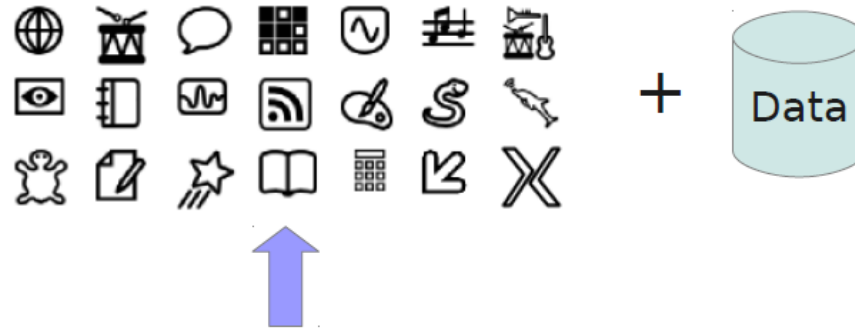
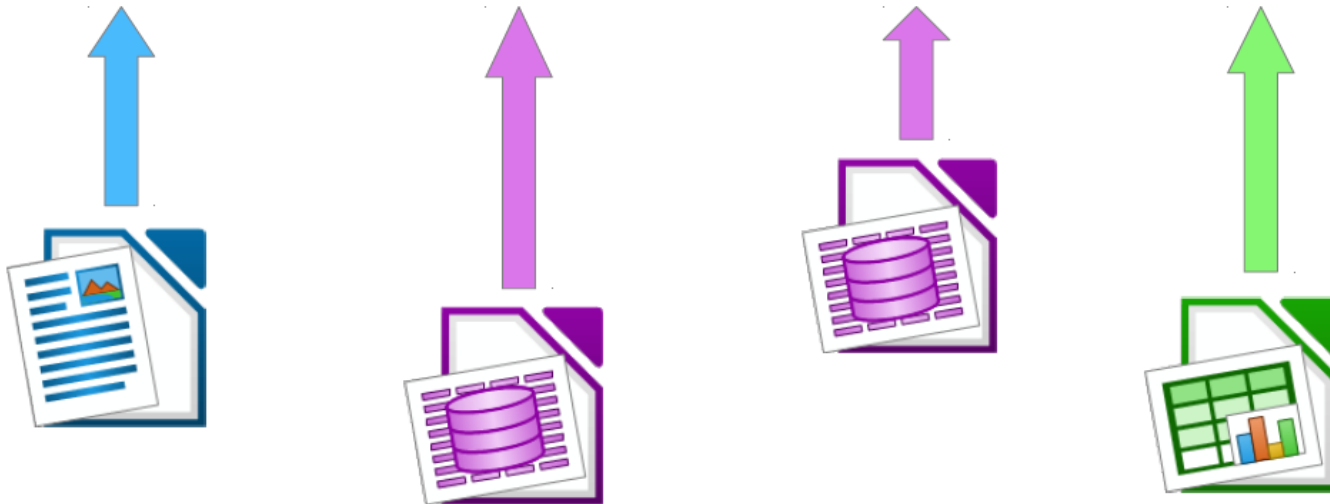


# Consuming Linked Data

# From an application point of view: Why linked data (1/2)



Data integration realised at application level



Inspired from <http://www.slideshare.net/ABLVienna>, Icons by <http://yumakino.deviantart.com/>

