

<http://eprints.ecs.soton.ac.uk/id/eprint/23054>

# **An Introduction to the Potential of Linked Data -**

**RKBExplorer, ResearchSpace and sameAs.org**

Kultivate Project, Linked Data Workshop  
HEFCE, Centre Point, 12th December 2011

Hugh Glaser

Seme4 Limited and University of Southampton, UK

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UNIVERSITY OF  
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# Linked Data – some motivation

Linked Data | data.gov.uk

http://data.gov.uk/linked-data

Single (8) And same as sameas South America Stuff iPhone ECS UoS DH ReSIST MacOS X Football RKB ENT iPhone App

Linked Data | data.gov.uk for Ordnance Survey Linked Data...

HM Government Log in or sign up

data.gov.uk<sup>BETA</sup>  
Opening up government

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## Linked Data

Linked data is data in which real-world things are given addresses on the web (URIs), and data is published about them in machine-readable formats at those locations. Other datasets can then point to those things using their URIs, which means that people using the data can find out more about something without that information being copied into the original dataset.

This page lists the sectors for which we currently publish linked data and some additional resources that will help you to use it. Most sectors have one or more SPARQL endpoints, which enable you to perform searches across the data; you can [access these interactively on this site](#).

### Reference

Reference data covers the central working of government, including organisational structures where these have been made available as RDF.

### Browse

- Visualisation
- Government Departments
- Other Public Bodies
- Ministers
- Members of Parliament
- Members of the House of Lords

### Search

- SPARQL Endpoint provided by Talis
- Search provided by Talis
- SPARQL Endpoint provided by TSO

### Ordnance Survey

Ordnance Survey have released a number of their products as linked data, including postcode units and administrative areas.

### Browse

- Ordnance Survey Linked Data

### More like this

- > COINS as Linked Data
- > Guest Post: A Developers' Guide to the Linked Data APIs - Jeni Tennison
- > Have a link from this site to the Neighbourhood Statistics site
- > New on site link
- > BCS seminar on linked data and geospatial semantics

Data.gov

http://www.data.gov/

Wittgenstein

News WRPMP Single (24) And same as sameas Furniture iPhone ECS UoS DH ReSIST MacOS X Football RKB ENT

Data.gov

An Official Web Site of the United States Government

Sunday, June 20, 2010 Text: A+ A- A Share

# DATA.GOV

EMPOWERING PEOPLE

HOME DATA TOOLS COMMUNITY METRICS DIALOGUE

## A GLOBAL MOVEMENT TO DEMOCRATIZE DATA

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### Most Popular Datasets

1. US Topo 7.5-minute map for Imperial, TX
2. U.S. Overseas Loans and Grants (Greenbook)
3. Worldwide M1+ Earthquakes, Past 7 Days
4. Latest Volumes of Foreign Relations of the...
5. MyPyramid Food Raw Data

SEARCH OUR CATALOGS

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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 make decisions every day. Enjoy these highlights of the hundreds of applications available.

### 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
- 8 Cities in America with open data
- 236 New applications from Data.gov datasets

### SEMANTIC WEB



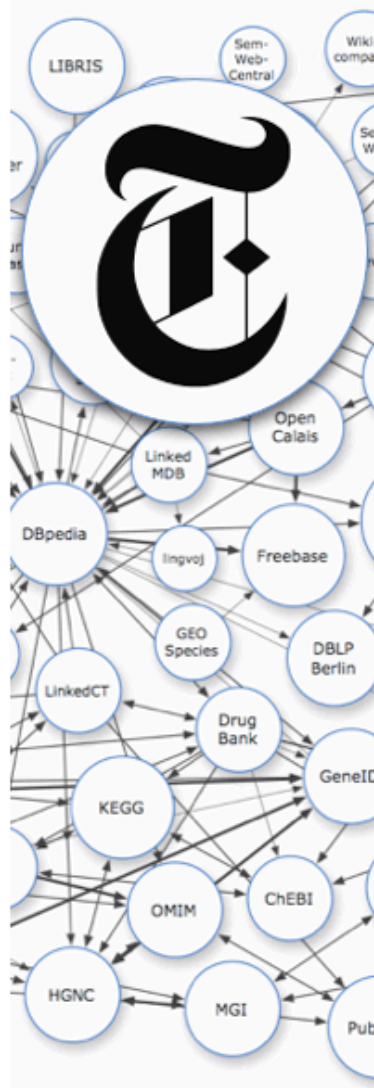
As the Web of linked documents evolves to include the Web of linked data, we're working to maximize the potential of Semantic Web technologies to realize the promise of Linked Open Government Data.

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 semantic mashups **we're featuring** and read our blog entry to learn more about where we are, where we're going, and why we think this

The New York Times

Linked Open Data BETA

Search data.nytimes.com

**data.nytimes.com**

For the last 150 years, The New York Times has [maintained](#) one of the most [authoritative news vocabularies](#) ever developed. In 2009, we began to publish this vocabulary as linked open data.

**The Data**

As of 13 January 2010, The New York Times has published approximately 10,000 subject headings as [linked open data](#) under a [CC BY license](#). We provide both [RDF](#) documents and a human-friendly [HTML](#) versions. The table below gives a breakdown of the various tag types and mapping strategies on data.nytimes.com.

| Type          | Manually Mapped Tags | Automatically Mapped Tags | Total |
|---------------|----------------------|---------------------------|-------|
| People        | 4,978                | 0                         | 4,978 |
| Organizations | 1,489                | 1,592                     | 3,081 |
| Locations     | 1,910                | 0                         | 1,910 |
|               |                      |                           | 9,969 |

**Browse individual data records:**

[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](#)

**SKOS Files**

Download all of the data records as [SKOS Files](#).

- [People](#)
- [Organizations](#)
- [Locations](#)

**Using Our Linked Data**

Want to learn more about the nuts and bolts of our RDF documents? [This page](#) provides technical documentation. [This blog post](#) provides step-by-step instructions for building your own NYT Linked Data Application.




Linked Data for Ordnance Survey Linked Data. | data.ordnancesurvey.co.uk

http://data.ordnancesurvey.co.uk/

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Linked Data | data.gov.uk for Ordnance Survey Linked Data...

Ordnance Survey – Great Britain's national mapping agency See all our sites Login



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## Ordnance Survey Linked Data.

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

|                          |   |
|--------------------------|---|
| <b>Title</b>             | Ordnance Survey Linked Data.  |
| <b>Description</b>       | 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 three separate linked data resources: the 1:50 000 Scale Gazetteer, Code-Point Open and the administrative geography gazetteer for Great Britain. |
| <b>Creator</b>           | <a href="#">Ordnance Survey</a>   |
| <b>Publisher</b>         | <a href="#">Ordnance Survey</a>   |
| <b>Date issued</b>       | 2010-10-25  |
| <b>Example resource</b>  | <a href="#">SO16 4GU</a><br><a href="#">Portswood</a><br><a href="#">Southampton</a><br><a href="#">Southampton, Abstract Geometry</a><br><a href="#">Southampton, Itchen</a><br><a href="#">The County of Hampshire</a><br><a href="#">The City of Southampton</a><br><a href="#">Southampton Common</a><br><a href="#">Sparql</a>   |
| <b>SPARQL endpoint</b>   |   |
| <b>URI lookup point</b>  | <a href="#">Meta?about=</a>   |
| <b>Vocabulary used</b>   | <a href="#">Spatial Relations Ontology</a><br><a href="#">The administrative geography and civil voting area ontology</a><br><a href="#">Geometry Ontology</a><br><a href="#">FOAF</a><br><a href="#">OWL</a><br><a href="#">Gazetteer Ontology</a><br><a href="#">Postcode Ontology</a>  |
| <b>URI regex pattern</b> | <a href="#">http://data.ordnancesurvey.co.uk/id/.+</a>  |
| <b>See also</b>          | <a href="#">Semantic.html</a>   |
| <b>Coverage</b>          | <a href="#">England</a><br><a href="#">Scotland</a><br><a href="#">Wales</a>  |



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MUSIC BETA

GENRES ARTISTS REVIEWS NEWS BLOG

QUICK FIND Enter an artist name ...

BBC Music &gt; Artists &gt; Iron Maiden

## Iron Maiden

Formed 1975.  
English heavy metal band

PLAYED MOST ON **BBC**  
RADIO

Robert Knight/Redferns

### Biography

Iron Maiden are an English heavy metal band from Leyton in East London, formed in 1975. The band is directed by founder, bassist and songwriter Steve Harris. Since their inception, the group has released a collective total of thirty albums: fourteen studio albums, seven live albums, four EPs and five compilations.

Pioneers of the New Wave of British Heavy Metal, with such an original sound they achieved success during the early 1980s and after several lineup changes, went on to release a series of platinum and gold albums. These include the US platinum-selling landmarks *The Number of the*

### Now On The BBC

#### Bruce Dickinson's Friday Rock Show

Bruce plays brand new and classic metal with an array of top flight guests on 6 Music



### Latest Tracks Played On The BBC

#### Run To The Hills

BBC 6 Music | [Lauren Laverne](#) 08/04/2010



#### Run To The Hills (Live at Maida Vale)

BBC Radio 1 | [Dev](#) 02/04/2010



#### Aces High

BBC 6 Music | [Jon Holmes](#) 27/02/2010





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# BBC Internet Blog


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## BBC World Cup 2010 dynamic semantic publishing

 Post categories: [World Cup](#), [linked data](#), [metadata](#), [semantic](#), [semantic web](#), [web publishing](#)

Jem Rayfield | 10:00 UK time, Monday, 12 July 2010

The **World Cup 2010 website** is a significant step change in the way that content is published. From first using the site, the most striking changes are the horizontal navigation and the larger, format high-quality video. As you navigate through the site it becomes apparent that this is a far deeper and richer use of content than can be achieved through traditional CMS-driven publishing solutions.

The site features 700-plus team, group and player pages, which are powered by a high-performance dynamic semantic publishing framework. This framework facilitates the publication of automated metadata-driven web pages that are light-touch, requiring minimal journalistic management, as they automatically aggregate and render links to relevant stories.

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**SPORT** WORLD CUP 2010

[SPORT](#) | [FOOTBALL](#) | [WORLD CUP 2010](#) | [GROUPS & TEAMS](#) | [FIXTURES & RESULTS](#) | [VIDEO](#) | [BBC COVERAGE](#)

Latest matches

**England**

[England 1-1 United States](#) Saturday, 12 June Match report  
[England 0-0 Algeria](#) Friday, 18 June Match report  
[Slovenia 0-1 England](#) Wednesday, 23 June Match report  
[Germany 4-1 England](#) Sunday, 27 June Match report

|                          | A | B | C | D  | E | F | G | H |
|--------------------------|---|---|---|----|---|---|---|---|
| <b>Group C Teams</b>     |   |   |   |    |   |   |   |   |
| <a href="#">USA</a>      | 1 | 2 | 0 | 1  | 5 |   |   |   |
| <a href="#">England</a>  | 1 | 2 | 0 | 1  | 5 |   |   |   |
| <a href="#">Slovenia</a> | 1 | 1 | 1 | 0  | 4 |   |   |   |
| <a href="#">Algeria</a>  | 0 | 1 | 2 | -2 | 1 |   |   |   |

Features

[Jump to more content from this blog](#)

### About this blog

Staff from the BBC's online and technology teams talk about BBC Online, BBC iPlayer, and the BBC's digital and mobile services. The blog is reactively moderated. Posts are normally closed for comment after three months. Your host is Nick Reynolds (NR).

### Subscribe to BBC Internet Blog

You can stay up to date with BBC Internet Blog via these feeds.

