Making The Connection

Creating a Linked Open National Bibliography

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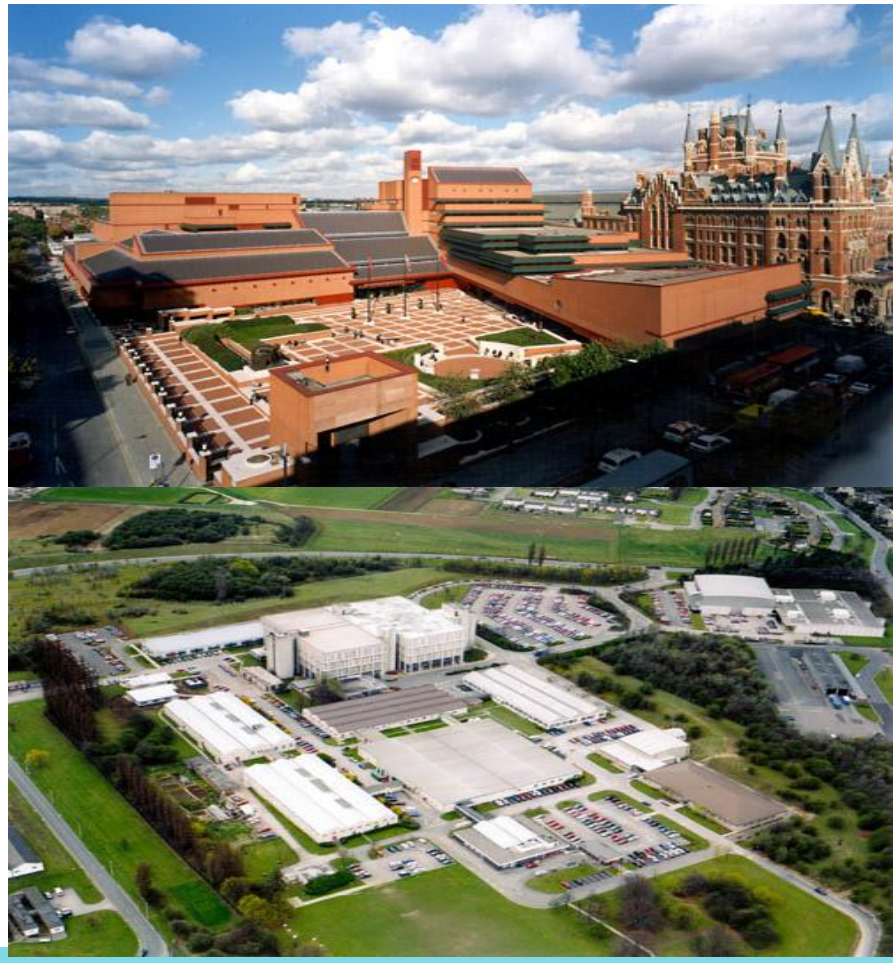
Head, Metadata Services