# Why linked data (2/2)

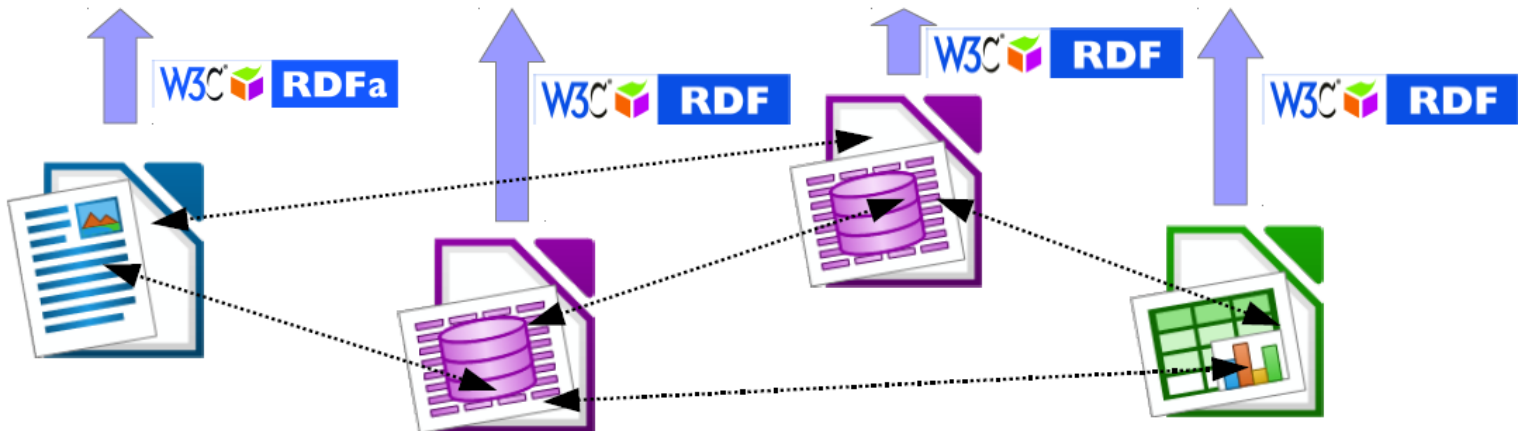


Application



W3C SPARQL

Integration on data level



Inspired from <http://www.slideshare.net/ABLVienna>, Icons by <http://yumakino.deviantart.com/>

# Examples: Linked Data Browsers

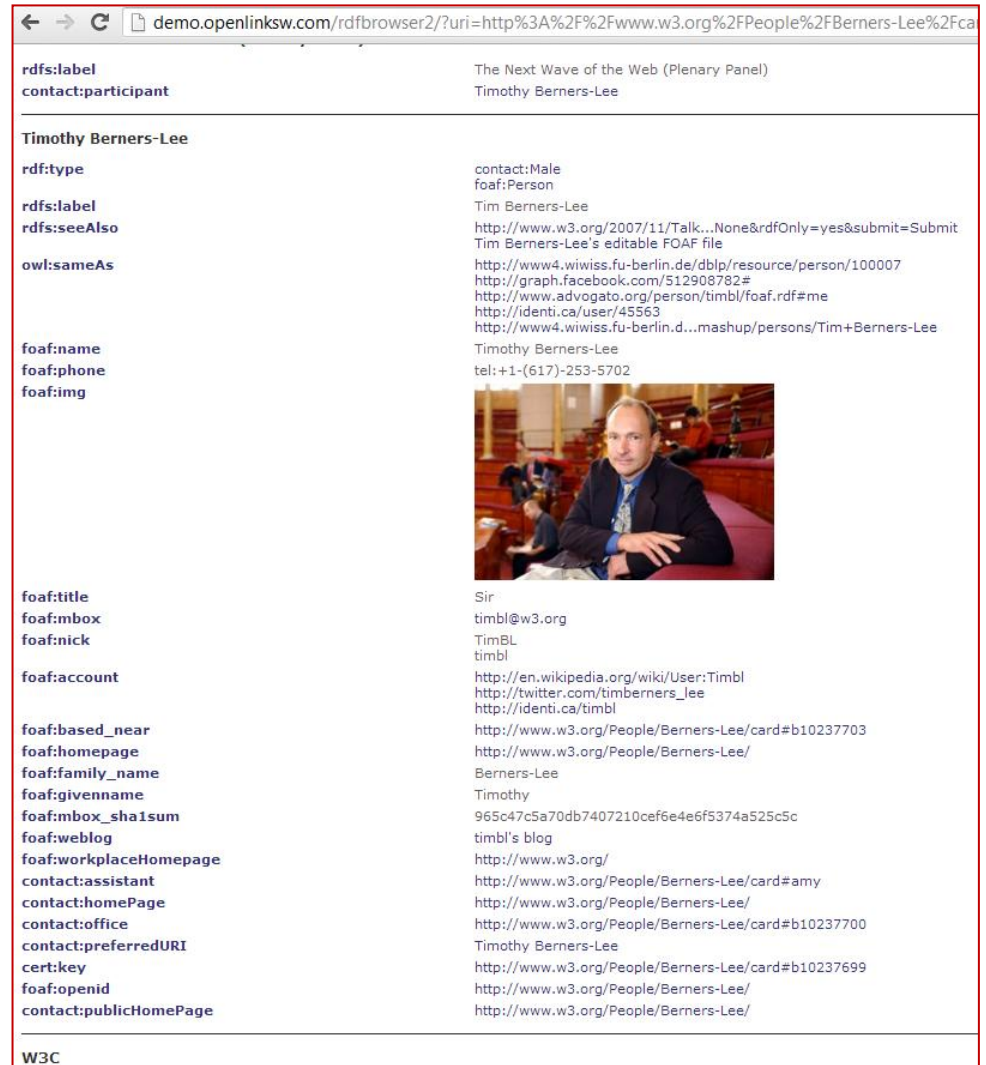
Allow you to browse remote linked data, clicking through linked resources and visualising images etc.