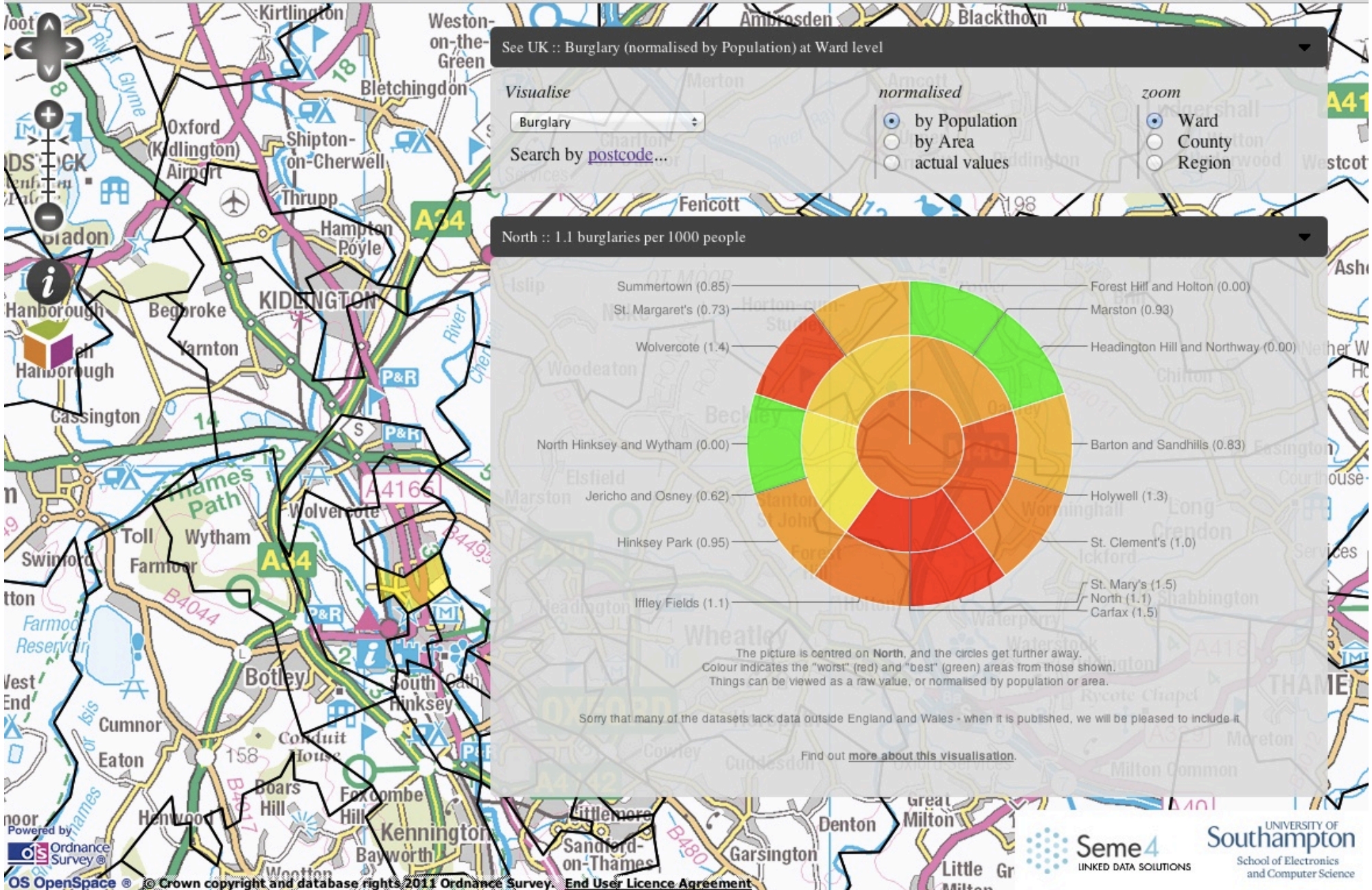
- [BBC Internet Blog Feed](#) (RSS)
- [BBC Internet Blog Feed](#) (ATOM)

If you aren't sure what RSS is you'll find [our beginner's guide to RSS](#) useful.

### BBC on Blogs

- [BBC iPlayer Gets More S4C VOD, Will Also Link Out](#)  
From paidContent (NR)
- [Whatever happened to surround sound for streaming Radio?](#)



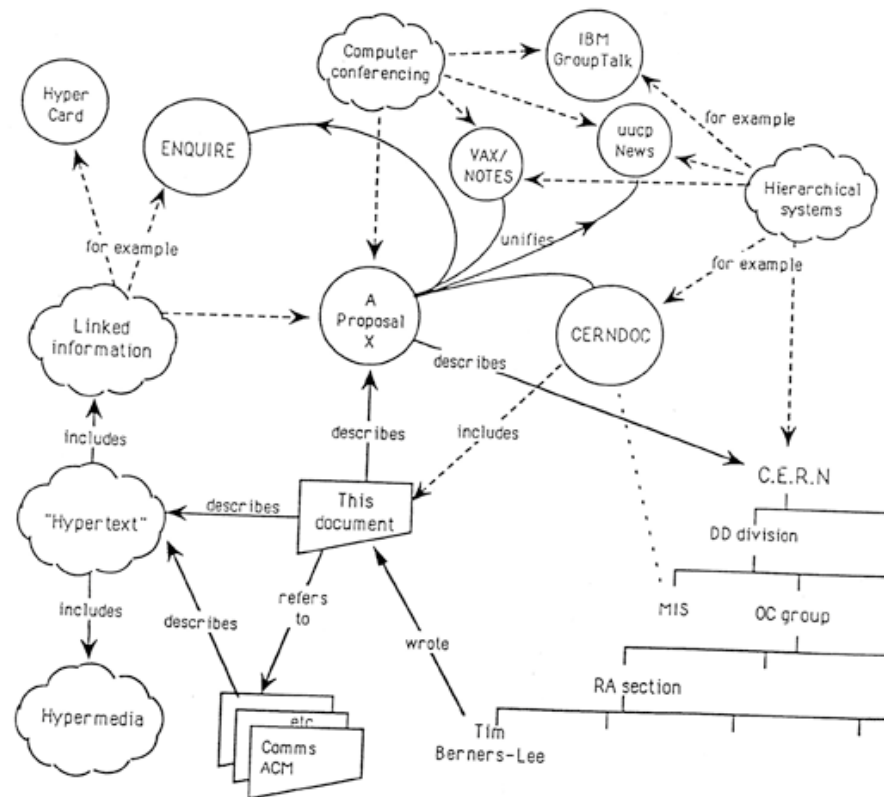


<http://www.w3.org/History/1989/proposal.html>

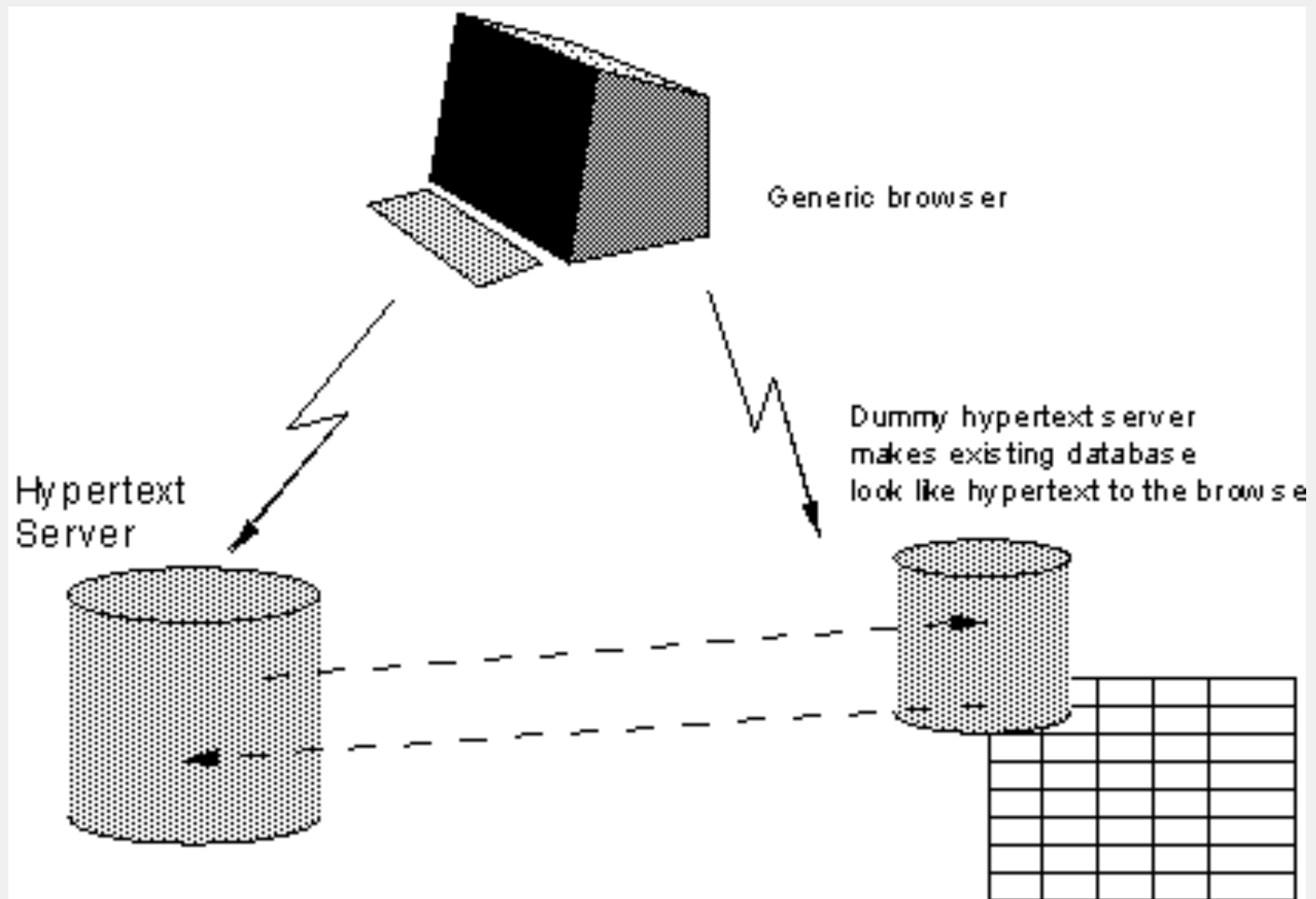
## Information Management: A Proposal

This proposal concerns the management of general information about accelerators and experiments at CERN. It discusses the problems of loss of information about complex evolving systems and derives a solution based on a distributed hypertext system.

**Keywords:** Hypertext, Computer conferencing, Document retrieval, Information management, Project control







- 
- **“The ability of the semantic web to cheaply but effectively integrate data and breakdown data silos provides museums with a long awaited opportunity to present a richer, more informative and interesting picture.”**

» Dominic Oldman, British Museum

British Museum – Search object details

http://www.britishmuseum.org/research/search\_the\_collection\_database/search\_object\_detail

Reader

lod diagram

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British Museum – Search object ...


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Home > Research > Search the collection database

1 of 1






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Side: right Side: left Full: Front

See all views (5)

Department: Ancient Egypt & Sudan

Registration number: .24

BM/Big number: 24

Additional IDs

BS.24

Bibliographic reference

Object types

stela (all objects)

Title (object)

The Rosetta Stone

Materials

granodiorite (all objects)

Place (findspot)

Excavated/Findspot Fort Saint Julien (all objects)

Date

196BC

Period/Culture

Ptolemaic (scope note | all objects)

Description

Part of grey and pink granodiorite stela bearing priestly decree concerning Ptolemy V in three blocks of text: Hieroglyphic (14 lines), Demotic (32 lines) and Greek (53 lines).

Inscriptions

Inscription Type: inscription

Inscription Language: Greek

Inscription Type: inscription

Inscription Script: hieroglyphic

Inscription Language:

Inscription Comment: The inscription is a decree passed by a council of priests, one of a series that affirm the royal cult of the 13 year-old Ptolemy V on the first anniversary of his coronation.

Inscription Type: inscription

Inscription Script: demotic

Inscription Language:

Dimensions

Length: 112.3 centimetres (max)

Width: 75.7 centimetres

Thickness: 28.4 centimetres

More about object

Conservation

Condition

fair (incomplete)

Curator's comments

Compass text:

British Museum – Search object details

http://www.britishmuseum.org/research/search\_the\_collection\_database/search\_object\_detail

Reader

lod diagram

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British Museum – Search object ...


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Side: right Side: left Full: Front

See all views (5)

Department: Ancient Egypt & Sudan

Registration number: .24

BM/Big number: 24

Additional IDs  
BS.24

Bibliographic reference

Object types

stela (all objects)

Title (object)

The Rosetta Stone

Materials

granodiorite (all objects)

Place (findspot)

Excavated/Findspot Fort Saint Julien (all objects)

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More about object

Conservation

June 1999 – Temporary Exhibition


April 1992 – Examination

British Museum – Search object details

http://www.britishmuseum.org/research/search\_the\_collection\_database/search\_object\_detail

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British Museum – Search object ...






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Side: right Side: left Full: Front

[See all views \(5\)](#)

Department: Ancient Egypt & Sudan

Registration number: .24

BM/Big number: 24

Additional IDs  
BS.24

Bibliographic reference  
[Strudwick N 2006 pp.298-299](#)

Location:  
G4/CSE

[Commission photography](#)

[Back to search results](#)

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**Description**  
Part of grey and pink granodiorite stela bearing priestly decree concerning Ptolemy V in three blocks of text: Hieroglyphic (14 lines), Demotic (32 lines) and Greek (53 lines).

**Inscriptions**  
Inscription Type: inscription  
Inscription Language: Greek

Inscription Type: inscription  
Inscription Script: hieroglyphic  
Inscription Language:  
Inscription Comment: The inscription is a decree passed by a council of priests, one of a series that affirm the royal cult of the 13 year-old Ptolemy V on the first anniversary of his coronation.

Inscription Type: inscription  
Inscription Script: demotic  
Inscription Language:

**Dimensions**  
Length: 112.3 centimetres (max)  
Width: 75.7 centimetres  
Thickness: 28.4 centimetres

[More about object](#) **Conservation**

[June 1999 – Temporary Exhibition](#)

**Treatment date**  
24 June 1999

**Reason for treatment**  
Temporary Exhibition

**Treatment proposal**  
1. Test clean return edges; 2. Clean and prepare for "Rosetta Stone, Cracking Codes and Decipherment" exhibition.