DPC Open Data Briefing Day
July 5th 2013

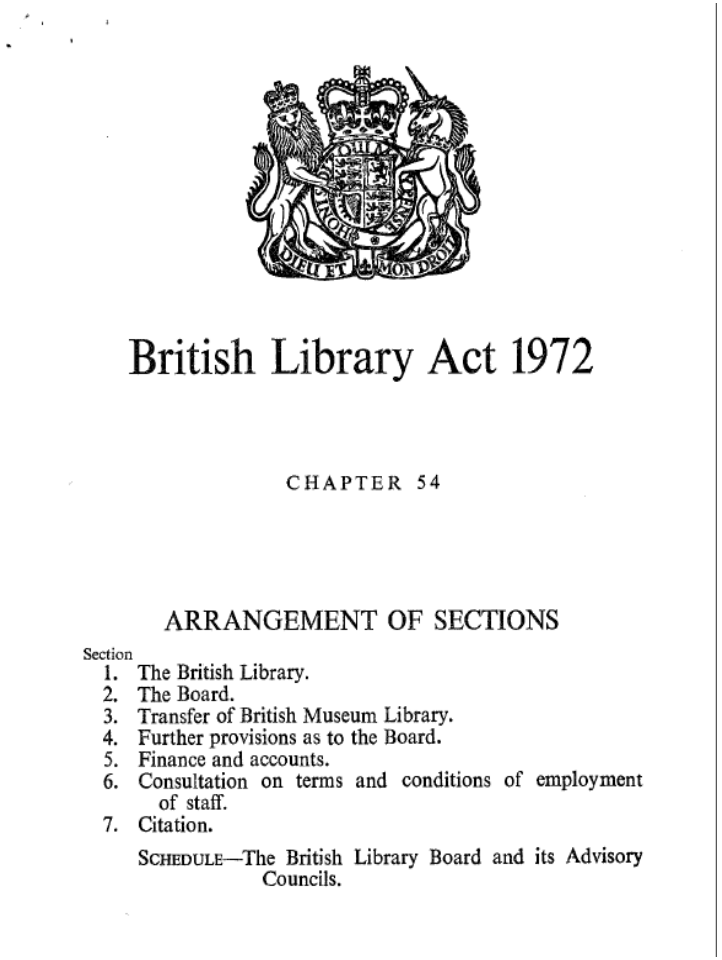
The British Library…

- **Receives a copy of every publication produced in UK**
- **Collection includes over 150 million items:**
  - *14 million books*
  - *920,000 journal & newspaper titles*
  - *58 million patents*
  - *3 million sound recordings*
  - *…and much more*
- **Operates the world's largest document delivery service**



Metadata Provision
BL Responsibilities

- **The BL Act records our role** *"as a national centre for reference, study and bibliographical and other information services…"*
- **BL Metadata Services support these core activities by:**
  - Enabling provision of national & international bibliographic services
  - Increasing visibility of holdings to connect users to content
  - Enabling participation in international collaborative initiatives



British Library Act 1972

CHAPTER 54

ARRANGEMENT OF SECTIONS

Section

1. The British Library.
2. The Board.
3. Transfer of British Museum Library.
4. Further provisions as to the Board.
5. Finance and accounts.
6. Consultation on terms and conditions of employment of staff.
7. Citation.

SCHEDULE—The British Library Board and its Advisory Councils.

A Changing Environment
Library Sector Relevance

Declining?

"I did my PhD with only 12 visits to a library. That was 5 years ago; things have improved since then, now you don't need to use a library at all!"

Increasing?

"The release of library data offers the opportunity for it to be used in ways un-thought of by the library & information community…"

SpringerLink Books, journals, reference works, protocols & more

LIBRARY DATA

Opening library data

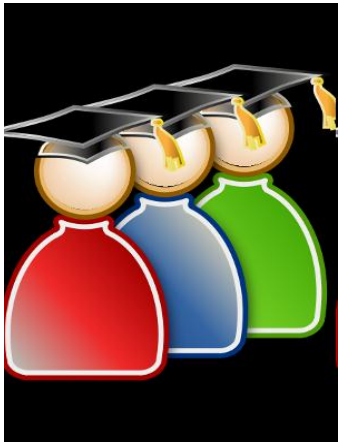
Libraries generate and hold large amounts of data. **David Stuart** looks at the potential benefits of sharing and allowing people to innovate with it

Research Information: April/May 2011

An increasingly wide range of organisations are starting to recognise the advantages of making some of their data publicly available online, and allowing external individuals and organisations to innovate around it. Although such practices were once primarily associated with leading-edge web organisations such as Google and Amazon, it is increasingly expected to be part of every organisation's online strategy. This ranges from supermarkets such as Tesco (www.techfortesco.com/forum) looking to exploit the commercial potential of making data available, to government departments responding to demands for increased transparency and access to potentially valuable publicly-funded data (for example, data.gov.uk).

A Changing Environment

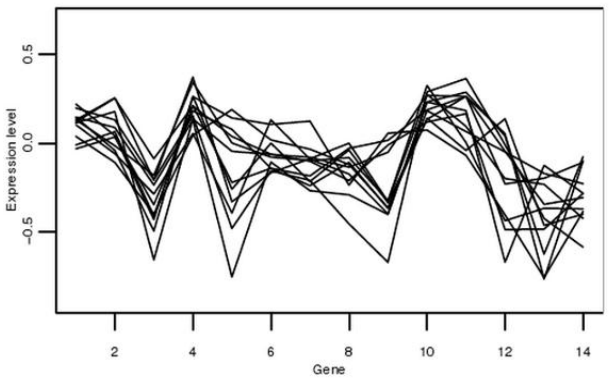
Our users were once lone scholars but now include:



- Collaborative Learners
- Data miners
- Machines

Libraries must respond

- Improving relevance
- Stimulating innovation
- Enabling knowledge creation



A Changing Environment
UK Public Sector Open Data

- **The Web** - *fostered expectation information should be open to all*
- **Data has new value** - *from open technologies enabling rapid connection & reuse*
- **'Open Data' -** *has evolved to cover:*
  - Transparency
  - Economic growth
  - Research & discovery

A Changing Environment

UK Public Sector Open Data Rating

UK Government commitment to the principle of open public data has grown since 2009 with a proposed rating:

* **Available on Web +** *open licence*

** **+** *machine-readable*

*** **+** *non-proprietary format*

**** **+** *W3C open standards*

***** **+** ***link*** *to other data*

Open Metadata Strategy
Risk Management

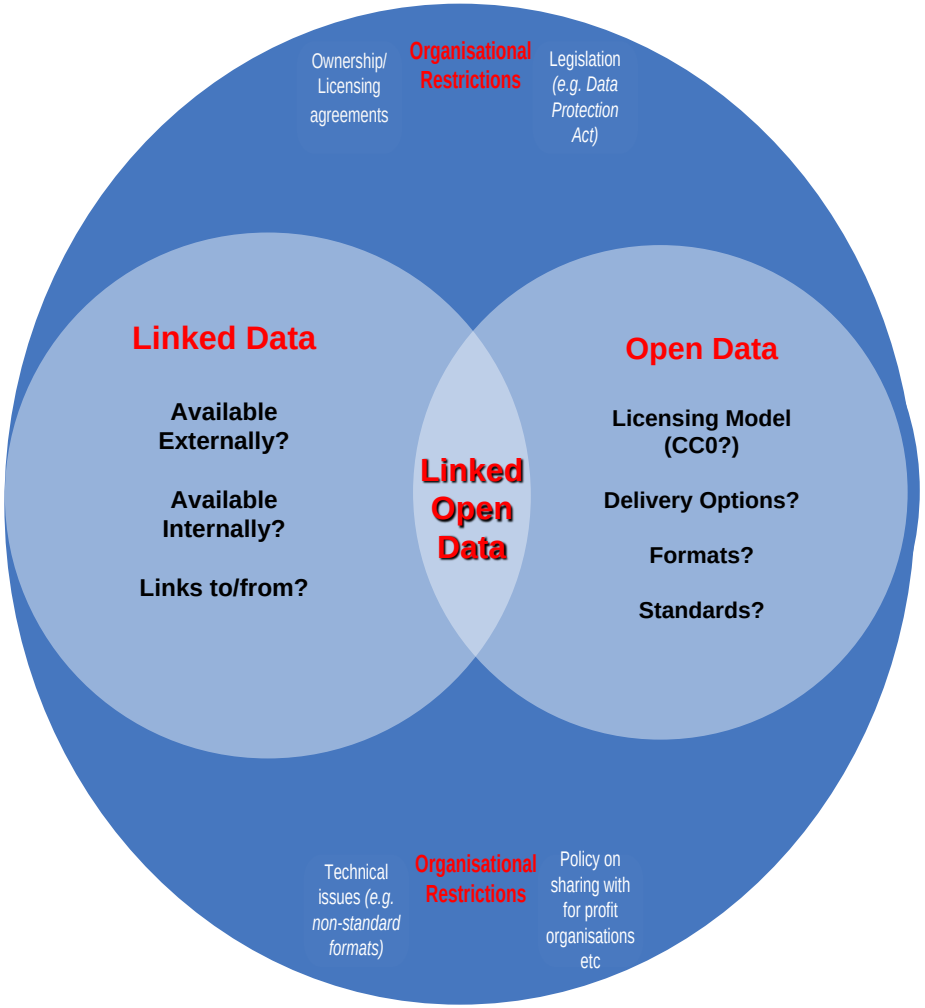
- **Financial -** *Loss of revenue from legacy services*
- **Legal** - *Many licensing options exist but few organisations offer unconditional universal access*
- **Reputational** – *Perception we don't meet government & community expectations e.g. via differing interpretations of 'free','open' & 'linked'*

Free	Open
▪ Of cost? ▪ Of all licensing restrictions? ▪ To sell or re-use in commercial services ▪ To copy & redistribute?	▪ To access from anywhere ▪ To modification/enhancement ▪ To use with free software ▪ To link to/from your data or system

Linked / Open Data?