Tabulator


Disco

Marbles

OpenLink data browser



The screenshot shows a web browser window displaying a profile for Timothy Berners-Lee. The browser's address bar shows the URL: <http://demo.openlinksw.com/rdfbrowser2/?uri=http%3A%2F%2Fwww.w3.org%2Fpeople%2FBerners-Lee%2Fcard%23i>. The profile is presented in a tabular format with two columns: property names and their corresponding values. The properties include `rdfs:label`, `contact:participant`, `Timothy Berners-Lee`, `rdf:type`, `foaf:name`, `foaf:phone`, `foaf:img`, `foaf:title`, `foaf:mbox`, `foaf:nick`, `foaf:account`, `foaf:based_near`, `foaf:homepage`, `foaf:family_name`, `foaf:givenname`, `foaf:mbox_sha1sum`, `foaf:weblog`, `foaf:workplaceHomepage`, `contact:assistant`, `contact:homePage`, `contact:office`, `contact:preferredURI`, `cert:key`, `foaf:openid`, and `contact:publicHomePage`. The values for these properties include the name "Timothy Berners-Lee", a photograph of him, his email address "timbl@w3.org", and various URLs related to his work and personal life. The browser window also shows a "W3C" logo at the bottom.

<code>rdfs:label</code>	The Next Wave of the Web (Plenary Panel)
<code>contact:participant</code>	Timothy Berners-Lee
<b>Timothy Berners-Lee</b>	
<code>rdf:type</code>	contact:Male foaf:Person
<code>rdfs:label</code>	Tim Berners-Lee
<code>rdfs:seeAlso</code>	<a href="http://www.w3.org/2007/11/Talk...None&amp;rdfOnly=yes&amp;submit=Submit">http://www.w3.org/2007/11/Talk...None&amp;rdfOnly=yes&amp;submit=Submit</a> <a href="http://graph.facebook.com/512908782#">http://graph.facebook.com/512908782#</a> <a href="http://www.4.wiwiis.fu-berlin.de/dblp/resource/person/100007">http://www.4.wiwiis.fu-berlin.de/dblp/resource/person/100007</a> <a href="http://www.advogato.org/person/timbl/foaf.rdf#me">http://www.advogato.org/person/timbl/foaf.rdf#me</a> <a href="http://identi.ca/user/45563">http://identi.ca/user/45563</a> <a href="http://www4.wiwiis.fu-berlin.d...mashup/persons/Tim+Berners-Lee">http://www4.wiwiis.fu-berlin.d...mashup/persons/Tim+Berners-Lee</a>
<code>owl:sameAs</code>	<a href="http://www4.wiwiis.fu-berlin.d...mashup/persons/Tim+Berners-Lee">http://www4.wiwiis.fu-berlin.d...mashup/persons/Tim+Berners-Lee</a>
<code>foaf:name</code>	Timothy Berners-Lee
<code>foaf:phone</code>	tel: +1-(617)-253-5702
<code>foaf:img</code>	
<code>foaf:title</code>	Sir
<code>foaf:mbox</code>	timbl@w3.org
<code>foaf:nick</code>	TimBL timbl
