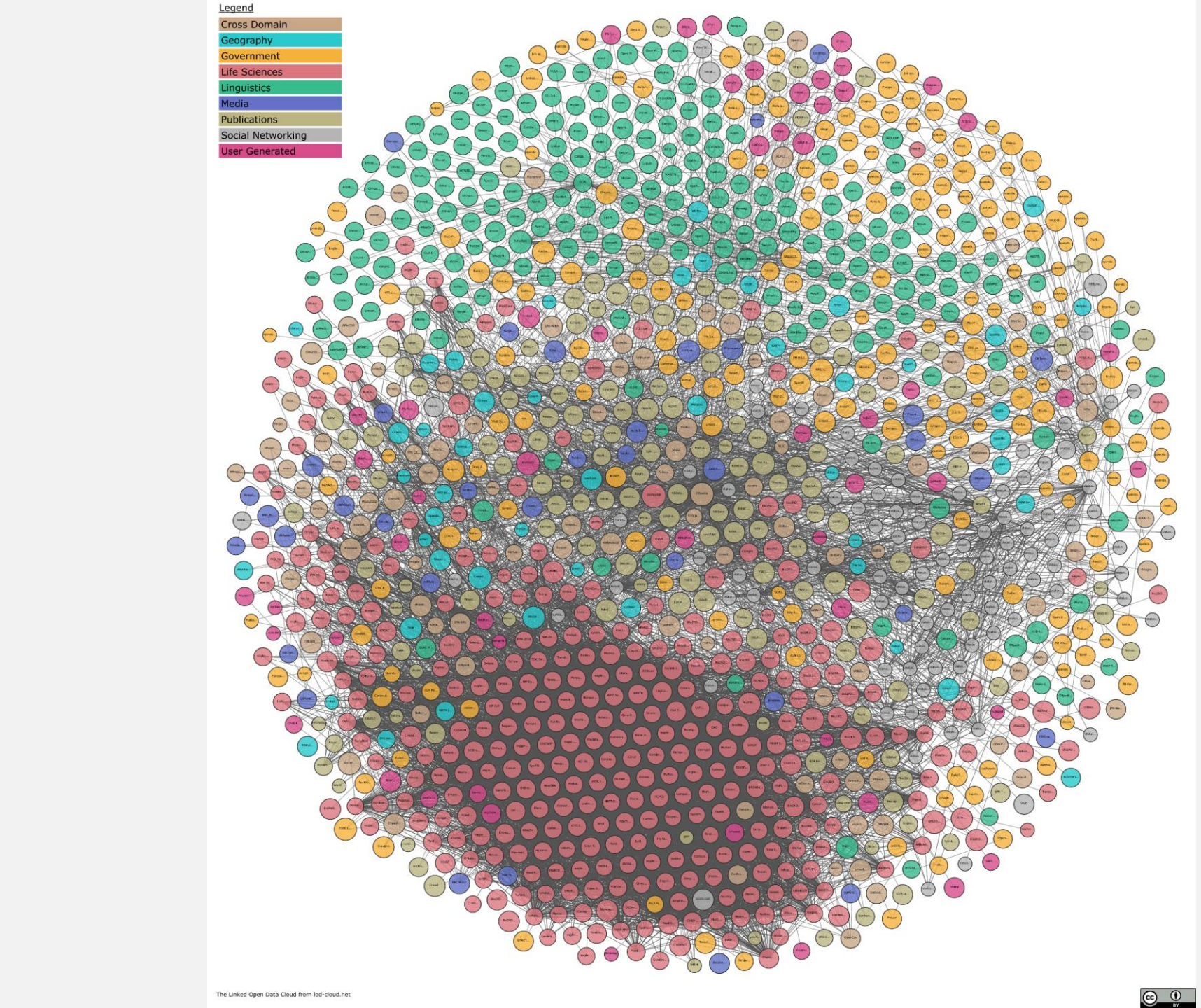

Legend
Cross Domain
Geography
Government
Life Sciences
Linguistics
Media
Publications
Social Networking
User Generated
07-2018
The Linked Open Data Cloud from lod-cloud.net