- **Open Data –** *can be made available <u>without</u> being linked*
- **Linked Data' –** *can be created <u>without</u> being open*
- **Linked Open Data –** *Is open data created using techniques enabling it to be linked with other datasets*
- **Both –** *may be available as file dumps and/or live services*

See: http://www.semantic-web.at/LOD-TheEssentials.pdf



The BNB & Linked Data

Why BNB?

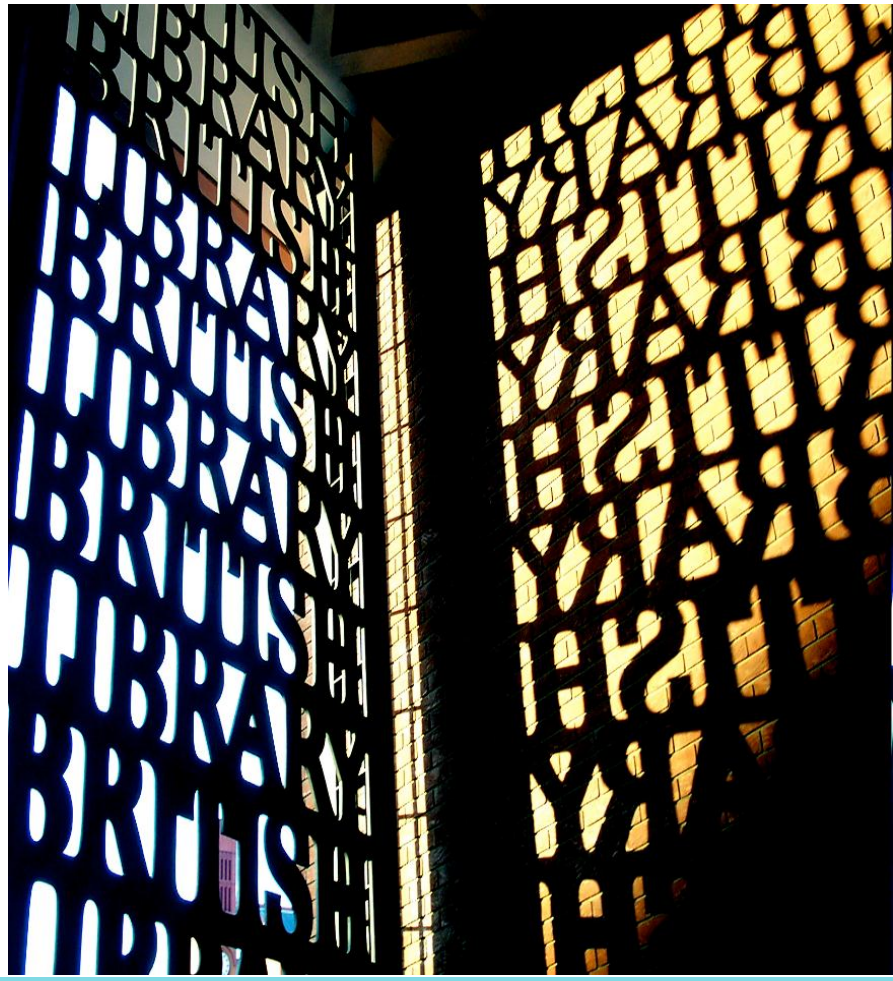
We wanted to:

- **Advance debate** *from theory to practice via release of a 'critical mass' of data*
- **Show commitment** *by using a large, core dataset; niche examples are not as compelling*
- **Create a foundational service** *others can build on & not a dead end*
- **Offer a reusable dataset** *of published items & not a unique institutional catalogue*