<code>foaf:account</code>	<a href="http://en.wikipedia.org/wiki/User:Timbl">http://en.wikipedia.org/wiki/User:Timbl</a> <a href="http://twitter.com/timberners_lee">http://twitter.com/timberners_lee</a> <a href="http://identi.ca/timbl">http://identi.ca/timbl</a>
<code>foaf:based_near</code>	<a href="http://www.w3.org/People/Berners-Lee/card#b10237703">http://www.w3.org/People/Berners-Lee/card#b10237703</a>
<code>foaf:homepage</code>	<a href="http://www.w3.org/People/Berners-Lee/">http://www.w3.org/People/Berners-Lee/</a>
<code>foaf:family_name</code>	Berners-Lee
<code>foaf:givenname</code>	Timothy
<code>foaf:mbox_sha1sum</code>	965c47c5a70db7407210cef6e4e6f5374a525c5c
<code>foaf:weblog</code>	timbl's blog
<code>foaf:workplaceHomepage</code>	<a href="http://www.w3.org/">http://www.w3.org/</a>
<code>contact:assistant</code>	<a href="http://www.w3.org/People/Berners-Lee/card#amy">http://www.w3.org/People/Berners-Lee/card#amy</a>
<code>contact:homePage</code>	<a href="http://www.w3.org/People/Berners-Lee/">http://www.w3.org/People/Berners-Lee/</a>
<code>contact:office</code>	<a href="http://www.w3.org/People/Berners-Lee/card#b10237700">http://www.w3.org/People/Berners-Lee/card#b10237700</a>
<code>contact:preferredURI</code>	Timothy Berners-Lee
<code>cert:key</code>	<a href="http://www.w3.org/People/Berners-Lee/card#b10237699">http://www.w3.org/People/Berners-Lee/card#b10237699</a>
<code>foaf:openid</code>	<a href="http://www.w3.org/People/Berners-Lee/">http://www.w3.org/People/Berners-Lee/</a>
<code>contact:publicHomePage</code>	<a href="http://www.w3.org/People/Berners-Lee/">http://www.w3.org/People/Berners-Lee/</a>

# Queens of the Stone Age

Formed 1996.



MARY ANNE HOBBS | BBC RADIO 6 MU 6IC

## Joshua Homme: Key Of Life Interview With Mary Anne Hobbs (Extended Cut)

Hear candid words of wisdom from the Queens of the Stone Age front man

QUEEN S OF THE STONE AGE 1-4 OF 6

Featured on BBC MUSIC SHOWCASE



JOSHUA HOMME: KEY OF LIFE...



JOSH HOMME CATCHE & UP WITH ZANE AT...



QUEEN S OF THE STONE AGE - NO ONE...



QUEEN S OF THE STONE AGE LIVE AT...

## Biography

Queens of the Stone Age is an American rock band from Palm Desert, California, United States, formed in 1996. The band's line-up includes founder Josh Homme (lead vocals, guitar, piano), alongside longtime members Troy Van Leeuwen (guitar, lap steel, keyboard, percussion, backing vocals), Michael Shuman (bass guitar, keyboard, backing vocals), Dean Fertita (keyboards, guitar, percussion, backing vocals), and recent addition Jon Theodore (drums, percussion).

