

Using the Web to Link Data

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About Talis

- Birmingham-based software company
 - circa 85 people worldwide
- Past: established nearly 40 years ago to deliver large collaborative metadata systems
- Present: very stable with over 100 customers - public authorities and universities
- Present + Future: global data platform supporting ours and others' applications



Why Am I Here?



Overview

- About me (in a nutshell)
- Why data needs to be linked – an analogy
- Using the Web to link data
- Real examples
- Conclusions



About Me (In A Nutshell)



About Me (In A Nutshell)

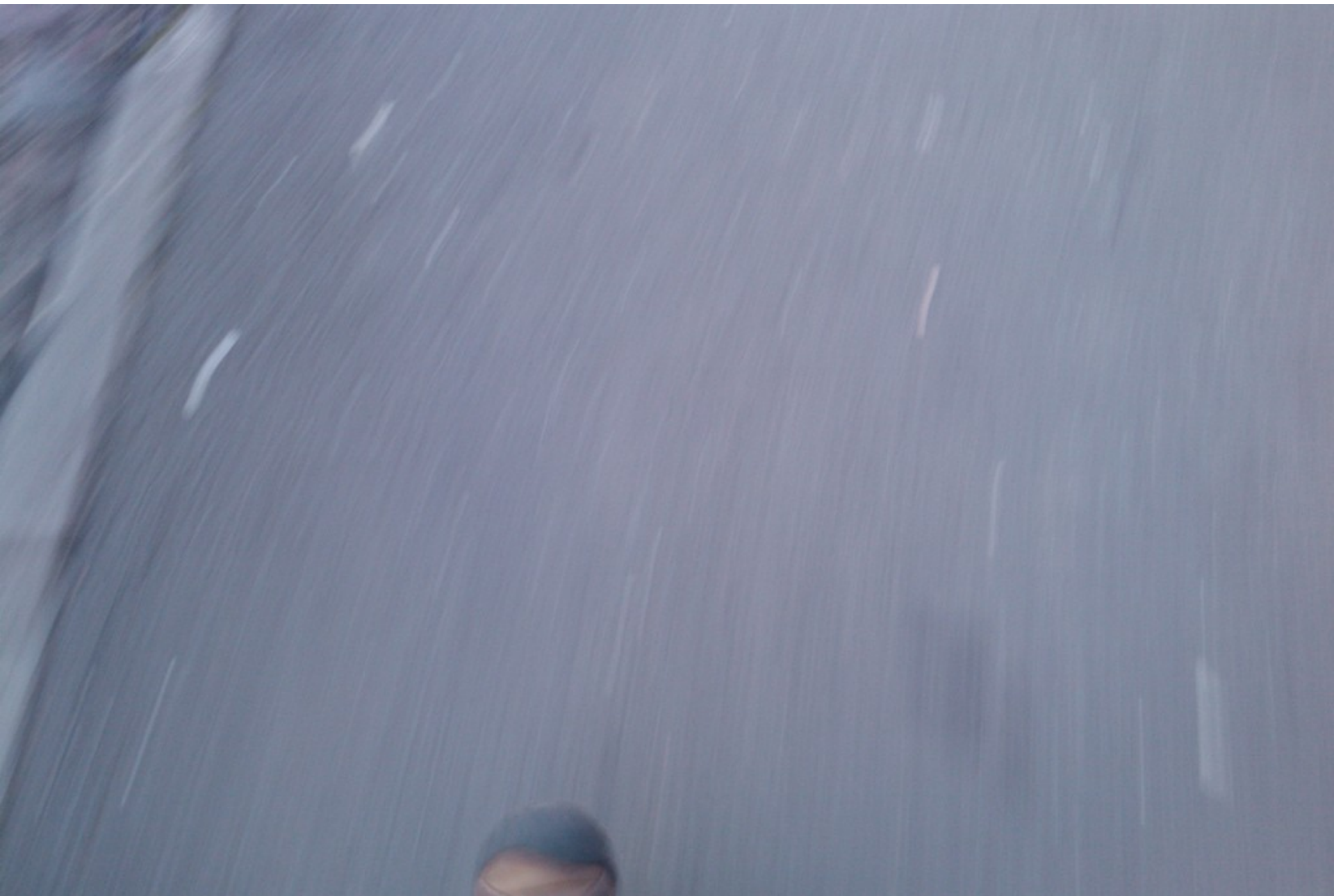
Tom lives in Bristol

Tom works for Talis

Talis is based in Birmingham



Let's go to Work!



Edward W. Godwin
1833 - 1886

Bristol born architect, furniture
and fabric designer. His work
includes the Carriageworks,
Stokes Croft and Highbury
Chapel, St. Michael's Hill.