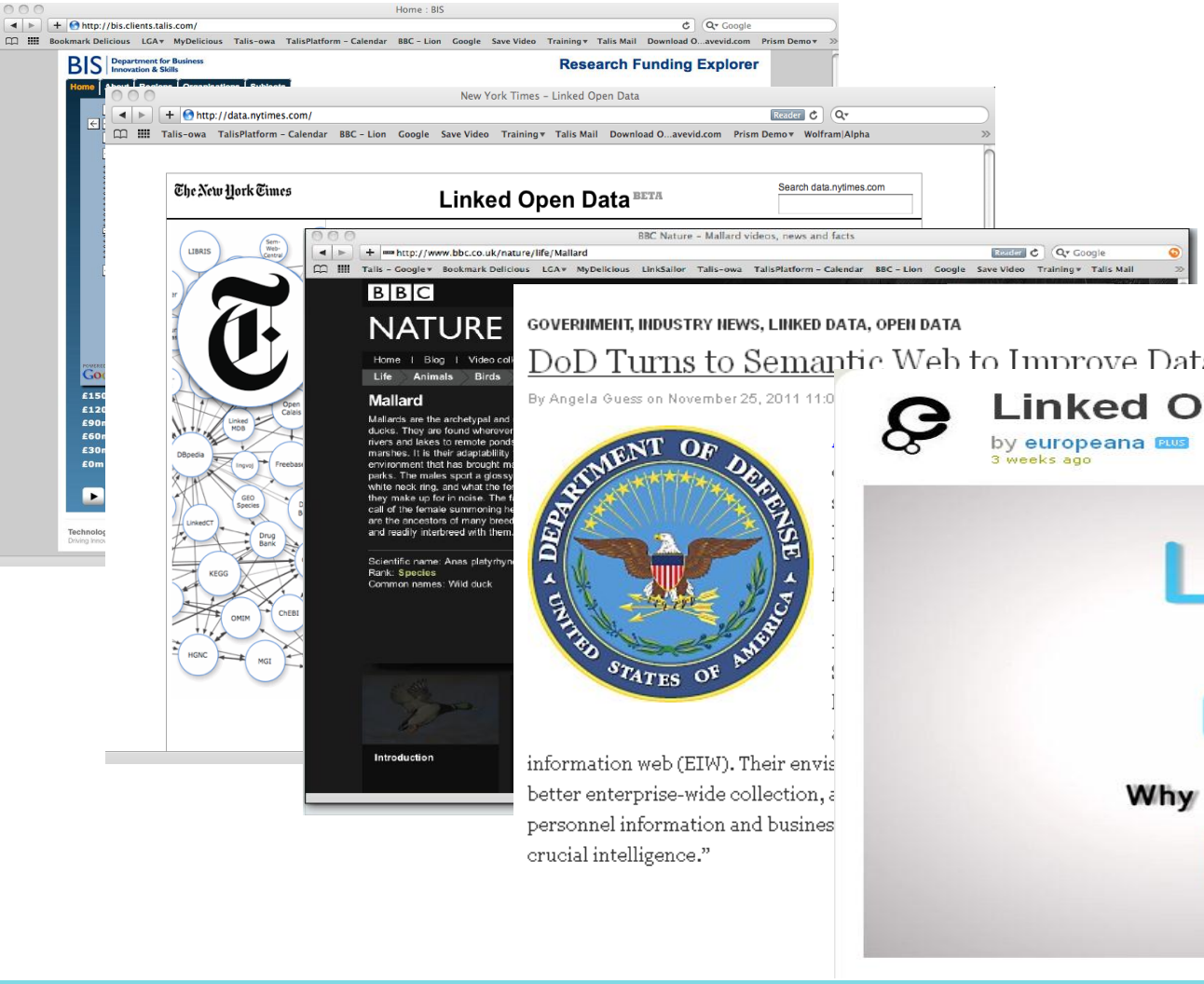
BL Open Metadata Strategy
Meeting the Challenge

Service Aims:

- **Collaboration -** *on innovative new services advancing debate from theory to practice*
- **Remove barriers -** *enabling innovation & reuse without unnecessary restrictions*
- **Recognition** - *while adopting open licensing (CC0) appropriate to the widest re-use*