**Condition**  
Object coated with protective treatment - identified as camauba wax, hand-grease and dirt. Inscription bears traces of hard pink material, principally near edges and at corners. It closely matches the pink granite vein for colour and is covered in places by black printers ink - see analysis report. Inscription was painted with water-based white Plaka gouache, by Carol Andrews in 1982 to replace white powder. (White powder was probably modelling clay applied as a slip over entire surface; the excess would have been removed with a cloth). White powder [clay] continued to inhabit areas of damage. Returns at either side have white deposit with pronounced horizontal directionality, but areas of damage do not have this deposit. (This is possibly gypsum plaster, spilled during casting of the inscription in Egypt). Also found: traces of reddish compacted clay on back and returns and a looser whitish material under cross-members of old mount, but elsewhere consolidated and turned brown by camauba wax. Text painted in white on left return: "CAPTURED IN EGYPT BY THE BRITISH ARMY IN 1801"; on right return: "PRESENTED BY KING GEORGE III".

**Treatment details**  
Samples were taken of: pink material and printers ink in inscription; surface coating from various locations; white deposit on returns; reddish compacted clay on back and returns; loose whitish



# British Museum

---

- **That was a while ago**
  - Science data
  - Conservation data
  - Linked to the Catalogue
  - Live on the web site
- **Then**
  - Catalogue (CIDOC/CRM)
- **ResearchSpace.org**
  - More institutions
  - Research environment

search

Upper part of a painted round-topped sandstone stela (4thC BC(ate))

**Physical description:** Upper part of a painted round-topped sandstone stela: beneath a winged sun-disc with pendant uraei and heaven sign, Alexander the Great is depicted as pharaoh, offering two vessels of wine to the sacred Buchis bull, supported on a plinth. Parts of six lines of hieroglyphic text are preserved, recording the death of the sacred bull in the fourth year of Alexander, and noting that it was alive during the reign of Darius (III), who controlled Egypt from 336 BC until the conquest of Alexander in 332 BC. Part of the lower part of the stela bearing six rows of Hieroglyphic text has been re-affixed; this was originally registered separately as 1929,1016.202 (EA 1719).

Remove and investigate the makeup between the two fragments (1929 10-16 167 & 1927 10-16 202). The fill between the two fragments should be recessed and retouched to match the surrounding stone. Investigate the consolidant that has been used on the lower fragment, this has caused the stone to darken comparative to the upper fragment. Fill and cap the laminations to the surface of the stone, take care not to mask any of the text when filling. Remove the white material on the surface (modern paint/plaster) from the upper fragment. Remove the number from the front of

| note  | created    | related object              |
|---|------------|-----------------------------|
| The lower part is actually referenced as another object in the British Museum collection. | 27/01/2011 | <a href="#">view object</a> |
| Winged sun-disc.  | 27/01/2011 |                             |

## Reason: Conservation Research Lab Report

# Our Example: RKB and RKBExplorer

---

- **RKB (ReSIST Knowledge Base) and RKBExplorer**
- **Knowledge-enabled infrastructure for cooperation in research into resilient systems**
- **Reasonably mature system**
  - Actually essentially unchanged in 5 years
  - Still running (even though) unfunded

# RKBExplorer.com – a person

RKBExplorer » People » Nigel Shadbolt

http://www.rkbexplorer.com/explorer/#display=person-{http%3A//s... Google

RKBExplorer » People » Nigel S...

Search... Search

about system requirements  
help data sources  
contact acknowledgements

**Related people**

**Details**

**Full Name:**  
[Nigel Shadbolt](#)

**Works For:**  
[University of Southampton](#)

**Telephone:**  
+44 (0)23 8059 7682

**Fax:**  
+44-602-590339

**Email Address:**  
[nrs@ecs.soton.ac.uk](mailto:nrs@ecs.soton.ac.uk)

**Web Address:**  
<http://www.ecs.soton.ac.uk/people/nrs>

**Web Address:**  
[http://en.wikipedia.org/wiki/Nigel\\_Shadbolt](http://en.wikipedia.org/wiki/Nigel_Shadbolt)

**Description:**  
Nigel Richard Shadbolt is Professor of Computer Science University of Southampton in southern

**People**

- [Kieron O'Hara](#)
- [Harith Alani](#)
- [Nicholas Gibbins](#)
- [David De Roure](#)
- [Paul Lewis](#)
- [Paul Smart](#)
- [Terry Elliott](#)
- [Bo Hu](#)
- [Srinandan Dasmahapatra](#)
- [Yannis Kalfoglou](#)
- [Nick Jennings](#)

**Organisations**

- [University of Southampton](#)
- [Intelligence, Agents and Multimedia](#)
- [Intelligence, Agents, Multimedia Group](#)
- [School of Electronics and Computer Science](#)
- [UNIVERSITY OF NOTTINGHAM](#)

**Publications**

- [Facilitating Knowledge Management in Pervasive Health Care Systems](#)
- [A Controlled Natural Language Interface for Semantic Media Wiki Using the Rabbit Language](#)
- [A Controlled Natural Language Interface for Semantic Media Wiki Using the Rabbit Language](#)
- [Contextualising Tags in Collaborative Tagging Systems](#)
- [Lifelogging: Privacy and Empowerment with Memories for Life](#)
- [Lifelogging: Privacy and Empowerment with Memories for Life](#)
- [On Measuring Expertise in Collaborative Tagging Systems](#)
- [On Measuring Expertise in Collaborative](#)

**Research Areas**

- [I.2.6. Learning](#)
- [I.2.1. Applications and Expert Systems](#)
- [I.2.4. Knowledge Representation Formalisms and Methods](#)
- [Computer Science](#)
- [I.2.11. Distributed Artificial Intelligence](#)
- [H.3.4. Systems and Software](#)
- [H.3.5. Online Information Services](#)
- [I.2.0. General](#)
- [I.2.7. Natural Language Processing](#)

Applet eu.resist.rkb.RKBExplorer2 started

# Or a paper

RKBExplorer » Publications » A Web-Based Resource Model for eScience: Object Reuse & Exchange

Search... Search

→ about → system requirements  
→ help → data sources  
→ contact → acknowledgements

**Related publications**

**Details**

**Title:**  
A Web-Based Resource Model for eScience: Object Reuse & Exchange

**Author:**  
[Herbert Van de Sompel](#)  
[Simeon Warner](#)  
[Michael Nelson](#)  
[Pete Johnston](#)  
[Robert Sanderson](#)  
[Carl Lagoze](#)

**Web Address:**  
<http://arxiv.org/abs/0811.0573>

**Journal:**

**Volume:**  
abs/0811.0573

**People**

- [Carl Lagoze](#)
- [Herbert Van de Sompel](#)
- [Michael Nelson](#)
- [Pete Johnston](#)
- [Robert Sanderson](#)
- [Simeon Warner](#)

**Organisations**

- [Cornell University](#)

**Publications**

- [Object Re-Use & Exchange: A Resource-Centric Approach](#)
- [Pathways: augmenting interoperability across scholarly repositories](#)
- [A Practical Ontology for the Large-Scale Modeling of Scholarly Artifacts and their Usage](#)
- [Access Interfaces for Open Archival Information Systems based on the OAI-PMH and the OpenURL Framework for Context-Sensitive Services](#)
- [An Architecture for the Aggregation and Analysis of Scholarly Usage Data](#)

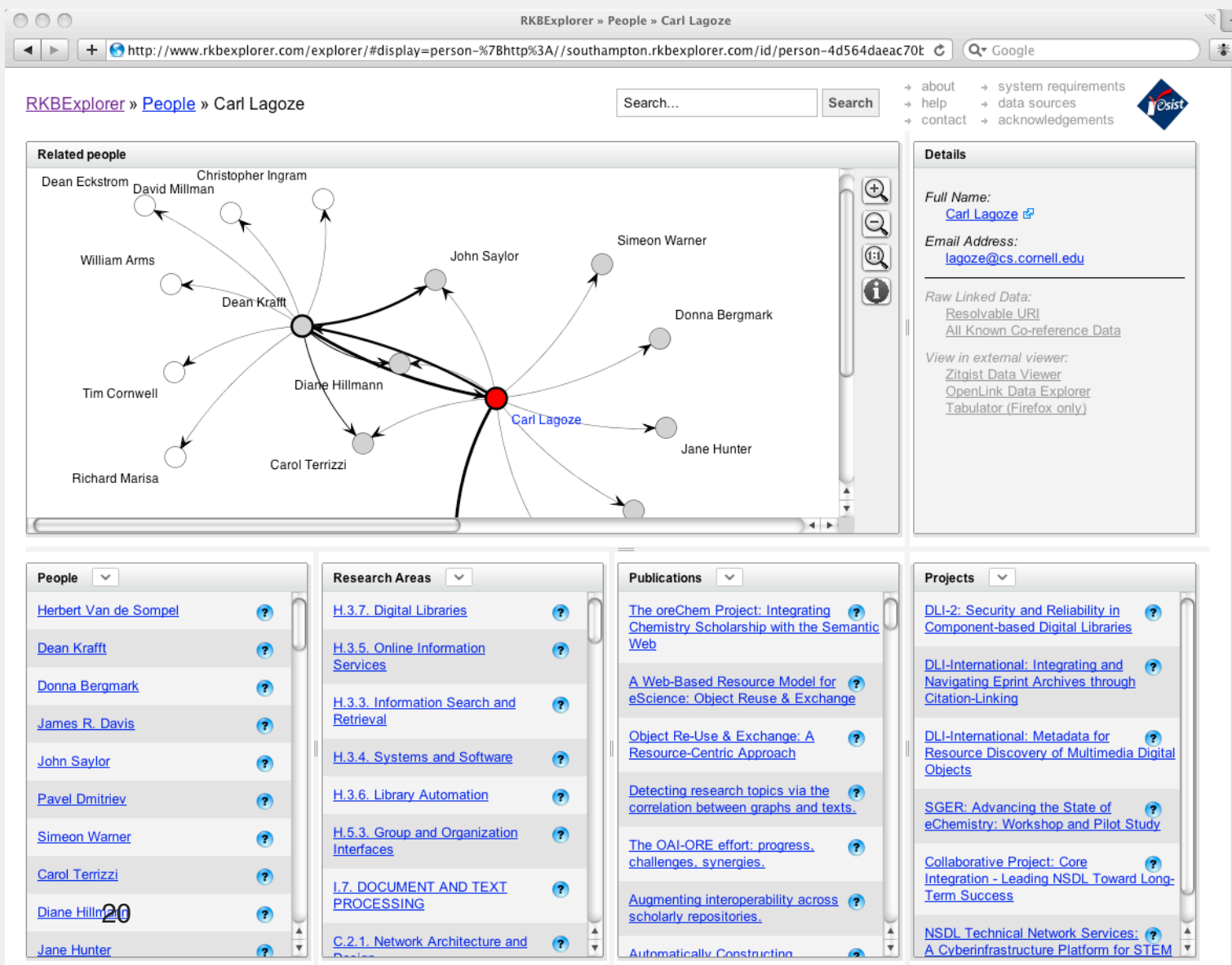
**Research Areas**

No results found

19

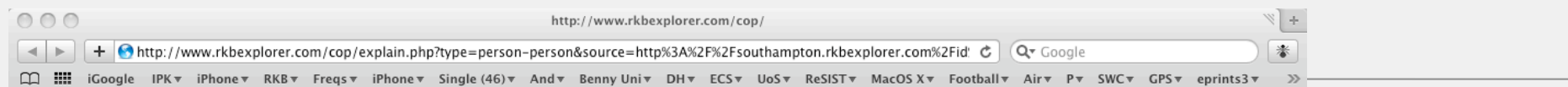


# Or a couple of people



And how  
they are  
linked

# And why are they linked?



www.rkbexplorer.com

Carl Lagoze is connected to Dean Krafft

They are linked by 9 relations.

## Publications

They have co-authored 6 papers:

- [Core services in the architecture of the national science digital library \(NSDL\)](#)
- [An information network overlay architecture for the NSDL](#)
- [Metadata aggregation and \"automated digital libraries\": A retrospective on the NSDL experience](#)

(3 more)

## Affiliations

They are both affiliated to [Cornell University](#).

## Projects

They are both members of 2 projects:

- [NSDL Technical Network Services: A Cyberinfrastructure Platform for STEM Education](#)
- [Collaborative Project: Core Integration - Leading NSDL toward Long-Term Success](#)

# Update in Action

The image displays two side-by-side screenshots of the RKBExplorer web application, illustrating the 'Update in Action' process. Both screenshots show the 'Related people' network for Hugh Glaser, with Hugh Glaser at the center of the network.

**Left Screenshot (Before Update):**

- Related people:** Ian Millard, J M Wild, David De Roure, Nicholas Gibbins, Nigel Shadbolt, Benedicto Rodriguez, Stephen Harris, Afraz Jaffri, Pieter Hartel, Harith Alani.
- People sidebar:** D Till, Mike Reeve, Tom Anderson, A Salhi, S Cox, Algirdas Avizienis, Chidung Lac, Les Carr, Srinandan Dasmahapatra.
- Organisations sidebar:** University of Southampton, Declarative Systems and Software Engineering, Dependable Systems and Software Engineering Research Group, School of Electronics and Computer Science.
- Publications sidebar:** RKBExplorer, RKBExplorer.com: A Semantic Web Appli, RKBExplorer.com: A Driven Infrastructure Providers, URI Disambiguation of Linked Data, Untangling Domain C Ontology Design Pat, Whose "Fault" is Thi Domain Concepts in Patterns.