Formed after the dissolution of Homme's previous band, Kyuss, Queens of the Stone Age developed a style of riff-oriented, heavy rock music. Their sound has since evolved to incorporate a variety of different styles and influences, including working with ZZ Top member Billy Gibbons and steady contributor Mark Lanegan.

[Read more at Wikipedia...](#)

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## Links & Information

### LINKS

Official homepage at [qotsa.com](http://qotsa.com)

Fanpage at [qotsa.mskiteonline.com](http://qotsa.mskiteonline.com)

Youtube at [youtube.com/user/QueensStoneAgeVEVO](http://youtube.com/user/QueensStoneAgeVEVO)

MySpace at [myspace.com/queensofthestoneage](http://myspace.com/queensofthestoneage)

Wikipedia article on [Queens of the Stone Age](#)

IMDb at [imdb.com/name/nm1692949](http://imdb.com/name/nm1692949)

Last.fm page on [Queens of the Stone Age](#)

Discogs at [discogs.com/artist/Queens Of The Stone Age](http://discogs.com/artist/Queens Of The Stone Age)

PLAYED MOST ON **6 music**

Share This Page 122 so far

Share

## More BBC Music Highlights



## Latest Tracks Played On The BBC

### I Sat By The Ocean

BBC RADIO 6 MUSIC | RADCLIFFE AND MACONIE WILL GREGORY OF GOLDFRAPP

### My God Is The Sun

BBC RADIO 1 | ROCK SHOW WITH DANIEL P CARTER ENTER SHIKARI SIT IN FOR DAN

### In My Head

BBC RADIO 6 MUSIC | MARY ANNE HOBBS S SONIC SUNDAY AND THE BBC PROMS

### The Lost Art Of Keeping A Secret

BBC RADIO 6 MUSIC | RADCLIFFE AND MACONIE 26/07/2013

### Smooth Sailing

BBC RADIO 6 MUSIC | SHAUN KEAVENY MARY ANNE HOBBS SITS IN

## Played By

Since December 2008



Zane Lowe  
BBC Radio 1



Shaun Keaveny  
BBC Radio 6 Music



Lauren Laverne  
BBC Radio 6 Music



Chris Hawkins  
BBC Radio 6 Music



Steve Lamacq  
BBC Radio 6 Music



6 Music's Jukebox  
BBC Radio 6 Music

# Examples: BBC music

[www.bbc.co.uk/music](http://www.bbc.co.uk/music)

# OpenPhacts explorer

The screenshot displays the Open PHACTS Explorer web application. The interface includes a navigation sidebar on the left with categories like Compound, Target, and Pharmacology. The main content area shows search results for 'Aspirin', including its chemical structure, key properties (e.g., ALogP, H-Bond Acceptors/Donors, Mol Weight), and detailed pharmacology and toxicity data.

**Open PHACTS Explorer**

Navigation: Compound, Target, Pharmacology

Compound by name search results

Compound name: Aspirin

Hint: Type in compound name. E.g. "Aspirin"

Provenance: On Off

**Aspirin**

Pharmacology Data ChemSpider Info

The prototypical analgesic used in the treatment of mild to moderate pain. It has anti-inflammatory and antipyretic properties and acts as an inhibitor of cyclooxygenase which results in the inhibition of the biosynthesis of prostaglandins. Aspirin also inhibits platelet aggregation and is used in the prevention of arterial and venous thrombosis. (From Martindale, The Extra Pharmacopoeia, 30th ed, p5)

Aspirin is rapidly hydrolyzed primarily in the liver to salicylic acid, which is conjugated with glycine (forming salicyluric acid) and glucuronic acid and excreted largely in the urine.