Lived here from 1862 to 1865



















<http://www.flickr.com/photos/apenguincalledelvis/>





talis®

About Talis

Careers

Corporate Overview

Board Members

Management Team

Contact Us

Location

Talis Intranet

Site Map

Legal

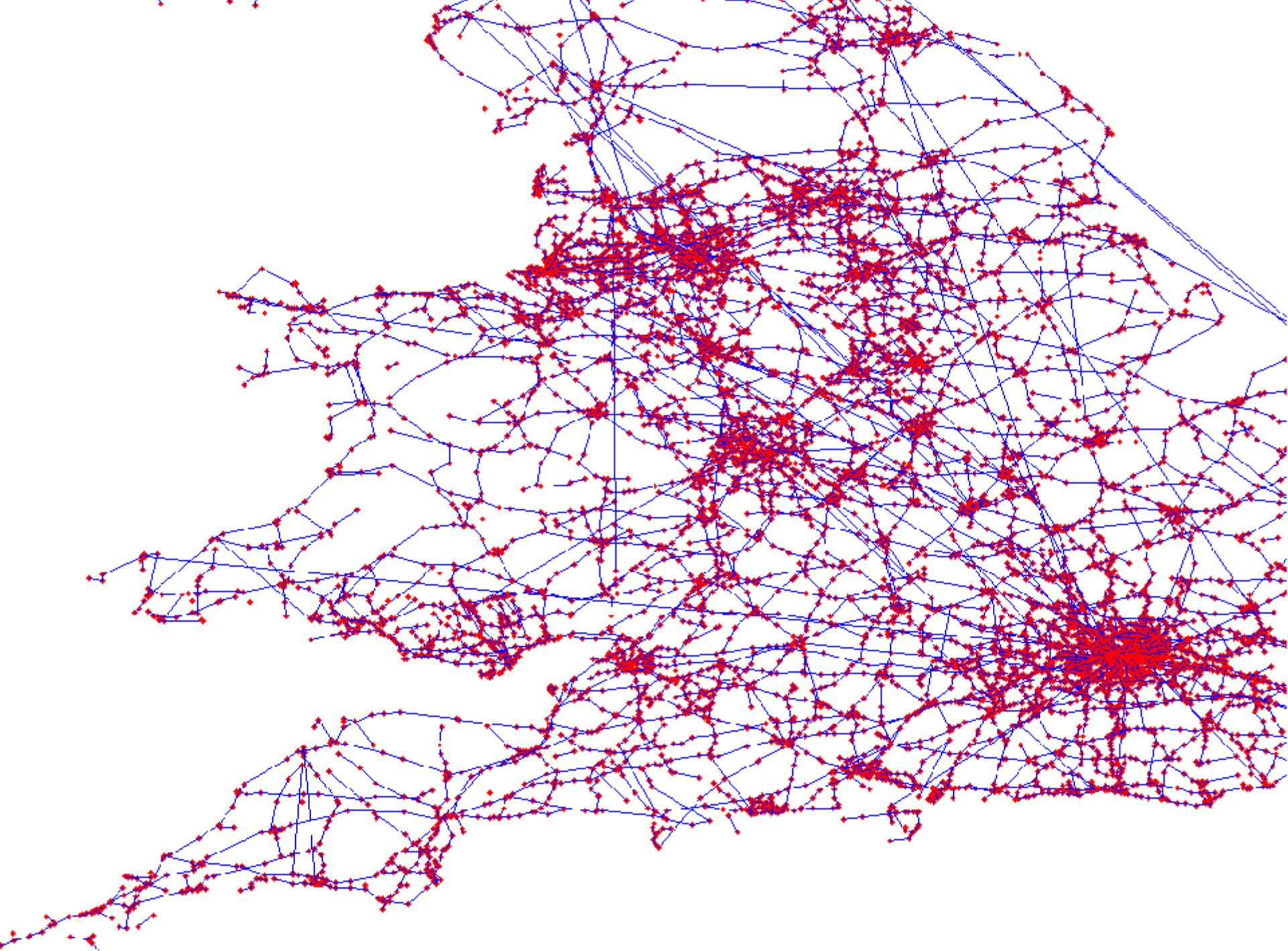


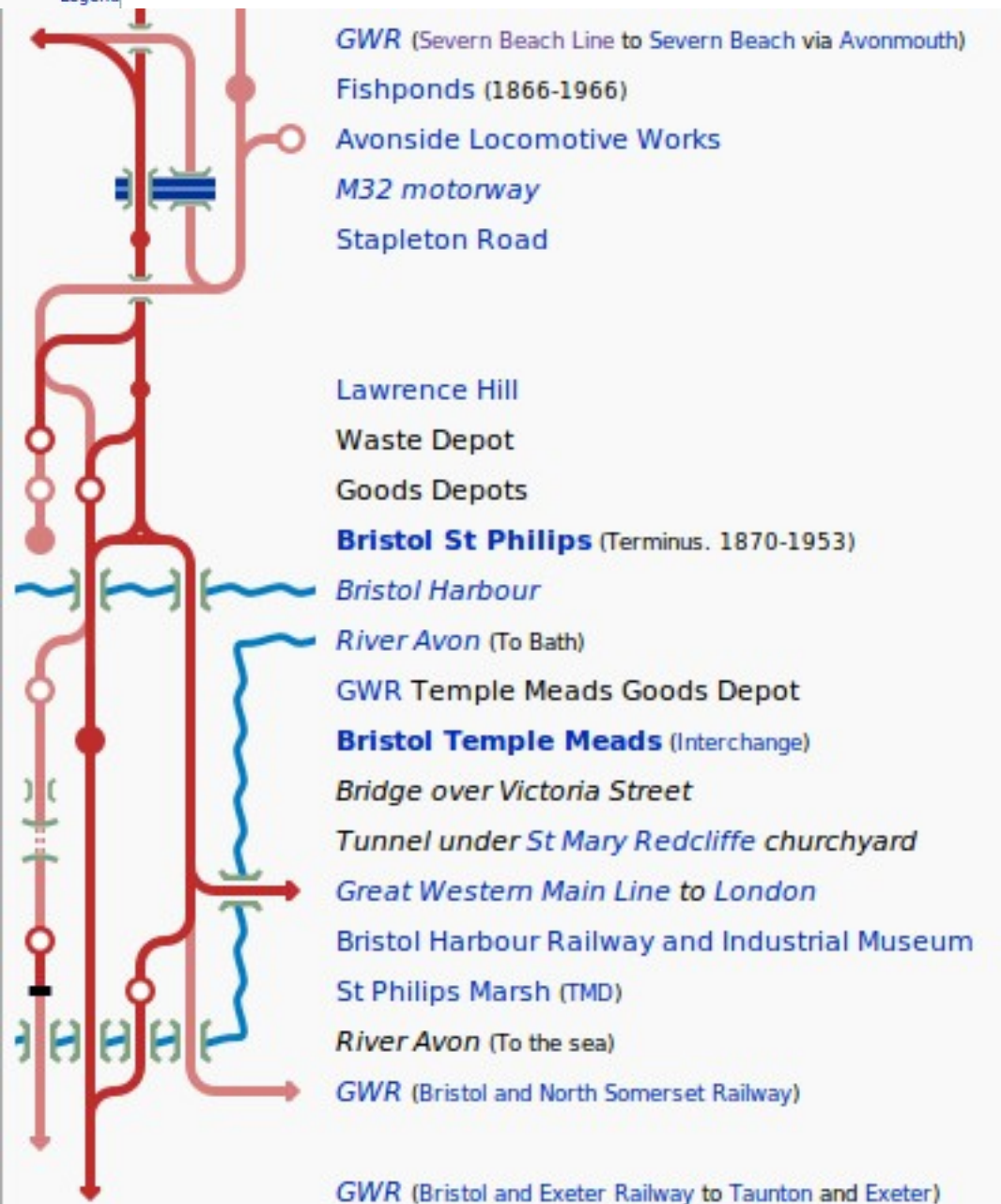
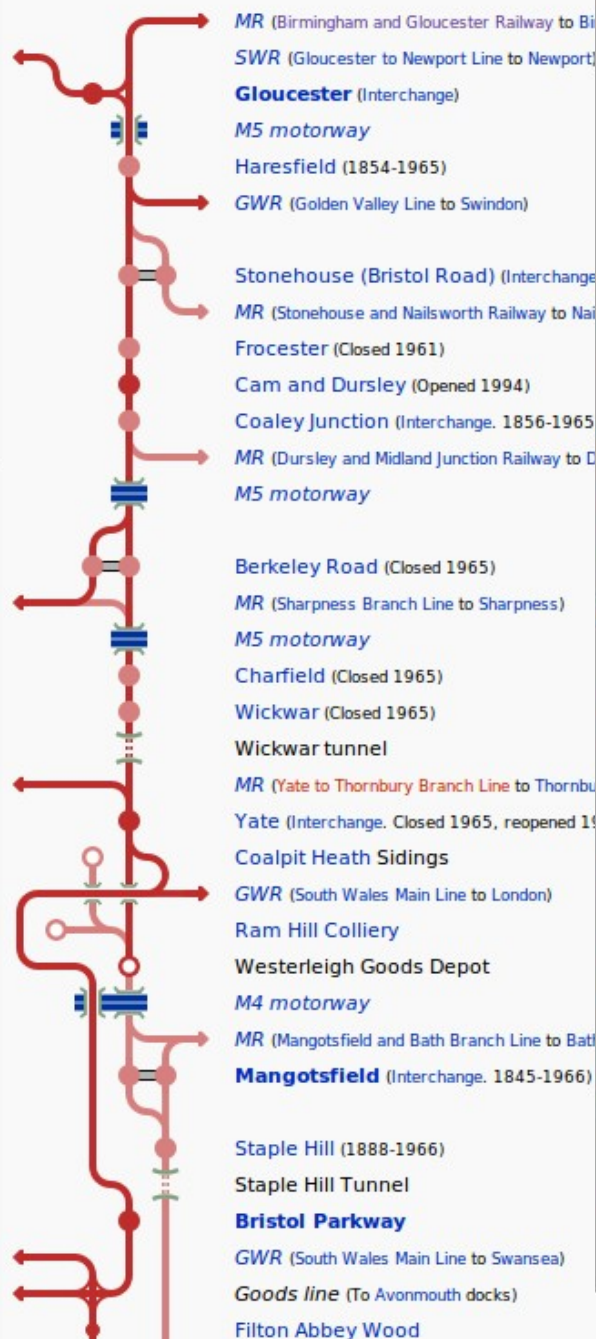
How to find Talis