**Right Screenshot (After Update):**

- Related people:** J M Wild, Nicholas Gibbins, Benedicto Rodriguez, Ian Millard, Nigel Shadbolt, Afraz Jaffri, David De Roure, Pieter Hartel, Harith Alani, Stephen Harris, Hugh Glaser.
- People sidebar:** D Till, Mike Reeve, Les Carr, Tom Anderson, A Salhi, S Cox, Algirdas Avizienis, Chidung Lac, Srinandan Dasmahapatra.
- Organisations sidebar:** University of Southampton, Declarative Systems and Software Engineering, Dependable Systems and Software Engineering Research Group, School of Electronics and Computer Science.
- Publications sidebar:** A Knowledge Base for Dependability and Security Research, Knowledge-Enabled Research Support: RKBExplorer.com, RKBExplorer: Repositories Linked Data and Research Support, An Infrastructure for Managing URI Synonymity on the Semantic Web (Poster), An Integrated Knowledge Base for European Dependability Research, Diversity.
- Research Areas sidebar:** Static Analysis, Computer Science, D.3.2. Language Classifications, D.0. GENERAL, D.1.1. Applicative Programming, E.1. DATA STRUCTURES, K.3.2. Computer and Information Science Education, C.1.3. Other Architecture Styles, D.1.0. General.

Before and after inserting a paper in the Southampton ePrints repository  
 Note the position of Les Carr in Hugh's related People

## One of Many KBs, including other ePrints

**acm.rkbexplorer.com**  
budapest.rkbexplorer.com  
citeseer.rkbexplorer.com  
**cordis.rkbexplorer.com**  
**courseware.rkbexplorer.com**  
darmstadt.rkbexplorer.com  
**dblp.rkbexplorer.com**  
**dbpedia.org**  
deepblue.rkbexplorer.com  
deploy.rkbexplorer.com  
epsrc.rkbexplorer.com  
eurecom.rkbexplorer.com  
ft.rkbexplorer.com  
ibm.rkbexplorer.com  
**ieee.rkbexplorer.com**  
irit.rkbexplorer.com

italy.rkbexplorer.com  
kaunas.rkbexplorer.com  
**kisti.rkbexplorer.com**  
laas.rkbexplorer.com  
lisbon.rkbexplorer.com  
newcastle.rkbexplorer.com  
**nsf.rkbexplorer.com**  
pisa.rkbexplorer.com  
rae2001.rkbexplorer.com  
**resex.rkbexplorer.com**  
roma.rkbexplorer.com  
southampton.rkbexplorer.com  
ulm.rkbexplorer.com  
unlocode.rkbexplorer.com  
wiki.rkbexplorer.com  
xxx.yyy.zzz

Range from a few 100 to more than 10,000,000 “facts”

⏪ ⏩ +  http://www.google.com/ig?refresh=1

📖

🔍

iPhone ▾

Single (50) ▾

And ▾

ECS ▾

UoS ▾

DH ▾

ReSIST ▾

MacOS X ▾

Football ▾

RKB ▾

iPhone App ▾

dwb ▾

Benny Uni ▾

Air ▾

Canada ▾

P ▾

SWC ▾

GPS ▾


IPK ▾

⏭

iGoogle

Web [Images](#) [Videos](#) [Maps](#) [News](#) [Shopping](#) [Gmail](#) [more ▾](#)

hugh.glaser@gmail.com | [Classic Home](#) | [My Account](#) | [Sign out](#)



[Advanced Search](#)  
[Search Preferences](#)  
[Language Tools](#)

Google Search I'm Feeling Lucky

New! [Add social gadgets](#) to post updates and play games with friends. [Change theme from Classic](#) | [Add stuff »](#)

Home ▾  
Weather  
Gmail  
My Gadgets  
BBC News | News F...  
Slashdot  
Search YouTube  
RKBGadget » People  
RKBGadget » Project  
Google Translate

[+ RKBGadgets](#)  
  
Updates  
Friends  
  
Chat  
Search, add, or invite  

● Hugh Glaser

Set status here ▾

Chat with friends in undefined!

Rather stay offline?  
[Sign out of chat.](#)

● Christopher Gutte  
new [splashurl.net](#) f

● Valanto Kousetti

● Andrew Landells

● Joyce Lewis

[Options ▾](#) [Add friends](#)

Google Translate

Detect langu ▾ >> English ▾ Translate

[Translate Homepage](#) | [Dictionary Homepage](#)

RKBGadget » People

Search Reset

Found 3 results for "Berners-Lee"  
[M Berners-Lee](#) [Mary Lee Berners-Lee](#)  
[Lee](#) [Tim Berners-Lee](#)

Tim Berners-Lee

Full Name:  
[Tim Berners-Lee](#)

Email Address:  
[timbl@w3.org](#)

Web Address:  
[http://en.wikipedia.org/wiki/Tim\\_Berners-Lee](#)

My Gadgets

Gadget  
[dictionary.xml](#)  
[person.xml](#)

Inlined Cached  
☐ ☒ ☐

RKBGadget » Project

Search Reset

KNOWLEDGE WEB

Title:  
Realizing the semantic web

Other Names:  
KNOWLEDGE WEB

Project Overview:  
The current World Wide Web (WWW) is, by its function, the syntactic web where structure of the content has been presented while the content itself is inaccessible to computers. The next generation of the Web (the Semantic Web) aims to alleviate such problem and provide specific solutions targeted the

BBC News | News Front Page | World Edition

[+ Afghan poll media blackout urged](#)  
[+ US Colombia deal 'not a threat'](#)  
[+ Sony cuts price of PS3 consoles](#)  
[+ Honduras expels Argentine envoys](#)  
[+ US journalist Robert Novak dies](#)  
[+ Turnaround 'will not be simple'](#)  
[+ Russia detains ship 'hijackers'](#)  
[+ New Israeli settlements 'on hold'](#)  
[+ Jackson to be buried on birthday](#)

Weather

[Southampton, England](#)


 13°C Current: Clear  
Wind: SE at 3 km/h  
Humidity: 94%

Tue

Wed

Thu

Fri

 21° | 13°  
 24° | 16°  
 20° | 11°  
 18° | 9°

Search YouTube



Best Silverlight Apps

Zingals uses Silverlight apps to enhance user experience. READ  
Ads by Google

 [Confucius Quotes](#)



Gmail

Loading "http://www.google.com/ig?refresh=1", completed 20 of 22 items



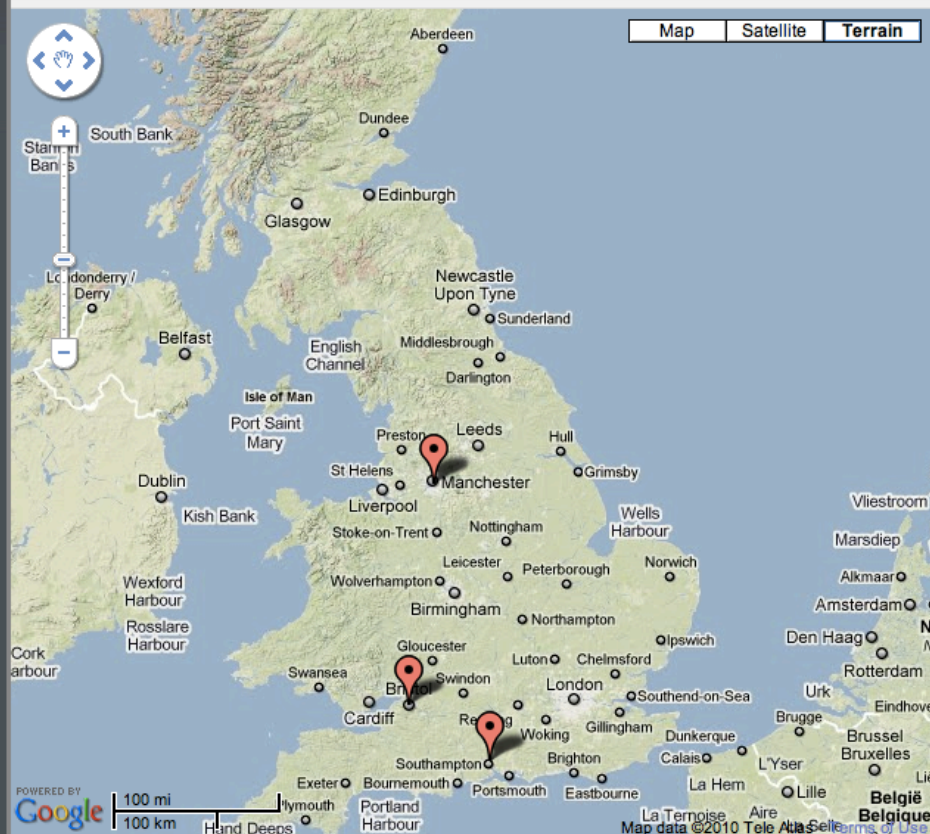


MyExperiment

Search...



### Location of Project Members



### Details

#### Names:

MyExperiment

#### Starts:

01/03/2007

#### Ends:

31/03/2009

#### Web Address:

<http://www.myexperiment.org/>

#### Description:

The myExperiment Virtual Research Environment enables you and your research

### Project Members

[Carole Goble](#)



[Darius Michaelides](#)



[David De Roure](#)



[Frederique VanTill](#)



### Participating Organisations

[University of Southampton](#)



### Related JISC Projects

[Meeting Memory Technology Informing Collaboration](#)



[myExperiment Repository Enhancement](#)



[Collaborative Orthopaedic Research Environment](#)



[Internet-Based Behavioural Research](#)



[Virtual Research Integration Collaboration](#)

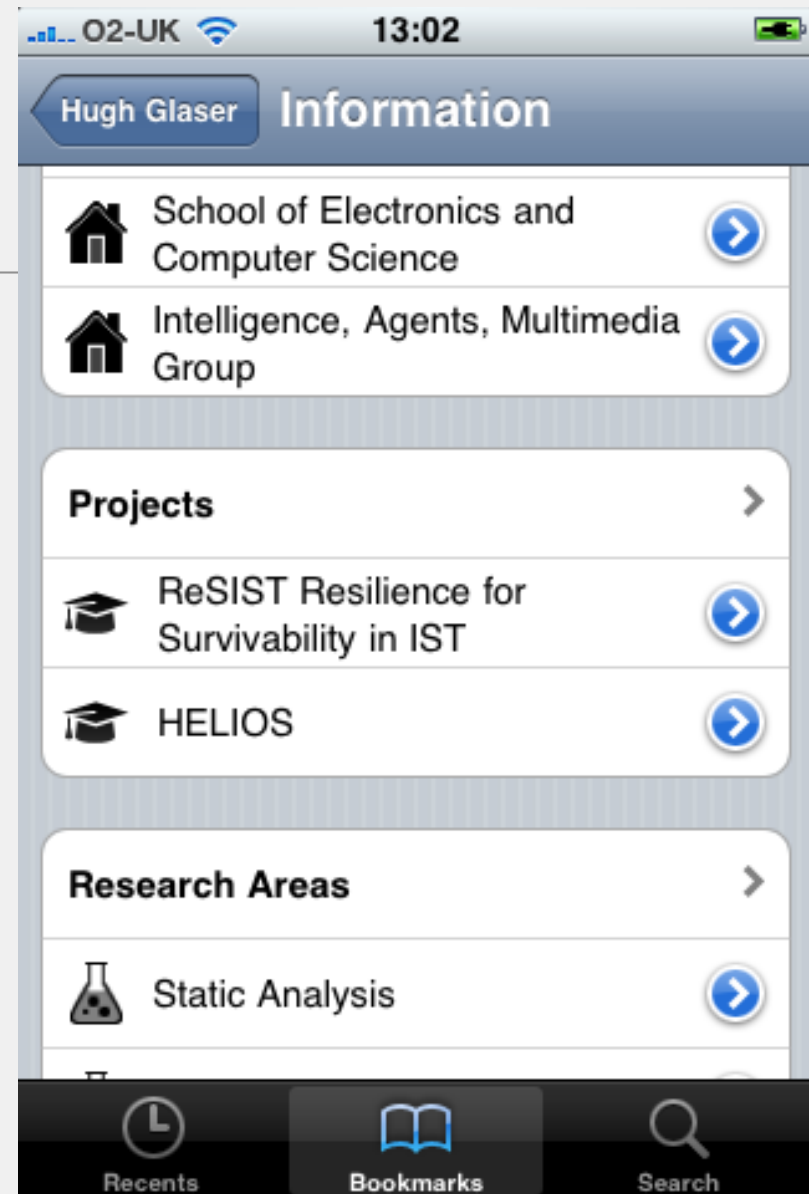
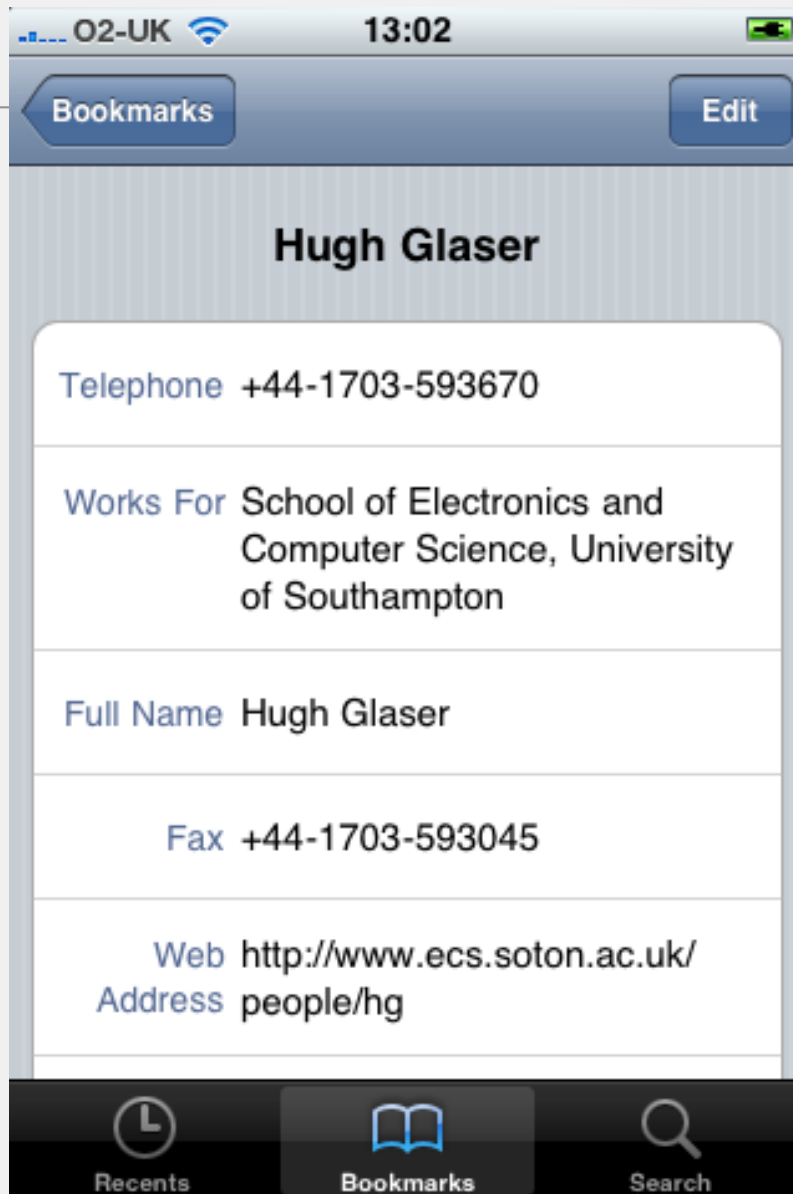