ChemSpider ID: [2157](#)

Molecular Formula:  $C_9H_8O_4$

SMILES: CC(=O)Oc1ccccc1C(=O)O

Standard InChI: InChI=1S/C9H8O4/c1-6(10)13-8-5-3-2-4-7(8)9(11)12/h2-5H,1H3,(H,11,12)

Standard InChIKey: BSYNRYMUTXBXSQ-UHFFFAOYSA-N

Protein Binding: High (99.5%) to albumin. Decreases as plasma salicylate concentration increases, with reduced plasma albumin concentration or renal dysfunction, and during pregnancy.

Toxicity: Oral, mouse:  $LD_{50} = 250$  mg/kg; Oral, rabbit:  $LD_{50} = 1010$  mg/kg; Oral, rat:  $LD_{50} = 200$  mg/kg. Effects of overdose include: tinnitus, abdominal pain, hypokalemia, hypoglycemia, pyrexia, hyperventilation, dysrhythmia, hypotension, hallucination, renal failure, confusion, seizure, coma, and death.

Melting Point:  $135$  °C (boiling point  $140$  °C)

ALogP: 1.4

# H-Bond Acceptors: 4

# H-Bond Donors: 1

Mol Weight: 180.157

MW Freebase: 180.157

Polar Surface Area ( $\text{\AA}^2$ ): 63.6

Feedback

# Data.gov.uk Organogram

The screenshot displays the Data.gov.uk Organogram interface for the Cabinet Office. The top navigation bar includes links for Home, Data, Participate, Data requests, Apps, Location, Linked Data, Library, and About. The main header shows 'Public Roles & Salaries' and 'Cabinet Office' with a dropdown menu and a 'Fullscreen' button. The breadcrumb trail indicates 'HM Government' > 'Departments' > 'Cabinet Office' > 'Cabinet Office' > 'Cabinet Office (2)'. The organogram shows a hierarchy starting with 'Cabinet Office' (Government in Parliament) and 'Cabinet Secretary' (Cabinet Office), with a dashed box indicating 'No Junior Posts'. A detailed panel for 'Cabinet Office' (Post ID 405) provides the following information:

Cabinet Office	
Post ID	405
Grade	OF-6
Combined salary of reporting posts	£0 [2013-03-31]
Working time	0.01
Role	Not Applicable
Notes	This is a placeholder for the purpose of anchoring the departmental structure. This is not a Cabinet Office post.
Profession	Other
Email	webmaster@cabinet-office.gov.uk
Phone	020 7276 1234
Unit(s)	Cabinet Office

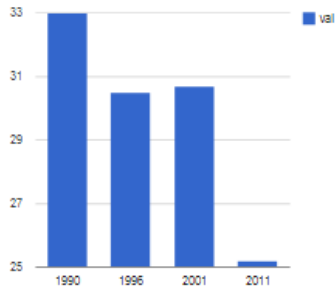
The interface also includes a sidebar with 'About', 'Orientation' (Top/Left), 'Version: 31/03/2013', and 'Sources' buttons.

<http://data.gov.uk/organogram/cabinet-office>

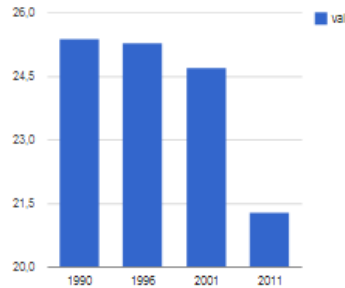
## Sierra Leone

From Geonames

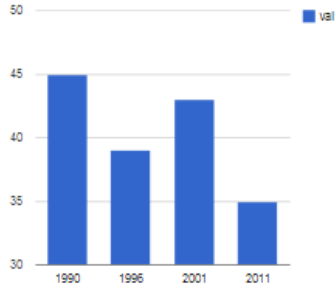
Global Hunger Index



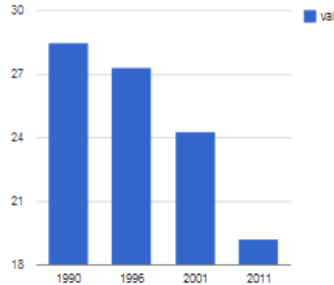
Prevalence of underweight in children under five (in %)