What Makes This Possible?









The Historical Perspective

The Historical Perspective

“At that time, the **canal journey** from Birmingham to Bristol took **almost a week**, and the **road journey**, which due to **expense** and **road quality** was only really suitable for passengers, took the **best part of four days**.”

http://en.wikipedia.org/wiki/Birmingham_and_Gloucester_Railway

The Historical Perspective

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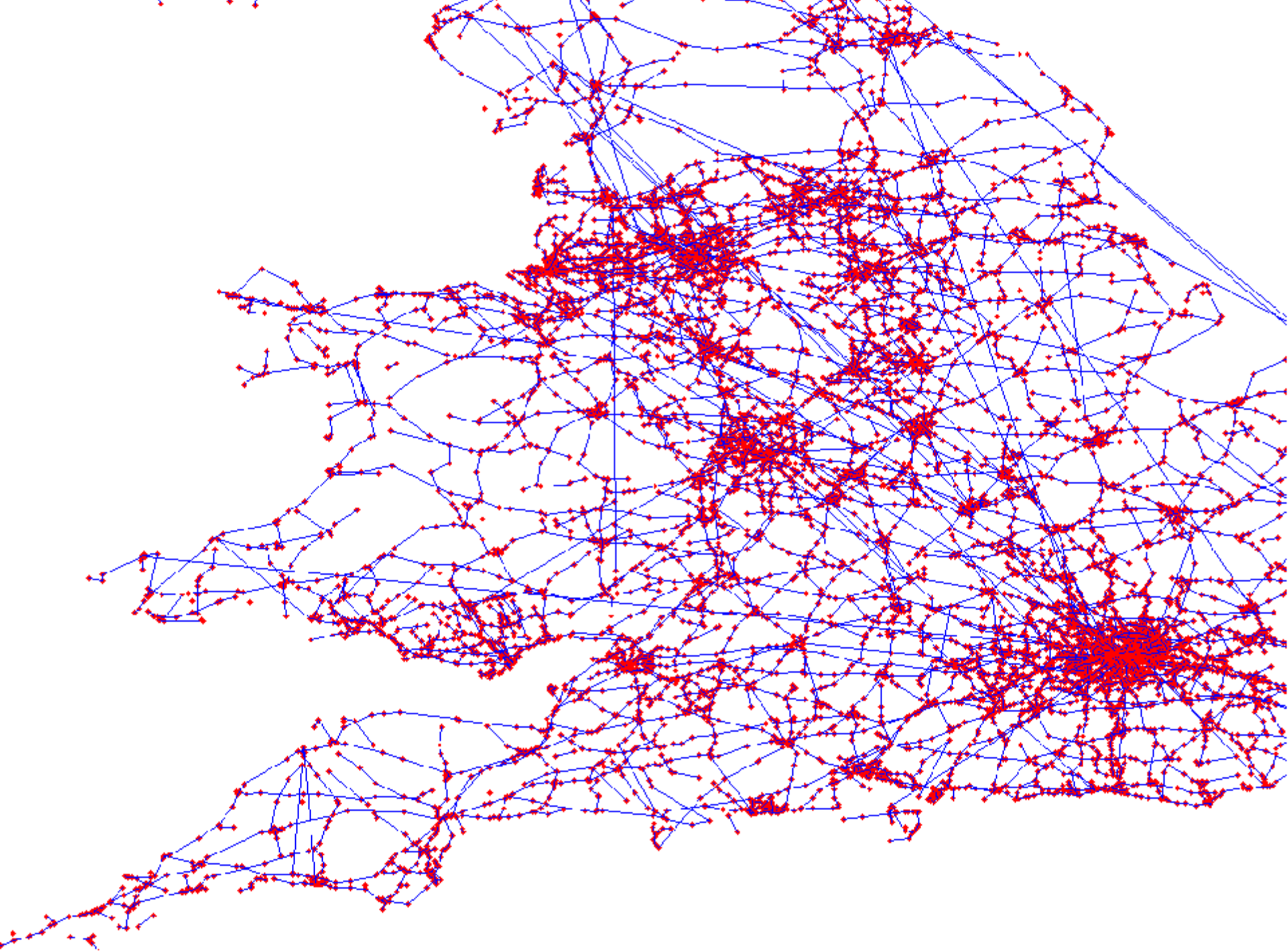
http://en.wikipedia.org/wiki/Birmingham_and_Gloucester_Railway