[Building Research and Innovation Networks](#)



### Publications

# iPhone App



# Semantic Web is not “All or Nothing”

Hugh Glaser

# Southampton

School of Electronics  
and Computer Science

[Home](#) [UG Study](#) [MSc Admissions](#) [PG Opportunities](#) [Research](#) [Business](#) [People](#) [Alumni](#) [Contact](#) [Intranet](#)

[University of Southampton](#) > [ECS](#) > [People](#) > **Hugh Glaser**

---

## Hugh Glaser



- Contact
- Research and Projects
- Publications
- Homepage

---

### Search People




---

## Hugh Glaser

**School of Electronics and Computer Science**  
**University of Southampton**  
**Southampton**  
**SO17 1BJ**  
**United Kingdom**

**Position:** Visiting academic staff in [Intelligence, Agents, Multimedia Group](#)  
**Fax:** +44 (0)23 8059 3045  
**Email:** [hg@ecs.soton.ac.uk](mailto:hg@ecs.soton.ac.uk)  
**URI:** <http://id.ecs.soton.ac.uk/person/21> [browse]

**Interests:** [genetic algorithms](#), [ontology maintenance](#), [semantic grid](#), [semantic squirrels](#),  
[semantic web](#), [semantic wiki](#), [service composition](#), [ubiquitous computing](#), [web 2.0](#)


The group secretary for the Intelligence, Agents, Multimedia Group is [Jane Morgan](#).

### Additional Contact Details

[I may be here](#)

### Duties

ECS - Staff Training Budget  
ECS - Travel Budget  
Staff Teaching allocation (with Mark Zwolinski)

  
 Hugh Glaser

### Hugh works with:

- [Dr Ian Millard](#) ([explain](#))
- [Professor Nigel R Shadbolt](#) ([explain](#))
- [Afraz O Jaffri](#) ([explain](#))
- [Dr Nicholas Gibbins](#) ([explain](#))
- [Bene Rodriguez-Castro](#) ([explain](#))
- [Professor David C De Roure](#) ([explain](#))
- [Leslie Carr](#) ([explain](#))
- [Dr Harith Alani](#) ([explain](#))
- [dr monica mc schraefel](#) ([explain](#))
- [Dr. Manuel Salvadores](#) ([explain](#))
- [Gianluca Correndo](#) ([explain](#))

This list of people is sourced from [RKBExplorer](#), the result of an ECS project. Click on the "explain" link to the right of each person to find out how they are connected.  
**Note:** the explain link requires heavy processing and may take some time to load.



[Contact and Biography](#)  
[Research and Projects](#)  
[Publications](#)  
[Homepage](#)

Search



**School of Electronics and Computer Science  
University of Southampton  
Southampton  
SO17 1BJ  
United Kingdom**

**Positions:** Head of Group in [Grid and Pervasive Computing Group](#), Academic staff in [Intelligence, Agents, Multimedia Group](#)  
**Extension:** 22418  
**Telephone:** +44 (0)23 8059 2418  
**Email:** [dder@ecs.soton.ac.uk](mailto:dder@ecs.soton.ac.uk)  
**URI:** <http://id.ecs.soton.ac.uk/person/47> [browse]

**Interests:** agent-based computing, amorphous computing, arts and humanities applications, audio, autonomic computing, chemoinformatics, collaborative tools, computers and music, decentralised systems, distributed programming languages, distributed systems, dr who, e-learning, e-research, e-science, e-social science, electronic lab notebooks, electronic systems design, environmental monitoring, folksomnies, grid, grid computing, grid standards, hardware-software codesign, hypertext, information systems, intelligent sensor networks, interaction, ipv6, linux, lisp, middleware, multi user dungeons, multicast, multimedia, music, music information retrieval, nature inspired computing, open access, open hypermedia, open journals, open source, pervasive computing, provenance, pdf, recommender systems, scheme, scholarly communications, scripting languages, self-organising systems, semantic annotation, semantic grid, semantic web, sensor networks, service-oriented architectures, simulation, social networks, social tagging, surge, technology-enhanced learning, ubiquitous computing, virtual research environments, visual programming, web, web 3.0, web science, web services, web standards, workflow

The group secretary for the Intelligence, Agents, Multimedia Group is Jane Morgan.

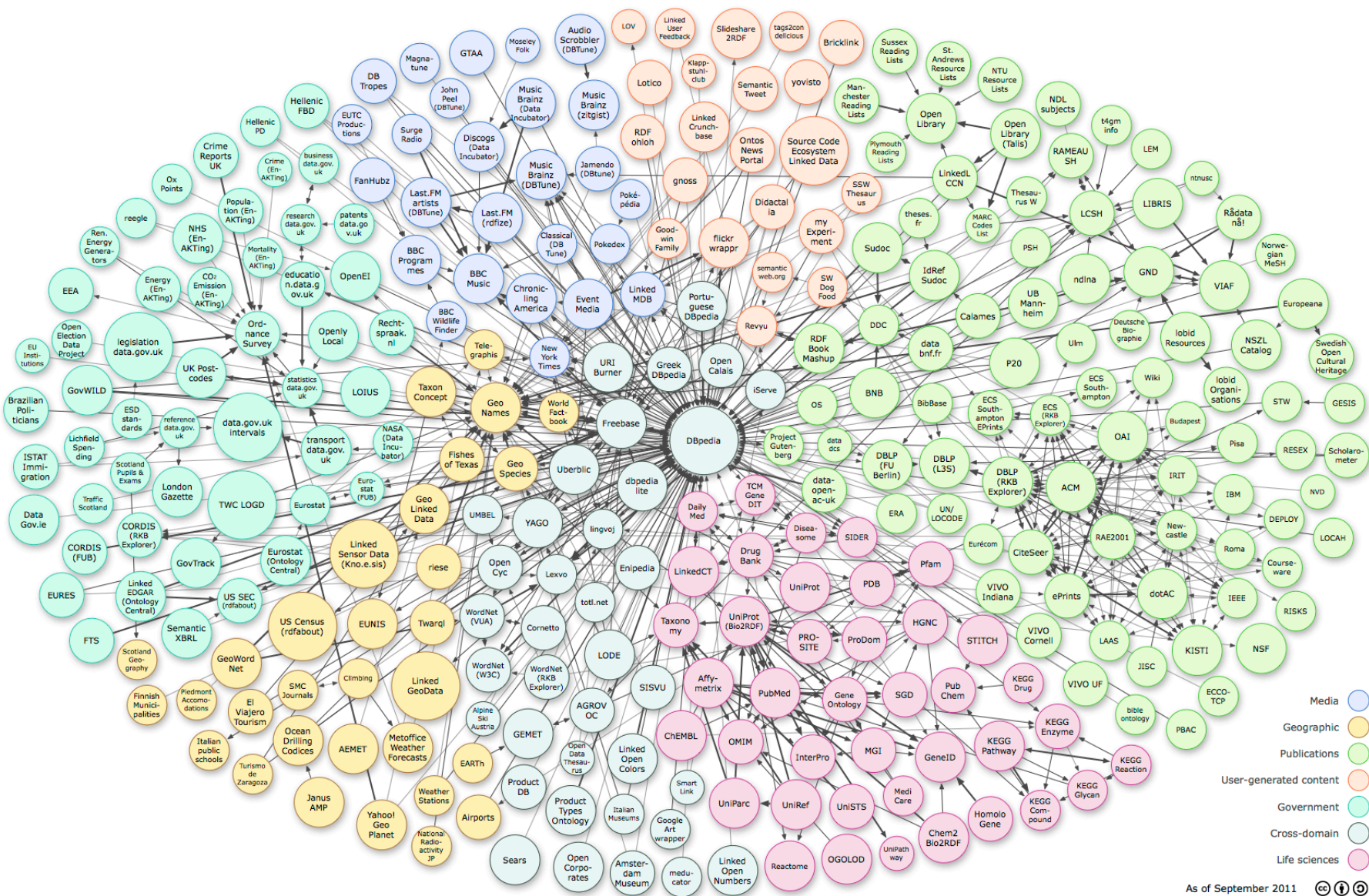
David De Roure is a Professor of Computer Science in the School of Electronics and Computer Science at the University of Southampton, UK. A founding member of the School's *Intelligence, Agents, Multimedia* Group, he leads the e-Research activities and is a Director of the Pervasive Systems Centre. Closely involved in the UK e-Science programme, David is National Strategic Director of e-Social Science, Chair of OMII-UK and a Co-Director of e-Research South. His work focuses on creating new research methods in and between multiple disciplines, and his projects draw on Web 2.0, Semantic Web and workflow technologies.



Professor David C De Roure

- Professor Dame Wendy Hall (explain)
- Dr Danius T Michaelides (explain)
- Dr Les A Carr (explain)
- Dr Mark J Weal (explain)
- Dr Don Cruickshank (explain)
- Professor Nigel R Shadbolt (explain)
- Kevin R Page (explain)
- Dr Gary B Wills (explain)
- Dr David E Millard (explain)
- Professor Luc Moreau (explain)
- David R Newman (explain)
- Hugh Glaser (explain)
- Dr Stuart E Middleton (explain)
- Dr Nicholas Gibbins (explain)
- Professor Nicholas Jennings (explain)
- Professor Hugh C. Davis (explain)
- dr monica mc schraefel (explain)
- Ken E Meacham (explain)
- Professor AJG "Tony" Hey (explain)
- Dr Robert J Walters (explain)
- Christopher Gutteridge (explain)
- Dr Harith Alani (explain)
- Yang Yang (explain)
- Saad A Alahmari (explain)

# The LOD “cloud”



# Linked Data Principles

---



# 1. Use URIs as names for things

---

- **Everything**
  - If you don't name something you can't talk about it
  - Things of course
  - Year of publication
  - Ideas
  - ...
- **Cool URIs**
  - Think of the consumer/customer
    - [https://secure.ecs.soton.ac.uk/gizmos/person\\_by\\_username.php?username=hg](https://secure.ecs.soton.ac.uk/gizmos/person_by_username.php?username=hg)
    - <https://secure.ecs.soton.ac.uk/person/username/hg>
- **RESTful Interfaces**
- **Ambiguity**
  - URIs help to avoid it, especially if you...



## 2. Use HTTP URIs so that people can look up those names

---

- HTTP URI names come with an excellent look up mechanism
- And ownership, etc.