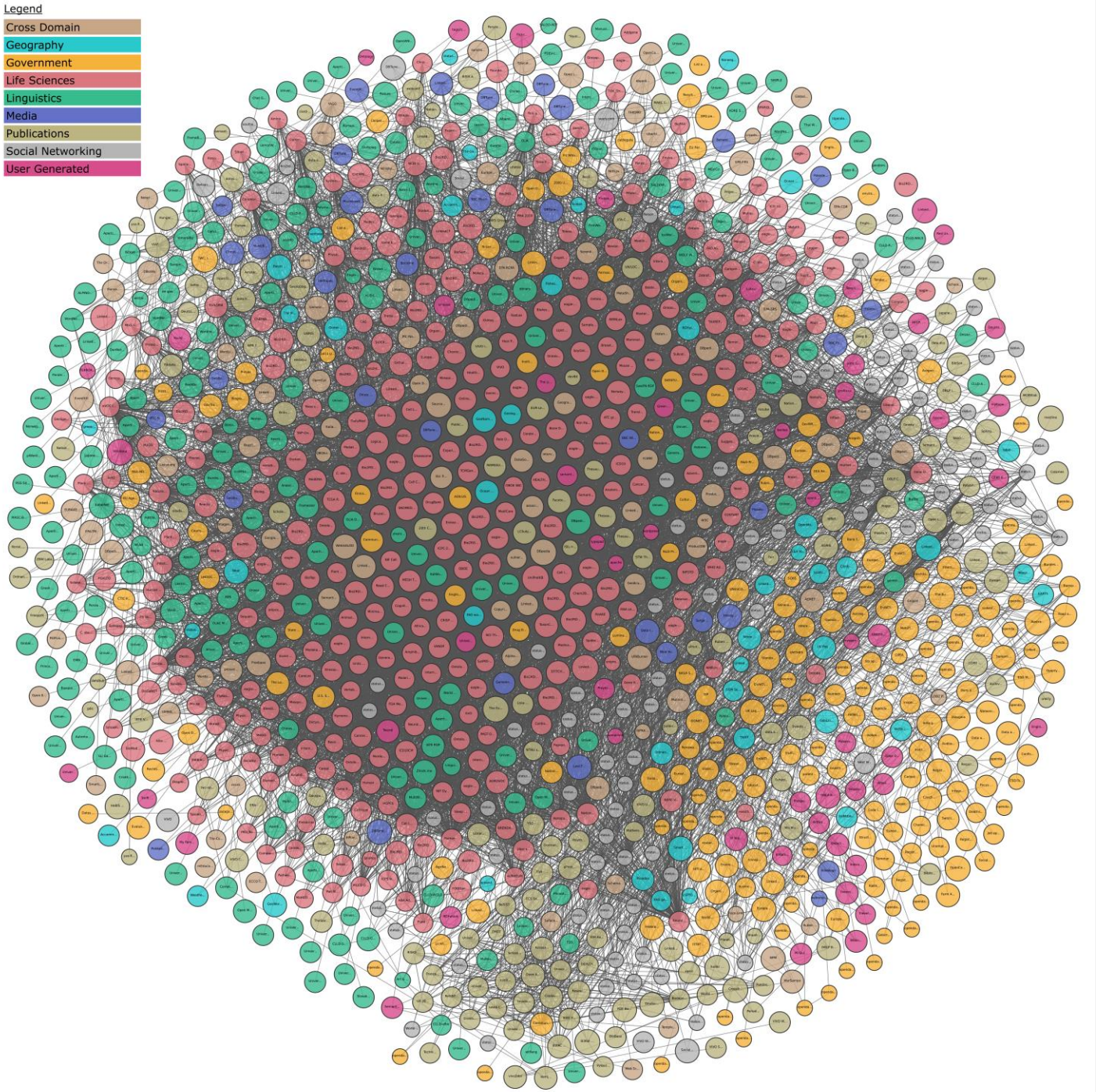


2019

The Linked Open Data Cloud from lod-cloud.net

CC BY


Legend
Cross Domain
Geography
Government
Life Sciences
Linguistics
Media
Publications
Social Networking
User Generated
2020
The Linked Open Data Cloud from lod-cloud.net


Legend
Cross Domain
Geography
Government
Life Sciences
Linguistics
Media
Publications
Social Networking
User Generated
The Linked Open Data Cloud from lod-cloud.net

2022

PROBLEMS

- Lack of control
- No possibility to revoke opened data
- Discrepancies in terminology
- Lack of simple tools
- Copyright problems

BENEFITS

- Increased visibility of institutions and resources on the Web
- „The best way to make information held in cultural institutions visible in the public domain" [Europeana]
- content enrichment
- Use of data in applications, portals, web services (e.g. Google, Bing)
- facilitate information retrieval
- Use of solutions developed by libraries
- linking bibliographic data to other data on the web
- maintaining a high authoritative data
- Create opportunities for unintentional discovery of new resources

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Thank you!

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