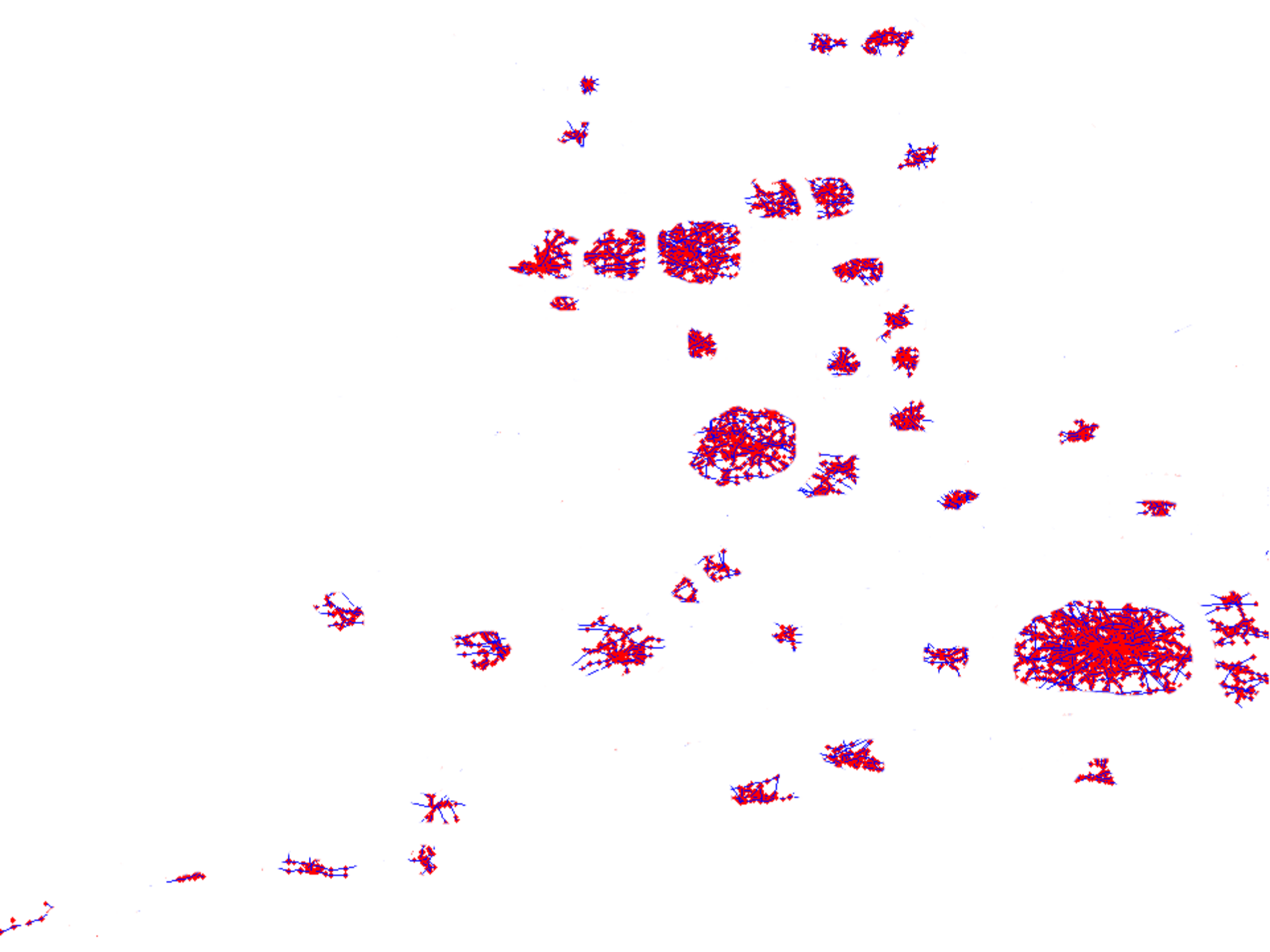
“The '**break-of-gauge**' at **Gloucester** was a **major problem**. It caused **pandemonium** as **whole trainloads** of passengers, and their luggage, **changed from one to another**, together with the transshipment of goods.”

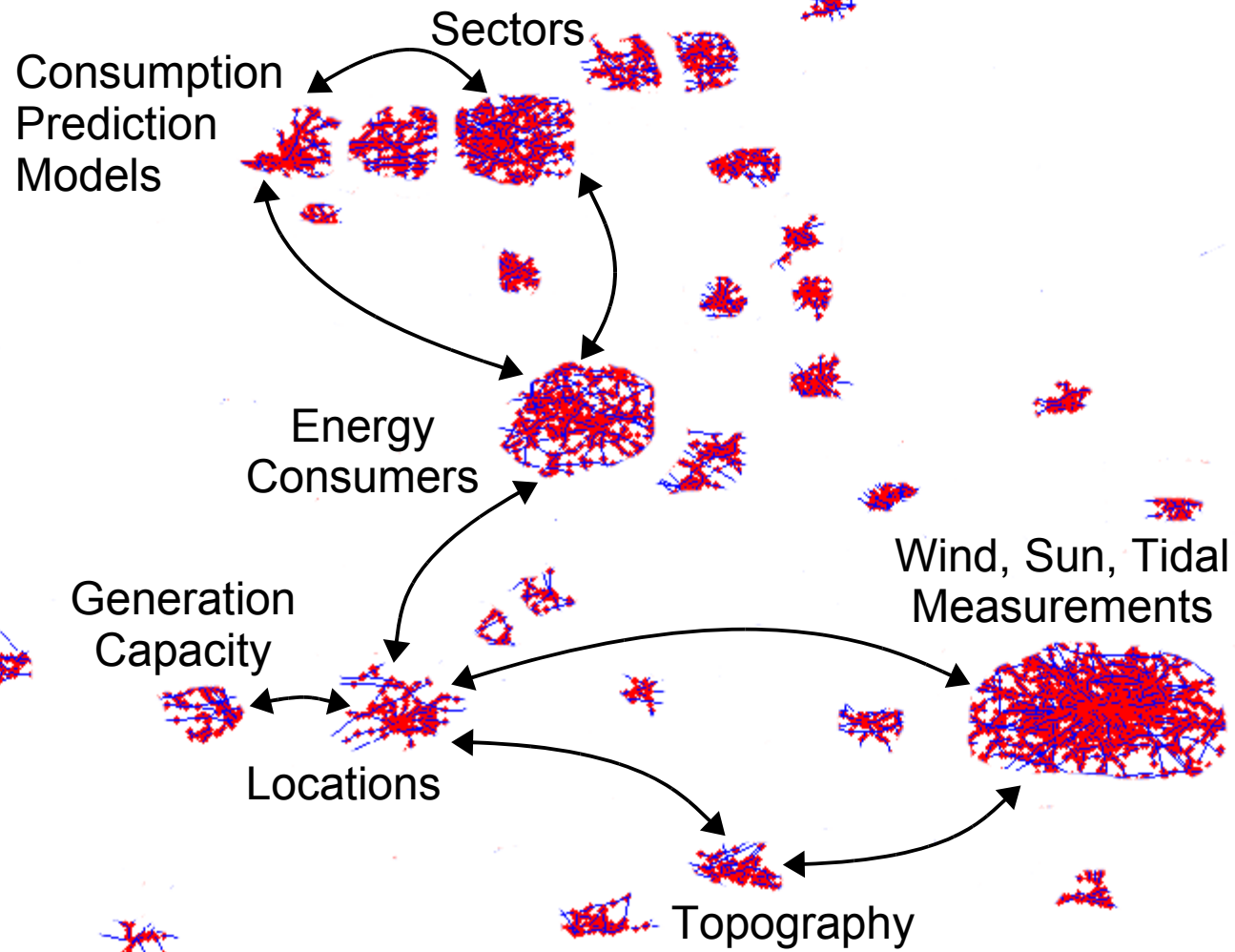
http://en.wikipedia.org/wiki/Birmingham_and_Bristol_Railway