### 3. When someone looks up a URI, provide useful information, using the standards (RDF, SPARQL)

---

- **So they know what you mean**
- **Deliver some human readable data**
  - html
- **Deliver some machine processable data**
  - RDF
  - JSON
  - CSV
  - text

# RDF (Resource Description Framework)

---

**“Hugh Glaser works for the University of Southampton”**

person-00021

name

"Hugh Glaser"

person-00021

works-for

Southampton\_University

Southampton\_University

label

"The University of Southampton"

34

How to Publish Linked Data on the Web:- <http://www4.wiwiss.fu-berlin.de/bizer/pub/LinkedDataTutorial/>

# RDF (Resource Description Framework)

---

**“Hugh Glaser works for the University of Southampton”**

```
<http://southampton.rkbexplorer.com/id/person-00021>  
  <http://xmlns.com/foaf/0.1/name>  
    "Hugh Glaser" .
```

```
<http://southampton.rkbexplorer.com/id/person-00021>  
  <http://aktors.org/ontology/portal#works-for>  
    <http://dbpedia.org/resource/Southampton_University> .
```

```
<http://dbpedia.org/resource/Southampton_University>  
  <http://www.w3.org/2000/01/rdf-schema#label>  
    "The University of Southampton" .
```

# RDF (Resource Description Framework)

---

- **RDF Triples constitute a graph**
  - <subject-uri> <predicate-uri> <object-uri>
  - <subject-uri> <predicate-uri> “String”
- ***ontologies* define vocabularies, types and relationships**
- **Agreed URIs facilitate linkage between datasets**

## 4. Include links to other URIs. so that they can discover more things

---

- **“Foreign” URIs**
  - `dbpedia:Southampton_University`
- **Equivalence**
  - `owl:sameAs`
  - `skos:exactMatch`
  - ...

# Where to put the RDF?

---

- **In a file – this is the Web!**
- **In a store**
  - Knowledge Base
  - With a way of selecting and packaging up the RDF when a HTTP URI request comes in
  - Or querying using SPARQL
    - Similar to a Data Base and SQL
- **<http://www4.wiwiss.fu-berlin.de/bizer/pub/linkededdatatutorial/>**



# 5 stars of Open Linked Data

---

- **From “Raw Data Now” to Real Value**

# One Star

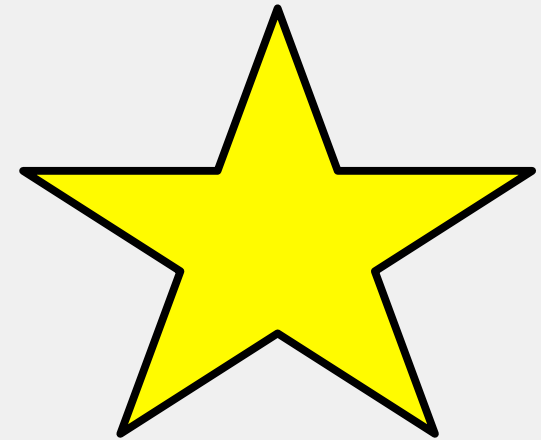
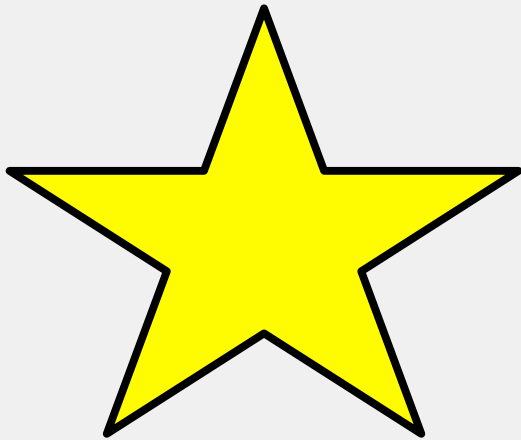
Put your Data on the Web  
With an Open License



# Two Stars

---

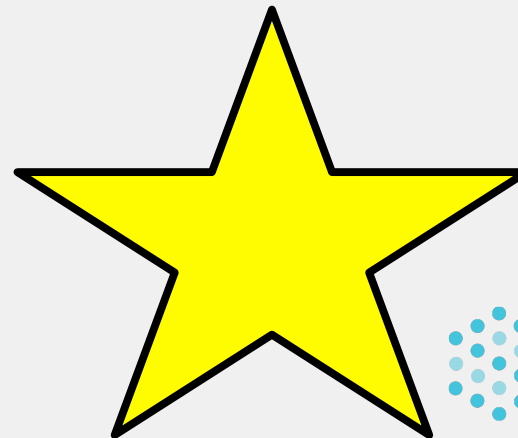
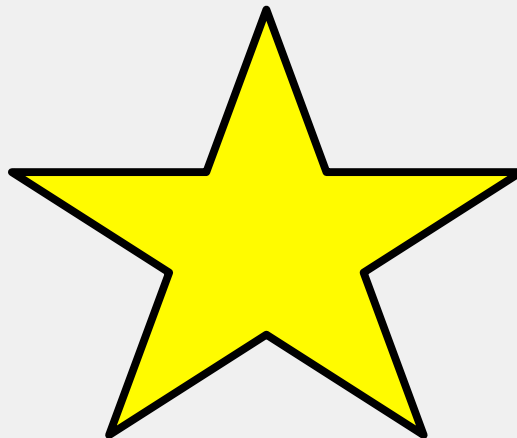
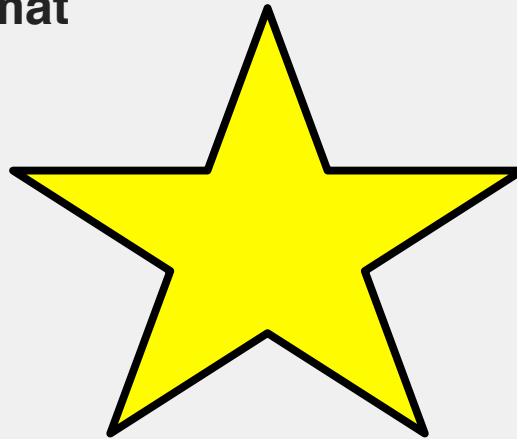
**Make it Available in a Machine Readable Format**



# Three Stars

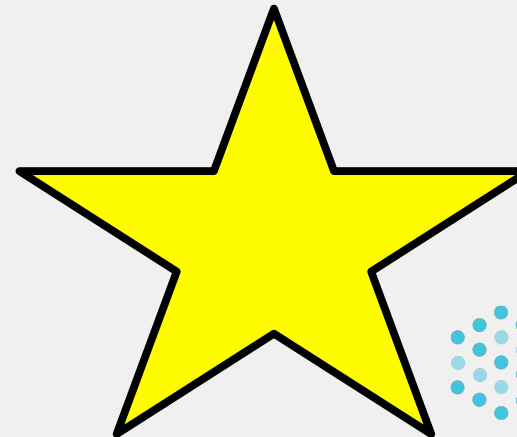
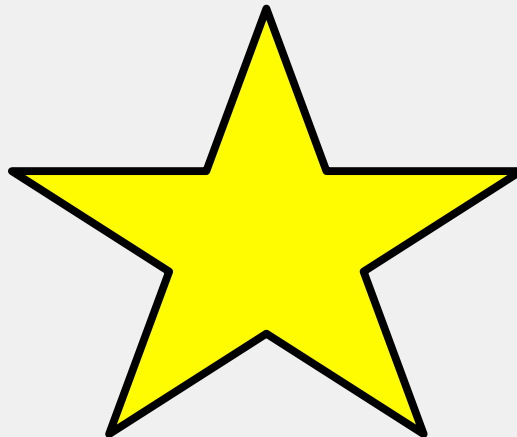
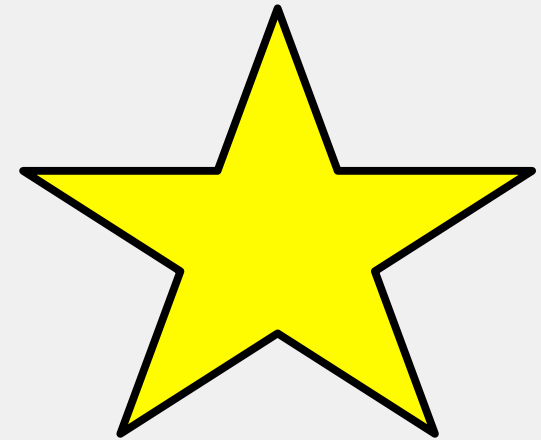
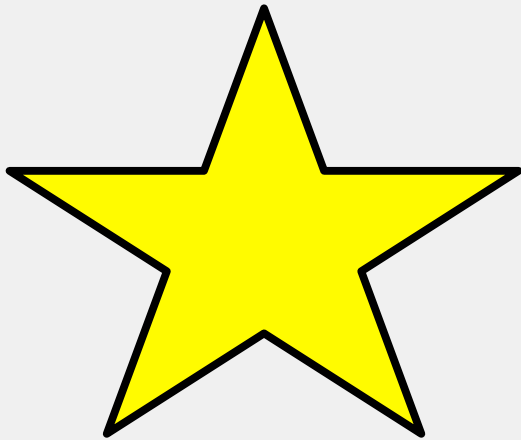
---

Use an Open, Standard, Format



# Four Stars

Use an Open, Linked Data, Format





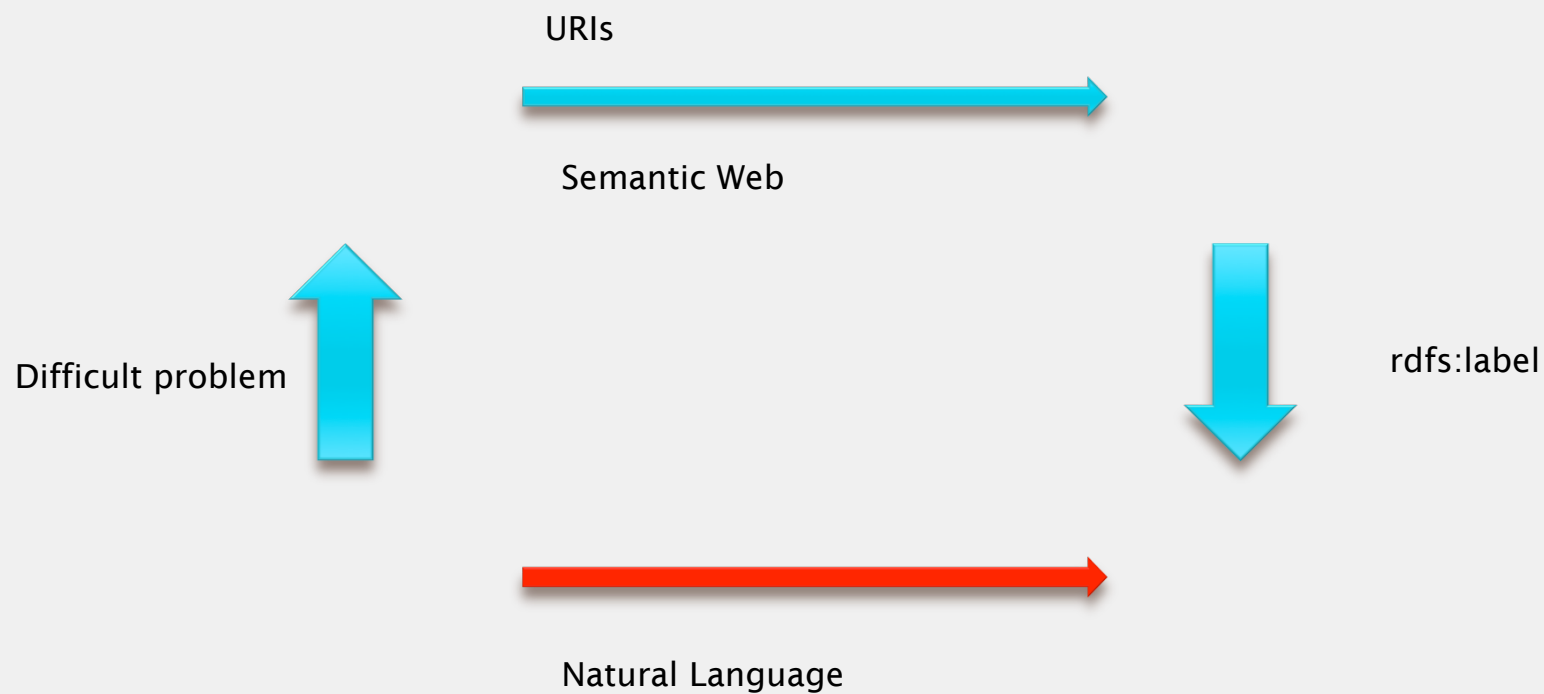
# Five Stars

Link Your Data to Other People's Data



# Making Processing “safer”

---



# Example – Presentation in HTML

Repositories and Linked Data – ECS EPrints Repository

http://eprints.ecs.soton.ac.uk/21281/

News WRPMO Single (30) And same as sameas Furniture iPhone ECS UoS DH ReSIST MacOS X Football RKB

The Sema... Glaser Glaser: P... Repositor... Repositor... Linked D... http://ep... Reposito...