Proportion of children dying before the age of five (in %)



Proportion of the population that is undernourished (in %)



From DBpedia



Sierra Leone, officially the Republic of Sierra Leone, is a country in West Africa. It is bordered by Guinea to the northeast, Liberia to the southeast, and the Atlantic Ocean to the southwest. Sierra Leone is a constitutional representative democratic republic and covers a total area of 71,740 km (27,699 sq mi) Sierra Leone has a tropical climate, with a diverse environment ranging from savannah to rainforests. As of 2011, Sierra Leone has an estimated population of 6 million <http://www.bbc.co.uk/news/world-africa-14094377>. Freetown is the capital, largest city as well as its economic, commercial, educational, cultural and political centre. Bo is the country's second largest city and the second major economic and commercial centre. Sierra Leone is divided into four geographical regions: the Northern Province, Eastern Province, Southern Province and the Western Area; which are subdivided into fourteen districts. The districts have their own directly elected local government known as

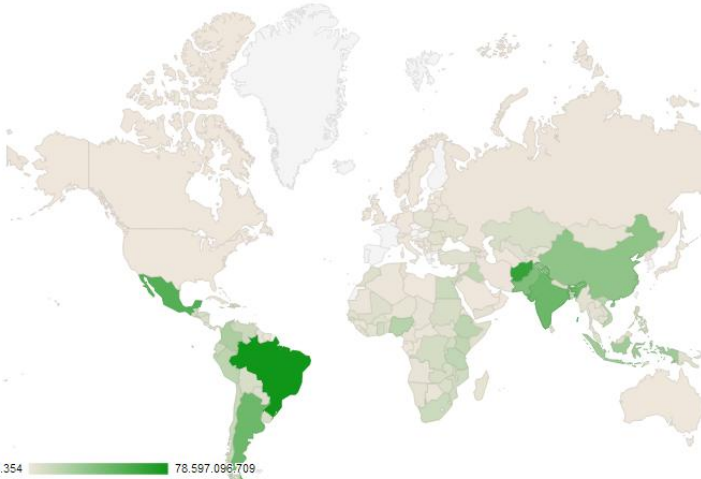
# Global hunger index



### Total amount of received transactions per country

All transaction values have been converted to USD, since transactions can be specified in different currencies. The current exchange rate is used, therefore this graph should be seen as a rough estimation.

Click on a country to visit the country page.



Disclaimer: Hungary and South Korea have been eliminated from the results, since their average was well below zero, making the chart un...

# IATI 2 LOD application



## Angola



Angola, officially the Republic of Angola, is a country in southern Africa bordered by Namibia on the south, the Democratic Republic of the Congo on the north, and Zambia on the east; its west coast is on the Atlantic Ocean with Luanda as its capital city. The exclave province of Cabinda has borders with the Republic of the Congo and the Democratic Republic of the Congo. The Portuguese were present in some—mostly coastal—points of the territory of what is now Angola, from the 16th to the 19th century, interacting in diverse ways with the peoples that lived there. In the 19th century they slowly and hesitantly began to establish themselves in the interior. Angola as a Portuguese colony encompassing the present territory was not established before the end of the 19th century, and "effective occupation", as required by the Berlin Conference (1884) was achieved only by the 1920s. Independence was achieved in 1975, after a protracted liberation war. After independence, Angola was the scene of an intense civil war from 1975 to 2002. The country has vast mineral and petroleum reserves, and its economy has on average grown at a two-digit pace since the 1990s, especially since the end of the civil war. In spite of this, standards of living remain low for the majority of the population, and life expectancy and infant mortality rates in Angola are among the worst-ranked in the world. At the same time, a minority has reached comfortable life standards, and the dominant stratum has succeeded in accumulating considerable wealth, so that social inequality in Angola is one of the highest in the world.