If Cities Were Data







Gloucester is a Mashup

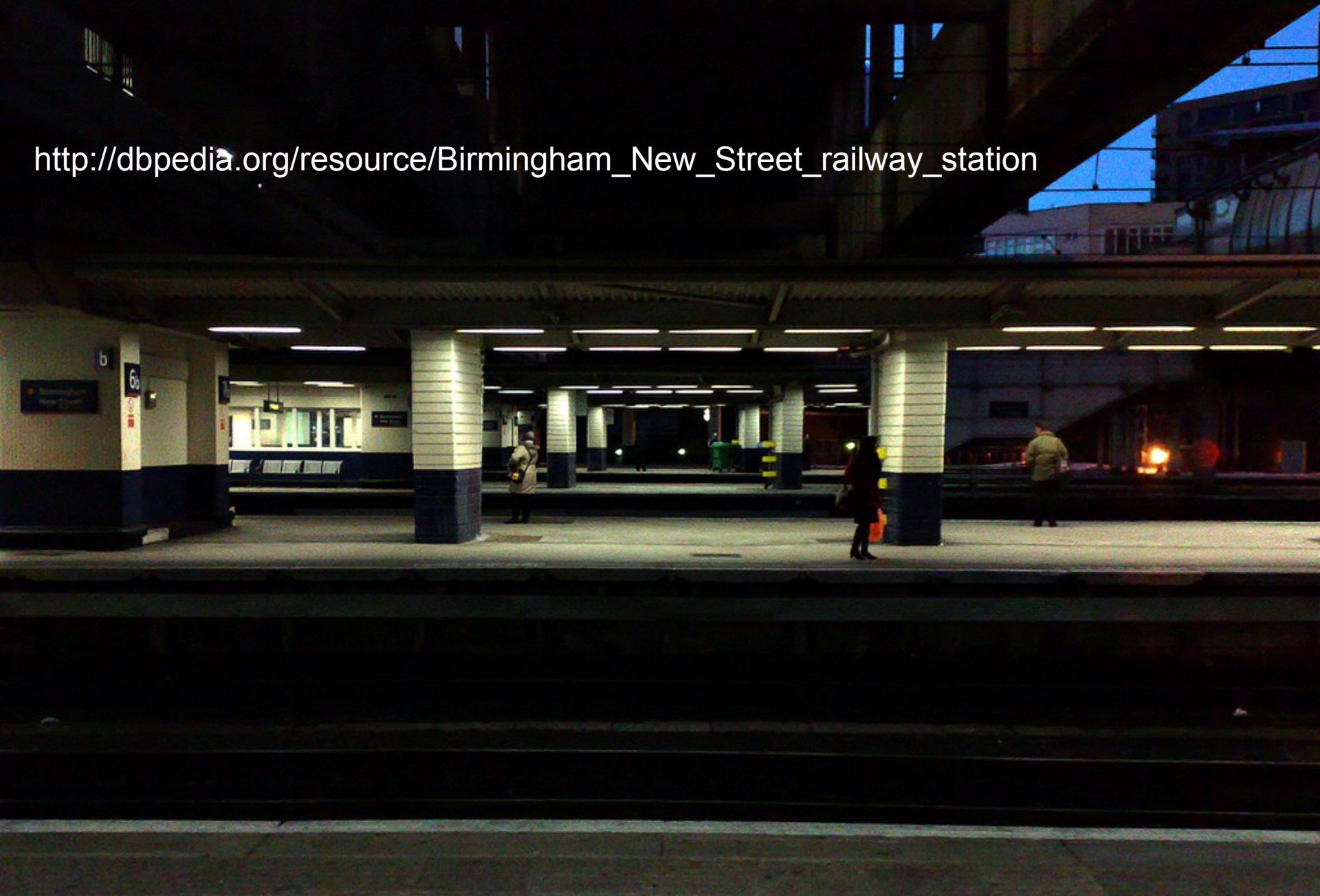
Using the Web to Link Data



Using the Web to Link Data - How?

1. Assign URIs to (any) things you want to talk about

http://dbpedia.org/resource/Birmingham_New_Street_railway_station



<http://www.flickr.com/photos/apenguincalledelvis/>



http://dbpedia.org/resource/Lickey_Incline

http://www.flickr.com/photos/_mia/



http://dbpedia.org/resource/Bristol_Temple_Meads_railway_station





http://dbpedia.org/resource/Cabot_Circus



http://dbpedia.org/resource/Portland_Square%2C_Bristol

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Bristol born architect, furniture
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Stokes Croft and Highbury
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Lived here from 1862 to 1865

http://dbpedia.org/resource/Edward_William_Godwin

Edward W. Godwin
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Bristol born architect, furniture and fabric designer. His work includes the Carriageworks, Stokes Croft and Highbury Chapel, St. Michael's Hill.

Lived here from 1862 to 1865

<http://sws.geonames.org/2654675/>

http://dbpedia.org/resource/Carriage_Works%2C_Bristol



Using the Web to Link Data - How?