**University of Southampton**  
School of Electronics and Computer Science

Search Enter keywords here go

Home UG Study MSc Admissions PG Opportunities Research Business People Alumni Contact Intranet

University of Southampton > ECS > Research > Publications

Logged in as **Glaser, Hugh** | [Manage my deposits](#) | [Manage Records](#) | [Saved searches](#) | [Admin](#) | [Logout](#)

## ECS Research

- Research Groups
- Researcher Profiles
- Research Themes
- Graduate School
- Seminars
- Research Facilities
- Centres and Institutes
- Latest Technologies

## Publications

- Publications Home
- This weeks new additions
- Search
- Browse by research group
- Browse by year

## Intranet Tools

- Add publications
- Modify REF2013 Information

## RSS 1.0 Feed

## RSS 2.0 Feed

## Atom Feed



## Repositories and Linked Data

Glaser, H. and Millard, I. (2010) Repositories and Linked Data. In: *International Conference on Advances and Emerging Trends in Computing Technologies*, 21-24th June 2010, Chennai, Tamil Nadu, India.

Full text not available from this repository.

**Item Type:** Conference or Workshop Item

**Creator/Authors:**

-  [Hugh Glaser](#)
-  [Ian Millard](#)

**Research Group:** [Intelligence, Agents, Multimedia](#)

**Date:** 22 June 2010

Information about this record:

**ID Code:** 21281

**Last Modified:** 21 Jun 2010 22:52

**Deposited On:** 21 Jun 2010 22:52 by **Glaser, Hugh**

## Tools

- [Look up in Google Scholar](#)

## Metadata

ID Plus Text Citation

Export

## Corrections

ECS staff and postgraduates may [modify this record](#)

# Presentation in RDF

---

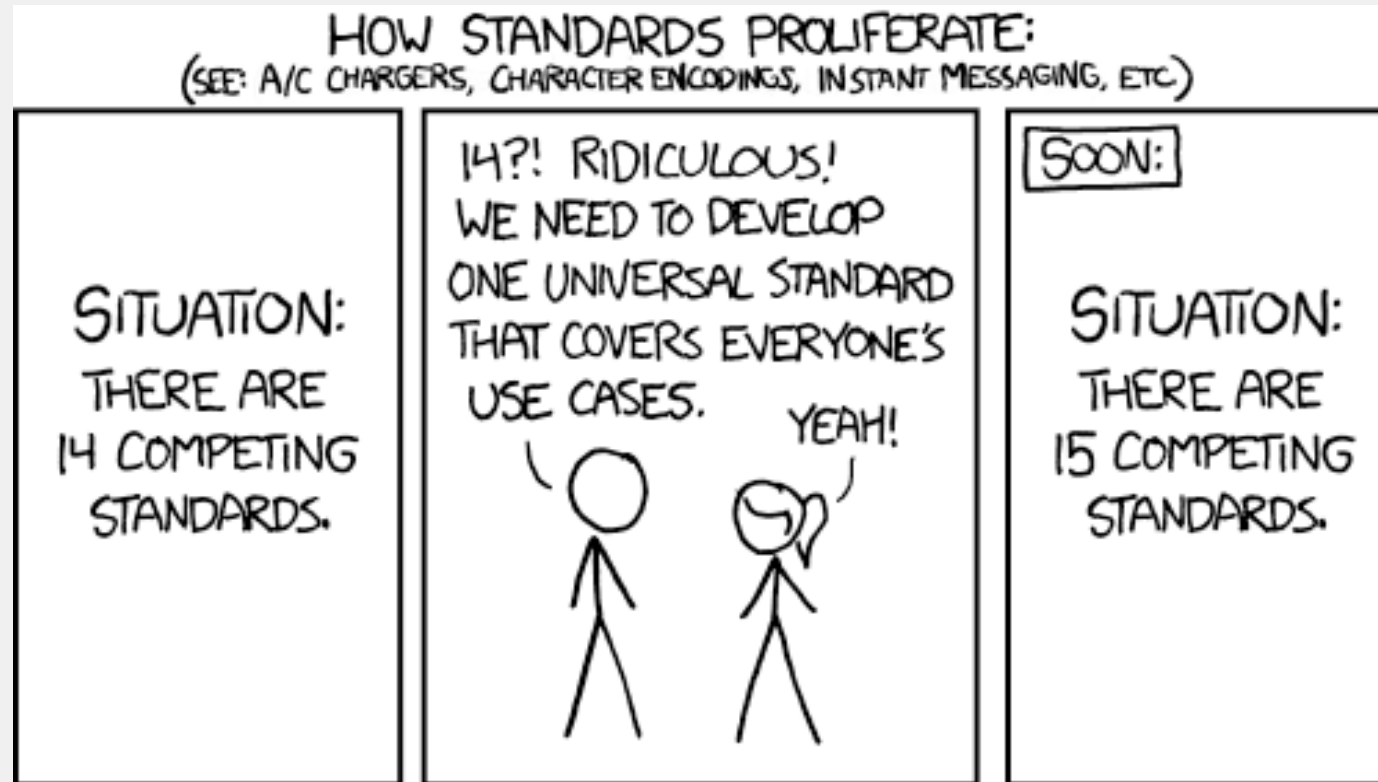
<http://eprints.ecs.soton.ac.uk/id/eprint/21281>

```
bibo:authorList <http://eprints.ecs.soton.ac.uk/id/eprint/21281#authors>;
bibo:presentedAt epid:event/ext-7db7153daf85bc7459505d6c30e743ff;
dct:creator epid:person/ext-21,epid:person/ext-4860;
dct:date "2010-06-22";
dct:isPartOf <http://eprints.ecs.soton.ac.uk/id/repository>;
dct:title "Linked Data: Publishing and Consuming Data on the Semantic
Web"^^xsd:string;
rdf:type
  bibo:AcademicArticle
  bibo:Article,
  ep:ConferenceltemEPrint,
  ep:EPrint;rdfs:seeAlso <http://eprints.ecs.soton.ac.uk/21281/> .
```

<http://eprints.ecs.soton.ac.uk/id/eprint/21281#authors>

```
rdf:_1 epid:person/ext-21;
rdf:_2 epid:person/ext-4860 .
```

## Down & Dirty - URIs



<http://imgs.xkcd.com/comics/standards.png>



sameAs

http://sameas.org/ Google

Single (8) And same as sameas South America Stuff iPhone ECS UoS DH ReSIST MacOS X Football RKB ENT iPhone App

# <sameAs>

## interlinking the Web of Data

The Web of Data has many equivalent URIs.  
This service helps you to find co-references  
between different data sets.  
Enter a known URI, or use Sindice to search first.


<sameAs> Enter a Linked Data URI...

Sindice Enter a literal (text) search...

Why not try searching for the string "[Southampton](#)", (which we will look up for you on [Sindice](#) first)  
or finding other equivalent identifiers for <http://transport.data.gov.uk/id/local-authority/1755>?

Currently serving **39 221 073** URIs in **13 112 833** bundles!

about · contact · get the widget

 CC BY-NC-SA

# <sameAs>

## interlinking the Web of Data

The Web of Data has many equivalent URIs.  
This service helps you to find co-references  
between different data sets.  
Enter a known URI, or use Sindice to search first.

<sameAs>

Equivalent URIs for http://acm.rkbexplorer.com/id/person-344165-529a2367796b9822d610a72843a3980c –

- <sameAs> {
1. <http://data.semanticweb.org/person/atanas-kiryakov>
  2. <http://acm.rkbexplorer.com/id/person-344165-529a2367796b9822d610a72843a3980c>
  3. <http://acm.rkbexplorer.com/id/person-344165-be4c940af0b483a2d1675df9fa0bab6f>
  4. <http://acm.rkbexplorer.com/id/person-344165-c23ba3f792faeca763400f197b89adb1>
  5. <http://acm.rkbexplorer.com/id/person-344165-e0b9eea0f283efab1c5ae86ad61bf111>
  6. <http://acm.rkbexplorer.com/id/person-344165-fa8e9aed948670c2accad97a4320122d>
  7. <http://dblp.rkbexplorer.com/id/people-2ceb8136f69a235014d3d46c881a1...86ce3c9dc7>
  8. <http://dblp.rkbexplorer.com/id/people-c9d93beb4ba98fa7318516e5fb5f9...f7185e51d3>
  9. <http://dblp.rkbexplorer.com/id/people-c9d93beb4ba98fa7318516e5fb5f9...88ed85ab7e>
  10. <http://dblp.rkbexplorer.com/id/people-c9d93beb4ba98fa7318516e5fb5f9...601d0b0236>
  11. <http://dblp.rkbexplorer.com/id/people-c9d93beb4ba98fa7318516e5fb5f9...b93fb59e9f>
  12. <http://dblp.rkbexplorer.com/id/people-c9d93beb4ba98fa7318516e5fb5f9...872498927e>
  13. <http://dblp.rkbexplorer.com/id/people-c9d93beb4ba98fa7318516e5fb5f9...f41b54ff75>
  14. <http://dblp.rkbexplorer.com/id/people-c9d93beb4ba98fa7318516e5fb5f9...3621e49944>
  15. <http://dblp.rkbexplorer.com/id/people-c9d93beb4ba98fa7318516e5fb5f9...3a2580ac89>
  16. <http://dblp.rkbexplorer.com/id/people-c9d93beb4ba98fa7318516e5fb5f9...b8848ff4e0>
  17. <http://dblp.rkbexplorer.com/id/people-c9d93beb4ba98fa7318516e5fb5f9...6922936d8c>
  18. <http://dblp.rkbexplorer.com/id/people-c9d93beb4ba98fa7318516e5fb5f9...c42f7e7ace>
  19. <http://citeseer.rkbexplorer.com/id/resource-CSP162937-13aaf289f2945...80cea8e74c>
  20. <http://citeseer.rkbexplorer.com/id/resource-CSP162937-2897e9670649a...00d1d4c62c>
  21. <http://citeseer.rkbexplorer.com/id/resource-CSP162937-4bfe00e2ed7ef...904f25f2f2>
  22. <http://citeseer.rkbexplorer.com/id/resource-CSP162937-64595ee407c94...7867a8505d>
  23. <http://citeseer.rkbexplorer.com/id/resource-CSP162937-6b4779db34ec9...afd234cdc4>
  24. <http://citeseer.rkbexplorer.com/id/resource-CSP162937-7896446de27c6...8f39db880b>
  25. <http://citeseer.rkbexplorer.com/id/resource-CSP162937-8ac5adb3359f3...213751b546>

# What is Southampton?

sameAs « <http://transport.data.gov.uk/id/local-authority/1755>

« <http://sameas.org/html?uri=http%3A%2F%2Ftransport.data.gov.uk%2Fid%2Flocal-authority%2F1755> » Google

Single (8) ▾ And ▾ same as sameas ▾ South America Stuff ▾ iPhone ▾ ECS ▾ UoS ▾ DH ▾ ReSIST ▾ MacOS X ▾ Football ▾ RKB ▾ ENT ▾ iPhone App ▾ »

sameAs « <http://transport.data.gov.uk/id/local-authority/1755> »