HDI rank: 146 (in 2011)

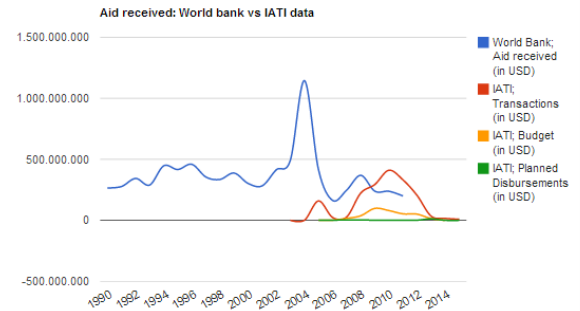
### Activities

Number of total activities: 1060  
Total amount of transactions: \$ 1,745,770,916  
Average amount per transaction: \$ 3,723,227  
Total amount of budget: \$ 623,033,805  
Total amount of planned disbursements: \$ 27,228,502

### Military conflicts

- 1978: Battle of Cassinga
- 1975: Battle of Quifangondo
- 1915: German campaign in Angola
- 1914: African theatre of World War I

### World Bank and IATI data



Kasper Brandt © 2013

← → ↻ wiki.dbpedia.org/DBpediaMobile ☆



[DBpedia Blog](#) | [Get Involved](#) | [Get Help](#)

## DBpedia Mobile

DBpedia Mobile is a location-centric DBpedia client application for mobile devices consisting of a map view, the [Marbles Linked Data Browser](#) and a GPS-enabled launcher application.

**Contents**

- 1. Usage
- 2. Positioning client for Windows Mobile
- 3. Credits
- 4. References

Based on the current GPS position of a mobile device, DBpedia Mobile renders a map containing information about nearby locations from the DBpedia dataset. Geographic locations are currently available for 300,000 of DBpedia's 2.18 million "things". It uses the [Marbles Linked Data Browser](#) to render [Fresnel](#)-based views for selected resources, as well as its SPARQL capabilities to build the map view. Starting from the map, users can explore background information about locations and can navigate into DBpedia and other [interlinked datasets](#) such as [GeoNames](#), [Revyu](#), [EuroStat](#) and [Flickr](#).



The same view with Chinese labels

**Try it out!**

[Beijing \(Phone, Browser\)](#) [Berlin](#) [London](#) [IP Location](#)  
[Windows Mobile client](#)

How do I do it?

# 1. Three main ways of accessing remote Linked Data

1. Through HTTP request on the resource URI
2. Through SPARQL queries
3. Get a copy of a dataset

# 1. Through HTTP request on the resource URI

- HTTP GET on resource, parse, follow links
  - Simple HTTP requests and RDF parsing
  - Requires dereferencable URIs
  - One request per resource: may require many requests
- Local caching can be done
- Crawling

## 2. Through SPARQL queries

- Full-blown query language
- Needs SPARQL endpoint

```
$query =  
"SELECT distinct ?title ?description WHERE {  
?x <http://data.open.ac.uk/podcast/ontology/relatesToCourse>  
<http://data.open.ac.uk/course/t209>.  
?x <http://purl.org/dc/terms/title> ?title.  
?x <http://www.w3.org/TR/2010/WD-mediaont-10-20100608/description> ?description }  
LIMIT 10  
";  
  
$requestURL = 'http://data.open.ac.uk/query?query=' . urlencode($query);  
$response = request($requestURL);
```

SPARQL in PHP example

<http://www.greenhughes.com/content/approach-consuming-linked-data-php>

# 3. Get a local copy of a dataset

- through SPARQL CONSTRUCT,
- crawling or
- Direct file download
  
- Save in triple store
  - or convert to something else

# RDF Libraries

Redland: <http://www.librdf.org/> Perl, Python, PHP, Ruby, C#, Objective-C

Jena: <http://jena.sourceforge.net/> Java

RDFLib: <http://www.rdfliib.net/> Python

ARC2: <http://arc2.semsol.net/> PHP

ActiveRDF: <http://www.activerdf.org/> Ruby