1. Assign URIs to (any) things you want to talk about
2. Publish data that says how these things are related



“Talis is Based Near Birmingham”

<http://dbpedia.org/resource/Talis_Group>

<http://xmlns.com/foaf/0.1/based_near>

<<http://sws.geonames.org/3333125/>>

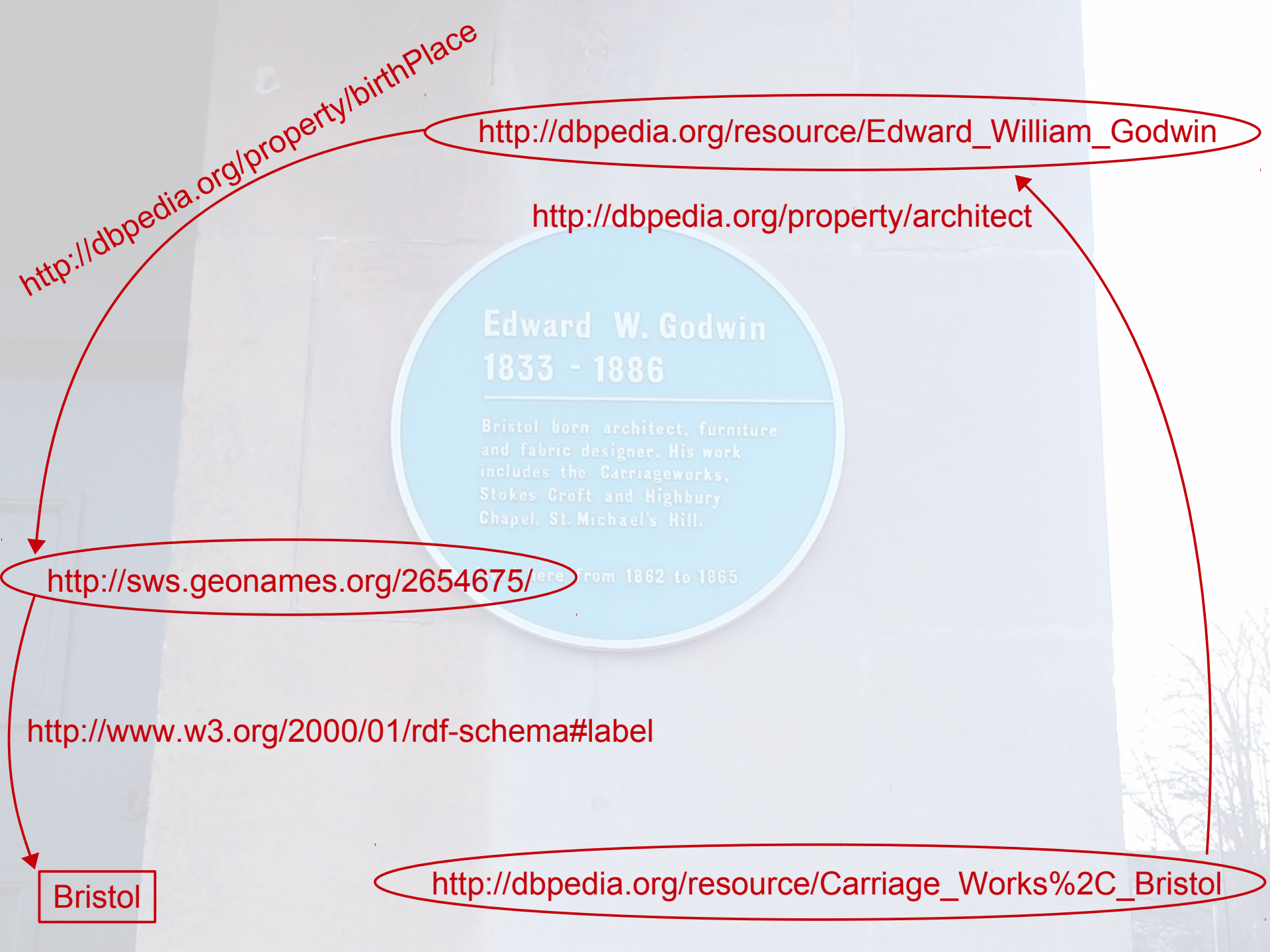
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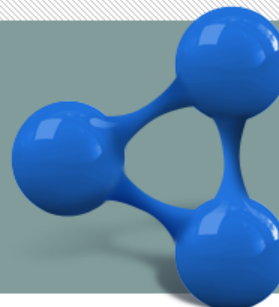




Real Examples

Unlocking innovation

Working with UK Public
Sector information and data



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Latest datasets

- 14 June** More [COINS](#) public spending data: now covers 2005 to 2010
- 10 June** Lists of [all Special Advisers](#) and [Cabinet Office staff](#)
- 4 June** [COINS database](#) of Public Spending
- 2 June** NHS Weekly [MRSA](#) and [C-Difficile](#) dataset
- 1 June** [Senior Civil Servants with salaries over £150,000](#)

What we do

data.gov.uk is a key part of the Government's [Transparency programme](#) for the UK public sector as a whole. Working with Sir Tim Berners-Lee, Professor Nigel Shadbolt and Tom Steinberg and other members of the Cabinet Office Minister's new [Public Sector Transparency Board](#) this site seeks to give a way into the wealth of government data becoming available. It's under constant development and we want to work with you to make it better.

What is the Semantic Web?

Combining different data sources has never been easy but the Semantic Web will enable data to be joined easily across boundaries.

[Read more](#)

Digital Engagement Twitter stream



RT

Keyword search

☐ Search within results

Search [More options](#)

Current search

[x] energy

Guided search

Click a term to refine your current search.

Nation

[England \(111\)](#)
[Scotland \(106\)](#)
[Wales \(105\)](#)
[Northern Ireland \(93\)](#)

Public body

[Department of Energy and Climate Change \(45\)](#)
[Department for Business \(13\)](#)
[Innovation and Skills \(13\)](#)
[Scottish Government \(9\)](#)
[Northern Ireland Executive \(5\)](#)
[Department for Communities and Local Government \(4\)](#)
[Department for Environment \(2\)](#)
[Food and Rural Affairs \(2\)](#)
[Her Majesty's Revenue and Customs \(2\)](#)
[Home Office \(2\)](#)
[more...](#)

Tags

[business-and-energy \(91\)](#)

Results 1 - 10 of 128

Energy Consumption in the UK

This publication brings together **energy** consumption data for previous year from a variety of different sources in order to give a comprehensive view of how **energy** has been used in the UK since the 1970s. The publication is divided ...

Tags: [energy transport](#)

UK Energy Sector Indicators: key and supporting indicators

... of the gas and electricity markets; the structure of the **energy** market; and fuel poverty. Supporting indicators, explain in more detail ... by the key indicators, as well as covering carbon and **energy** intensity; gas and electricity capacity; the diversity of fuels used in ...