<sameAs>

13. [http://dbpedia.org/resource/Southampton\\_City\\_Centre](http://dbpedia.org/resource/Southampton_City_Centre)
14. [http://dbpedia.org/resource/Southampton,\\_England](http://dbpedia.org/resource/Southampton,_England)
15. [http://dbpedia.org/resource/Southampton,\\_Hampshire](http://dbpedia.org/resource/Southampton,_Hampshire)
16. [http://dbpedia.org/resource/Southampton\\_City\\_Council](http://dbpedia.org/resource/Southampton_City_Council)
17. [http://dbpedia.org/resource/Southampton\\_\(district\)](http://dbpedia.org/resource/Southampton_(district))
18. <http://www.okkam.org/ens/id13973975-c3dd-47e7-8e35-f09428d8723c>
19. <http://unlocode.rkbexplorer.com/id/GBSOU>
20. <http://unlocode.rkbexplorer.com/description/GBSOU>
21. <http://os.rkbexplorer.com/osr/7000000000037256>
22. <http://d.opencalais.com/er/geo/city/ralg-geo1/8687634d-b732-c7f1-b3...3194e82d15>
23. <http://data.nytimes.com/N8998838277808400221>
24. [http://data.nytimes.com/southampton\\_england\\_geo](http://data.nytimes.com/southampton_england_geo)
25. <http://data.ordnancesurvey.co.uk/id/7000000000037256>
26. <http://linkedgeodata.org/triify/node/285832#id>
27. <http://mortality.psi.enakting.org/id/Southampton>
28. <http://mpii.de/yago/resource/Southampton>
29. <http://nuts.psi.enakting.org/id/UKJ32>
30. <http://openlylocal.com/id/councils/377>
31. <http://rdf.freebase.com/ns/en.southampton>
32. <http://rdf.freebase.com/ns/guid.9202a8c04000641f800000000075d87>
33. <http://rdf.freebase.com/ns/guid.9202a8c04000641f80000000004825363>
34. <http://revyu.com/tags/southampton>
35. <http://statistics.data.gov.uk/id/local-authority/00MS>
36. <http://statistics.data.gov.uk/id/local-authority/24UM>
37. <http://statistics.data.gov.uk/id/county?name=Southampton>
38. <http://statistics.data.gov.uk/id/local-authority-district/00MS>
39. <http://statistics.data.gov.uk/id/local-authority-district?name=Southampton>
40. <http://statistics.data.gov.uk/id/local-authority?name=Southampton City Council>
41. <http://statistics.data.gov.uk/id/local-authority-district?name=The ...outhampton>
42. <http://sw.cyc.com/concept/Mx4rvViRB5wpEbGdrcN5Y29ycA>
43. <http://sw.opencyc.org/concept/Mx4rvViRB5wpEbGdrcN5Y29ycA>
44. <http://sw.opencyc.org/concept/Mx4rvx6ncZwpEbGdrcN5Y29ycA>
45. <http://sw.opencyc.org/2008/06/10/concept/Mx4rvViRB5wpEbGdrcN5Y29ycA>
46. <http://sw.opencyc.org/2008/06/10/concept/Mx4rvx6ncZwpEbGdrcN5Y29ycA>
47. <http://sw.opencyc.org/2009/04/07/concept/Mx4rvViRB5wpEbGdrcN5Y29ycA>
48. <http://sw.opencyc.org/2009/04/07/concept/Mx4rvx6ncZwpEbGdrcN5Y29ycA>
49. <http://sw.opencyc.org/2008/06/10/concept/en/CityOfSouthamptonEngland>
50. <http://sw.opencyc.org/2009/04/07/concept/en/CityOfSouthamptonEngland>
51. [http://sw.opencyc.org/2008/06/10/concept/en/Southampton\\_ParishBermuda](http://sw.opencyc.org/2008/06/10/concept/en/Southampton_ParishBermuda)
52. [http://sw.opencyc.org/2009/04/07/concept/en/Southampton\\_ParishBermuda](http://sw.opencyc.org/2009/04/07/concept/en/Southampton_ParishBermuda)
53. <http://sws.geonames.org/2637487/>
54. <http://transport.data.gov.uk/id/local-authority/1755>
55. <http://transport.data.gov.uk/id/local-authority-district/1755>
56. <http://umbel.org/umbel/ne/wikipedia/Southampton>
57. <http://www.twine.com/item/1r2lcxqy-rlz>

rdf+xml · n3 · json · text · show fewer items

Seme4  
LINKED DATA SOLUTIONS  
Seme4.com

sameAs « <http://data.archiveshub.ac.uk/id/pers...leconomist>


<http://sameas.org/?uri=http://data.archiveshub.ac.uk/id/person/gb248/smithadam> Google

# <sameAs>

## interlinking the Web of Data

The Web of Data has many equivalent URIs.  
This service helps you to find co-references  
between different data sets.  
Enter a known URI, or use Sindice to search first.

<sameAs>  🔍

  🔍

Equivalent URIs for <http://data.archiveshub.ac.uk/id/person/gb248/smithadam1723-1790pol...leconomist> –

<sameAs> {

1. [http://dbpedia.org/resource/A\\_Smith](http://dbpedia.org/resource/A_Smith)
2. [http://dbpedia.org/resource/Adam\\_Smith](http://dbpedia.org/resource/Adam_Smith)
3. [http://dbpedia.org/resource/Adam\\_smith](http://dbpedia.org/resource/Adam_smith)
4. [http://dbpedia.org/resource/Vile\\_maxim](http://dbpedia.org/resource/Vile_maxim)
5. [http://dbpedia.org/resource/Smith,\\_Adam](http://dbpedia.org/resource/Smith,_Adam)
6. [http://dbpedia.org/resource/Smith,\\_Adam](http://dbpedia.org/resource/Smith,_Adam)
7. [http://dbpedia.org/resource/Adam\\_Smith#Quotes](http://dbpedia.org/resource/Adam_Smith#Quotes)
8. <http://d-nb.info/gnd/118615033>
9. <http://data.archiveshub.ac.uk/id/person/gb248/smithadam1723-1790pol...leconomist>
10. [http://mpii.de/yago/resource/Adam\\_Smith](http://mpii.de/yago/resource/Adam_Smith)
11. <http://quotationsbook.com/author/6779>
12. <http://rdf.freebase.com/ns/guid.9202a8c04000641f80000000000065ab>
13. <http://sw.opencyc.org/2008/06/10/concept/en/AdamSmith>
14. <http://sw.opencyc.org/2009/04/07/concept/en/AdamSmith>
15. <http://sw.opencyc.org/concept/Mx4rwSxnQZwpEbGdrcN5Y29ycA>
16. <http://sw.opencyc.org/2008/06/10/concept/Mx4rwSxnQZwpEbGdrcN5Y29ycA>
17. <http://sw.opencyc.org/2009/04/07/concept/Mx4rwSxnQZwpEbGdrcN5Y29ycA>
18. [http://umbel.org/umbel/ne/wikipedia/Adam\\_Smith](http://umbel.org/umbel/ne/wikipedia/Adam_Smith)
19. <http://viaf.org/viaf/49231791>
20. [http://www4.wiwiw.fu-berlin.de/gutendata/resource/people/Smith\\_Adam\\_1723-1790](http://www4.wiwiw.fu-berlin.de/gutendata/resource/people/Smith_Adam_1723-1790)

[rdf+xml](#) · [n3](#) · [json](#) · [text](#) · [show fewer items](#)



sameAs « http://d-nb.info/gnd/4126114-8

◀ ▶ ↺ ↻

Word

+

http://sameas.org/store/kelle/?uri=http://d-nb.info/gnd/4126114-8

↻

Google

⌵

# <sameAs>

## interlinking the Web of Data

The Web of Data has many equivalent URIs. This service helps you to find co-references between different data sets.


<sameAs>

http://d-nb.info/gnd/4126114-8

🔍

Consult the main **sameas.org** as well? ☐

Enter a known URI, or use Sindice to search first.

sindice

Enter a literal (text) search...

🔍

Consult the main **sameas.org** as well? ☐

This is a sub-service of the sameAs service, and contains **only** information that is provided by a third party.

The data presented here relates to Hugh's experiment in gathering together library subject and associated data from good sources. It is likely to form part of a forthcoming project in the library area.

Equivalent URIs for http://d-nb.info/gnd/4126114-8 –

<sameAs>

{

1. http://bnb.data.bl.uk/id/concept/lcsh/Nazis

2. http://d-nb.info/gnd/4126114-8

3. http://id.loc.gov/authorities/sh85090140#concept

4. http://id.ndl.go.jp/auth/bsh4/00788800

5. http://id.ndl.go.jp/auth/ndlsh/00323199

6. http://stitch.cs.vu.nl/vocabularies/rameau/ark:/12148/cb13319397h

7. http://viaf.org/viaf/sourceID/LCIn\_79053942

}

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ne4.com

# <sameAs>

## interlinking the Web of Data

The Web of Data has many equivalent URIs.  
This service helps you to find co-references  
between different data sets.

<sameAs>

Enter a Linked Data URI...



Consult the main **sameas.org** as well? ☐

Enter a known URI, or use Sindice to search first.



Enter a literal (text) search...



Consult the main **sameas.org** as well? ☐

This is a sub-service of the sameAs service, and contains **only** information that is provided by a third party.

The data presented here is provided by Freebase on an "as is" experimental basis.

Why not try finding equivalent identifiers for the URI <http://rdf.freebase.com/ns/m.086qd>?

Current statistics for this sameAs service (<http://sameas.org/store/freebase/>) —

|                     |                     |
|---------------------|---------------------|
| Last data assertion | 2011-10-26 05:02:30 |
| Number of URIs      | 54903422            |

# Finding Co-reference

The screenshot shows a web browser window with the address bar displaying `http://sameas.org/html?q=Les+Carr&x=24&y=22`. The page title is "Les Carr « owl:sameAs". The main heading is "<sameAs> interlinking the Web of Data". Below this, a text block explains: "The Web of Data has many equivalent URIs. This service helps you to find co-references between different data sets. Enter a known URI, or use Sindice to search first." There are two search input fields: one labeled "<sameAs>" containing the URI `http://southampton.rkbexplorer.com/`, and another labeled "Sindice" containing the text "Les Carr". Below the search results, a message states: "Search results from [Sindice](#), with co-references applied...". The results are grouped under the heading "Sindice 'Les Carr'". A list of co-referencing URIs is shown, with the first three being from `http://southampton.rkbexplorer.com/` and the last one from `http://kisti.rkbexplorer.com/`. A link "Show 118 more" is visible. Below the list, there are links for "rdf+xml", "n3", "json", and "text". At the bottom of the page, it says "Currently serving 23268924 URIs in 8454882 bundles!". There are also links for "about" and "contact", a Creative Commons BY-NC-SA license logo, and the page number "55".

Les Carr « owl:sameAs

http://sameas.org/html?q=Les+Carr&x=24&y=22

<sameAs>  
interlinking the Web of Data

The Web of Data has many equivalent URIs.  
This service helps you to find co-references  
between different data sets.  
Enter a known URI, or use Sindice to search first.

<sameAs>

Sindice

Search results from [Sindice](#), with co-references applied...

Sindice "Les Carr"

<sameAs> {

1. <http://southampton.rkbexplorer.com/id/person-00060>
2. <http://southampton.rkbexplorer.com/id/person-98e0f2e8dd84b079a54318...f484814122>
3. <http://southampton.rkbexplorer.com/id/person-a635f51b18c81bf1df7dab...84425e0250>

Show 118 more

122. [http://kisti.rkbexplorer.com/id/PER\\_00000000000000081787](http://kisti.rkbexplorer.com/id/PER_00000000000000081787)

rdf+xml · n3 · json · text

Sindice "Les Carr"

<sameAs> {

1. [http://dblp.l3s.de/d2r/resource/authors/Les\\_Carr](http://dblp.l3s.de/d2r/resource/authors/Les_Carr)

rdf+xml · n3 · json · text

Currently serving 23268924 URIs in 8454882 bundles!

about · contact

ZERO

55



# Co-Reference

---

- **Lots of resources with multiple URIs**
  - This is the nature of the Beast
  - Legal, Sociological and Technical reasons
- **This is a Big Problem**
  - Everything is a URI (not title, name, number...)
  - Identifying multiple URIs for one resource
  - Rejecting incorrectly conflated resources
  - Publishing
  - Using
- **Solution**
  - Co-reference is just Knowledge, but quite special, and crucial, knowledge
  - Generating a new URI is not the solution to already having too many
  - The web is anarchic – don't try to impose impossible structure on it
  - Embrace the anarchy and multiple URIs in your systems ab initio

# Co-Reference Service (CRS)

---

- **CRS Subsystem**
  - Find co-references
  - Store them
  - Publish them
    - Essentially:
    - $URI_i \rightarrow \{ URI_1, \dots, URI_i, \dots, URI_n \}$
  - Recommend a “Canon”
- **Published by the Data Publisher**
  - And possibly others
- **Middleware aggregates co-references from recognised CRSes**
- **Coldstart**
  - A serious problem
  - Nothing is linked to anything
  - Not even (reliably) within most repositories

# Concluding Remarks

---

- **Linked Data works pretty well**
- **RDF works pretty well**
- **RKBExplorer uses CRS services successfully**
  - Often 100s of URIs per person
- **sameAs.org turns out to be pretty useful**
  - > 10K hits/day
- **British Museum uses a CRS service for Data Fusion on its web site**
- **Don't stop at the catalogue – there is a lot of other interesting stuff**
- **Organisations can go ahead and build systems, then do the identity management**
  - Both internally and externally
  - Doing identity management first requires cross-organisation agreement, a delay of months to years
  - It then freezes the business processes to conform to the external requirement

# More Concluding Remarks

---

- **Worry about your co-reference**
  - Do you have strong IDs?
- **Build systems that accept the way the world is, not what you would like it to be**
- **Consume things yourself!**
  - The only way to find out if things are any good
  - Then you might be able to:
- **Provide appropriate services in appropriate formats**
  - Consumable by “normal” systems
  - This means
    - Useful – doing useful things
    - RESTful – easy to access
    - JSON – easy to process
    - ...
- **A little Ontology goes a long way**

# Endnotes

<http://eprints.ecs.soton.ac.uk/id/eprint/23054>

---

- **Some URIs**

- <http://sameas.org/>
- <http://sameas.org/store/kelle>
- <http://www.rkbexplorer.com/>
- <http://www.rkbexplorer.com/services/>
- <http://apps.seme4.com/see-uk/crime/by-population/ward/OX1%203QG>
- <http://www.ecs.soton.ac.uk/people/dder>
- [http://www.britishmuseum.org/research/search\\_the\\_collection\\_database/search\\_object\\_details.aspx?objectid=117631&partid=1&searchText=YCA62958](http://www.britishmuseum.org/research/search_the_collection_database/search_object_details.aspx?objectid=117631&partid=1&searchText=YCA62958)
- <http://www.dotac.info/explorer/>
- <http://www.rkbexplorer.com/gadgets/>

- **You are Never Alone**

- Ian Millard
- ReSIST Project
- AKT Project
- EnAKTing Project
- 10 years of collaborators

60