Tags: [electricity emissions energy fuel gas green greenhouse-gas housing](#)

High Level Indicators of Energy Use at Regional and Local Authority Level

Indicators of regional **energy** use compared with a variety of socio-economic variables Source agency: **Energy** and Climate Change Designation: Official Statistics not designated ... Language: English Alternative title: Regional **energy** high level indicators Overview ...

Tags: [business-and-energy business-and-industry energy-and-fuel energy-production-and-consumption indicator regional](#)

Energy Trends

Provides statistics on **energy** in the United Kingdom which provides a

Local Data Panel



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Digital Engagement Twitter stream



RT

[@RosslynAnalytic](#) We'll have #COINS ready in web analytics for everyone in hours.
[bit.ly/9Z5Etp](#) <-and they did: well done

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DATA.GOV

47 → 272,677

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2. U.S. Overseas Loans and Grants (Greenbook)
3. Worldwide M1+ Earthquakes, Past 7 Days
4. Latest Volumes of Foreign Relations of the...
5. Import/Export Price Indexes

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APPS



With so much government data to work with, developers are creating a wide variety of applications, mashups, and visualizations. From crime statistics by neighborhood to the best towns to find a job to seeing the environmental health of your community—these applications arm citizens with the information they need to

COMMUNITY

Data.gov is leading the way in democratizing public sector data and driving innovation. The data is being surfaced from many locations making the Government data stores available to researchers to perform their own analysis. Developers are finding good uses for the datasets, providing interesting and useful applications that allow for new views and public analysis. This is a work in progress, but this movement is spreading to cities, states, and other countries. After just one year a community is born around open government data.

Just look at the numbers:

6 Other nations establishing open data
8 States now offering data sites

SEMANTIC WEB

As the Web of linked documents evolves to include the Web of linked data, we're working to maximize the potential of Semantic Web technologies to realize the promise of Linked Open Government Data.



Thanks to our collaboration with the **Tetherless World Constellation** at the **Rensselaer Polytechnic Institute**, Data.gov is now hosting one of the largest open collections of RDF datasets in the world! Check out some of their

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Ordnance Survey Linked Data

A description of the resource identified by <http://data.ordnancesurvey.co.uk/>

Title	Ordnance Survey Linked Data
Description	Ordnance Survey is Great Britain's national mapping agency, providing the most accurate and up-to-date geographic data, relied on by government, business and individuals. OS OpenData is the opening up of Ordnance Survey data as part of the drive to increase innovation and support the "Making Public Data Public" initiative. As part of this initiative Ordnance Survey has published a number of its products as Linked Data. Linked Data is a growing part of the Web where data is published on the Web and then linked to other published data in much the same way that web pages are interlinked using hypertext. The term Linked Data is used to describe a method of exposing, sharing, and connecting data via URIs on the Web. To find more Linked Data published as part of this initiative please go to data.gov.uk . If you are not familiar with Linked Data, OS OpenData products are also available in alternative formats from the OS OpenData website. Ordnance Survey can provide support for the Ordnance Survey OpenData products, but cannot give advice or support on using RDF, SPARQL or SPARQL Endpoints. Ordnance Survey has published two separate linked data resources: the 1:50 000 Scale Gazetteer and the administrative gazetteer for Great Britain.
Creator	Ordnance Survey
Date issued	2010-04-01
Example resource	Southampton Portsmouth Southampton, Itchen The County of Hampshire The City of Southampton Southampton Common
SPARQL endpoint	Sparql
URI lookup point	Meta?about=
Vocabulary used	Spatial Relations Ontology Administrative Geography Ontology WGS84 Geo Positioning FOAF OWL Gazetteer Ontology
URI regex pattern	http://data.ordnancesurvey.co.uk/id/.+
See also	data.gov.uk

one

TV Programmes A-Z

0-9	A	B	C	D	E	F	G	H	I	J	K	L	M
	N	O	P	Q	R	S	T	U	V	W	X	Y	Z

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The Sky at Night



Reporting on the latest cosmological events and the people who observe them

WEBSITE: [Go to the homepage for 'The Sky at Night'](#)

PREVIOUS PROGRAMMES: [by year](#) (78)

Coming up

Sorry, no programmes coming up.

More from BBC One

• [Factual](#) > [Science & Nature](#)

Last on



Star Birth

MORE: [programme information](#) | [related links](#)

Broadcast **Saturday, 14:10** on **BBC Two** (except Northern Ireland (Analogue), Wales (Analogue)) but **no longer available** on BBC iPlayer.

A look at new images of star-forming areas of our galaxy from the Herschel telescope.



ROBYN | BBC RADIO 1

Robyn In The Live Lounge

Robyn brought a touch of heartbreak to the Live Lounge as she performed her new single, 'Dancing On My Own', and a cover of Alicia Keys' 'Sleeping With A Broken Heart'.

MORE MUSIC ON THE BBC 1-3 OF 20

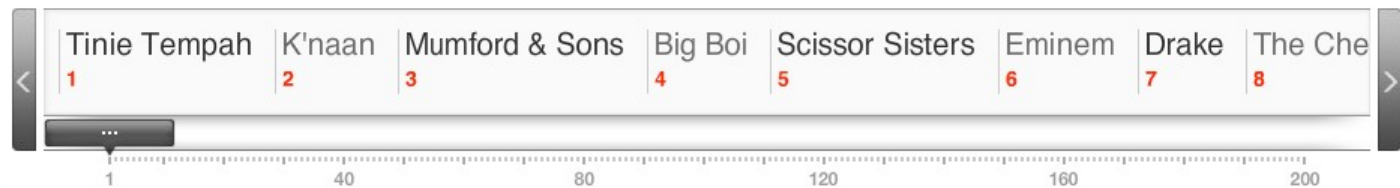
ROBYN IN THE LIVE
LOUNGEDOVES - ROCKNESS
PERFORMANCENERINA PALLOT:
WEEKEND WOGAN
PERFORMANCE

BROWSE BY GENRE

- [Classic Pop & Rock](#)
- [Classical](#)
- [Country](#)
- [Dance & Electronica](#)
- [Desi](#)
- [Easy Listening, Soundtracks & Musicals](#)
- [Folk](#)
- [Hip Hop, RnB & Dancehall](#)
- [Jazz & Blues](#)
- [Pop & Chart](#)
- [Rock & Indie](#)
- [Soul & Reggae](#)
- [World](#)

Most Played Artists On The BBC

14-20 JUNE 2010



Information displayed about artists played on BBC programmes is incomplete at present. [Find out more about this artist play count information.](#)

[More Artists](#)

WILDLIFE FINDER

WATCH THE MOST AMAZING ANIMALS IN THE WORLD

BBC
Nature

LATEST WILDLIFE



1 video 3 programmes
At high tide, they perch upright

16 June 2010

Gharial

Gharials are once again on the verge of extinction in the wild. After 30 years of conservation effort and restocking, there may still be fewer than 200 breeding adults left in the wild.

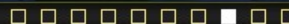
1 sound

1 programme

16 June 2010

Mute swan

Mute swans are a familiar sight in parks and other urban areas.



COLLECTIONS

Collections offer a new perspective on the vast catalogue of clips showcasing presenter favourites, aspects of wildlife film-making, and gathering content together in illuminating ways.

BRILLIANT BEES



Brilliant bees

Bees are amazing - not only do they fulfil a vital role in our ecosystem, they are one of the most complex and sophisticated living things in the history of evolution.

Wildlife wind-ups

EDITOR'S CHOICE

Spotted any ravens lately? Or a black red fox? Take a look at who's featuring on Springwatch.



Raven 3 videos



Otter 11 videos



WELCOME TO WILDLIFE FINDER

Explore a wealth of video, sounds, stories and breaking news on your favourite animals, and find out more about how and where they live.

Wildlife Finder gives you access to an ever growing catalogue of BBC natural history programmes, with video clips from series such as: Planet Earth, Blue Planet, Life on Earth, Natural World, Life and many more.

WHAT'S NEW?

10 June 2010

SPORT

WORLD CUP 2010

Search

Explore the BBC

SPORT

FOOTBALL

WORLD CUP 2010

GROUPS & TEAMS

FIXTURES & RESULTS

VIDEO

BBC COVERAGE



HIGHLIGHTS

Ivory Coast 0-0 Portugal


[Highlights and report](#)

Brazil 2-1 North Korea


[Highlights and report](#)

Honduras 0-1 Chile


[Highlights and report](#)

Spain 0-1 Switzerland


[Highlights and report](#)

COMING UP

Blogs

James Pearce



Beckham grafts for England

But ex-captain keen to remain away from World Cup spotlight

Phil McNulty



Is Beckenbauer right about England?

Swiss secure shock win over Spain



Switzerland provide the first surprise result of the 2010 World Cup by beating 2008 European champions Spain 1-0 in Group H.

[World Cup day six photos](#)
[Enhanced match stats](#)

Wednesday's matches

Honduras 0-1 Chile	Full-time
Spain 0-1 Switzerland	Full-time
South Africa v Uruguay	19:30 BST

Group tables

	A	B	C	D	E	F	G	H
GROUP H TEAMS	W	D	L	GD	PTS			
Chile	1	0	0	1	3			
Switzerland	1	0	0	1	3			
Honduras	0	0	1	-1	0			
Spain	0	0	1	-1	0			

Video choice


[Mokoena aims to harness](#)

Conclusions



Take Home Messages

- Linked Data enables us to build a network or Web of data sets
- Understanding complex, interconnected systems requires interconnected data
- Using the Web infrastructure means easier 'journeys' between data sets



Getting Involved

- Identify data sets you're interested in
 - data.gov.uk – request them

[Home](#) › [Data](#)

Data

[Request new data](#)

Public Data

Here you can search all the available data and commonly-used tags to find the information you want.

Search Data

Enter keyword(s)

e.g. education, NHS, crime, transport, environment

[Search](#)

Powered by: [CKAN](#)

Browse for Data

[Random dataset](#)
[List all datasets](#)
[By Public Body](#)
[Common tags](#)

Popular tags

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[earnings](#) [income](#) [census](#) [waste](#) [ethnicity](#) [care](#) [mental-health](#) [hospital](#) [employment](#)
[economic](#) [business](#) [cancer](#) [benefit](#) [accommodation](#) [gas](#) [population](#) [older-people](#)
[disability](#) [transport](#) [communities](#) [health](#) [illness](#) [police](#) [school](#) [emissions](#)
[energy](#) [alcohol](#) [planning](#) [deaths](#) [housing](#)

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Local Data Panel



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[Read more](#)

Digital Engagement Twitter stream



RT

You are here:

Home > Unlocking Service >

Last Updated: 16 June 2010

Searched for : **energy**

« [Stolen Vehicle Lists](#) | [Main](#) | [List of medicines available for prescrip...](#) »

HEED Online

Posted in:

Posted by: **Antony Scott**

Public Sector Information Holder: **Energy** Saving Trust

Information Asset: **HEED Online**

The problem


HEED online contains a wealth of information on **energy** demand, consumption and domestic housing stock condition. However the data is currently only available to certain public sector bodies and to **energy** suppliers, and other organisations are only able to access it with the permission of one of these bodies. Moreover the user interface only allows data to be accessed small clusters - there is no facility for example to download detailed data for a whole region, or for the UK.

My ideal solution

The ability to download complete nationwide datasets for specific subjects at Output Area level, and/or a web services interface to this data.

What I would do

Develop applications which supported the targeting of **energy**-saving measures and carbon reduction strategies to specific geographical areas.

Posted at 04 June 2010 10:34:11 (GMT Standard Time, UTC+00:00)  [Comments \[0\]](#) ⁰

Search:

Advanced Search

Requests and Offers

- ✦ June, 2010 (6)
- ✦ May, 2010 (6)
- ✦ April, 2010 (5)
- ✦ March, 2010 (4)
- ✦ February, 2010 (5)
- ✦ January, 2010 (4)
- ✦ December, 2009 (2)
- ✦ November, 2009 (2)
- ✦ September, 2009 (1)
- ✦ May, 2009 (2)
- ✦ April, 2009 (1)
- ✦ March, 2009 (8)
- ✦ February, 2009 (1)
- ✦ December, 2008 (10)
- ✦ November, 2008 (3)
- ✦ September, 2008 (3)
- ✦ August, 2008 (5)
- ✦ July, 2008 (17)

Tag Cloud

ATOM Feed (5) Bills (1)
Cabinet Office (2)
Copyright notice (3)
Creative Commons (2)

0 Supporters so far - add your name

Name:

Email Address:

Your name will not be published, but your email address is required to validate your vote. See our [privacy policy](#) for more information.

Getting Involved

- Identify data sets you're interested in
 - data.gov.uk – request them
 - elsewhere – licensing?
- Convert them to Linked Data
 - <http://linkeddata.org/docs/how-to-publish>
 - dataincubator.org
- Get them online
 - Talis Connected Commons
 - <http://www.talis.com/platform/cc/>



Questions?

- Slides
 - <http://tomheath.com/slides/2010-06-london-using-the-web-to-link-data.pdf>
- Contact Details
 - <mailto:tom.heath@talis.com>
 - <http://tomheath.com/id/me>
 - [twitter:tommyh](https://twitter.com/tommyh)