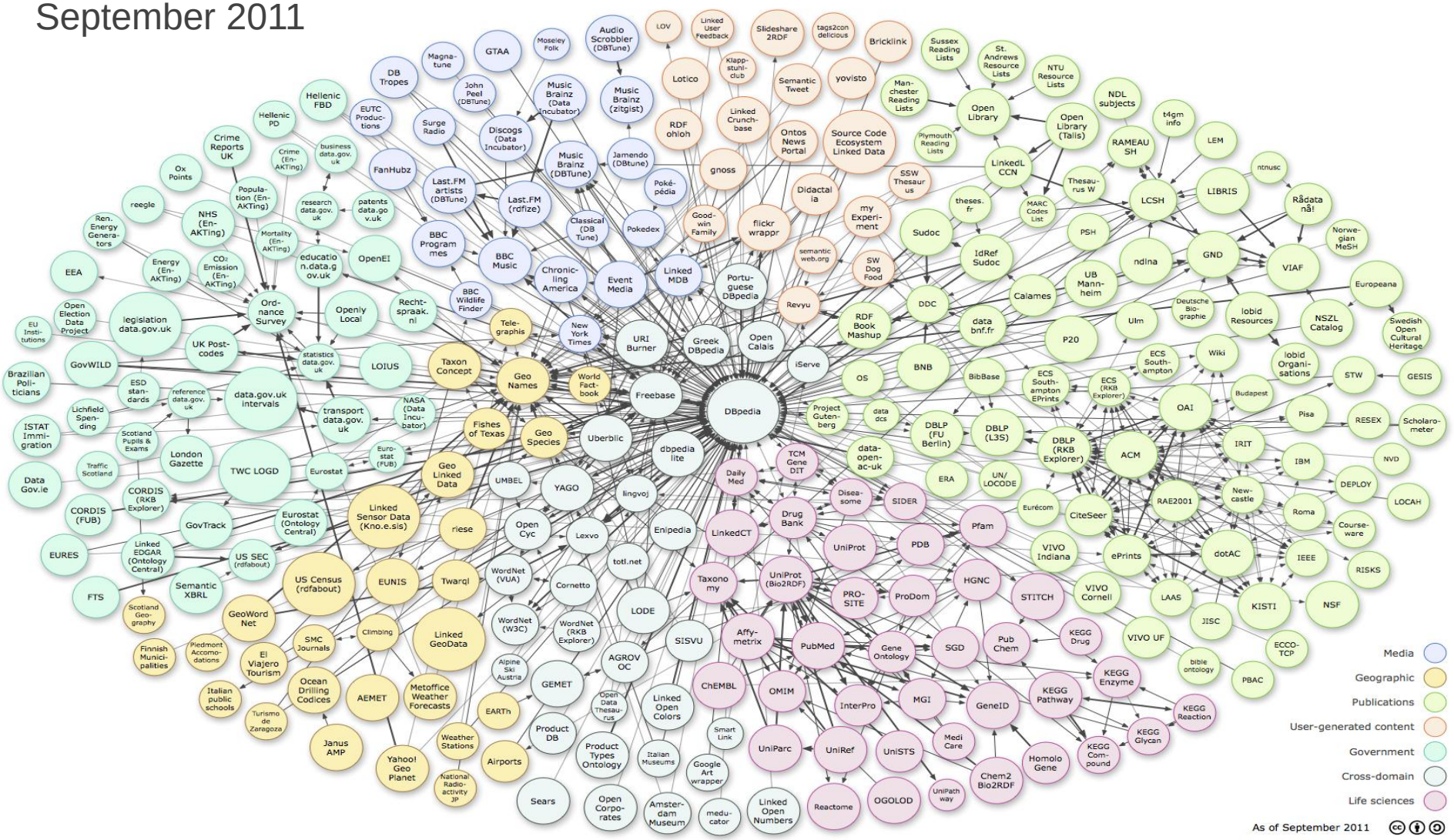
Why Linked Data?



See:
http://vimeo.com/36752317

Linked Open Data Cloud

September 2011

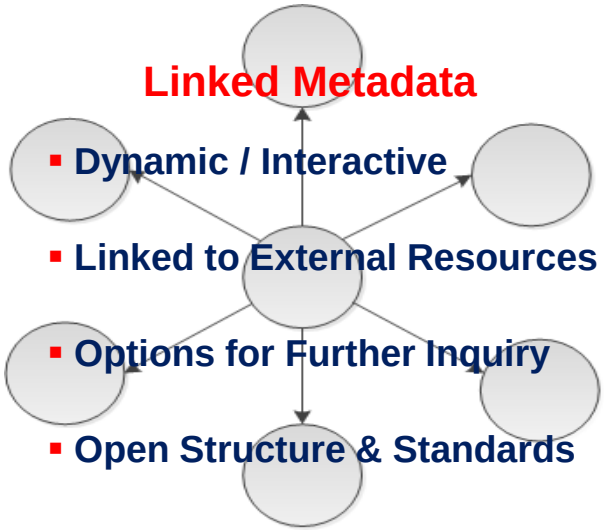


Linked Data
How is it different?

- Traditional library metadata is based on a static, proprietary **document based** model *(e.g. catalogue card)*
- Linked Data uses a dynamic **data based** model based on linking simple statements about resource properties *(Triples)*

Traditional Metadata

- **Passive**
- **Self-contained**
- **End Result**
- **Domain Specific Standards**

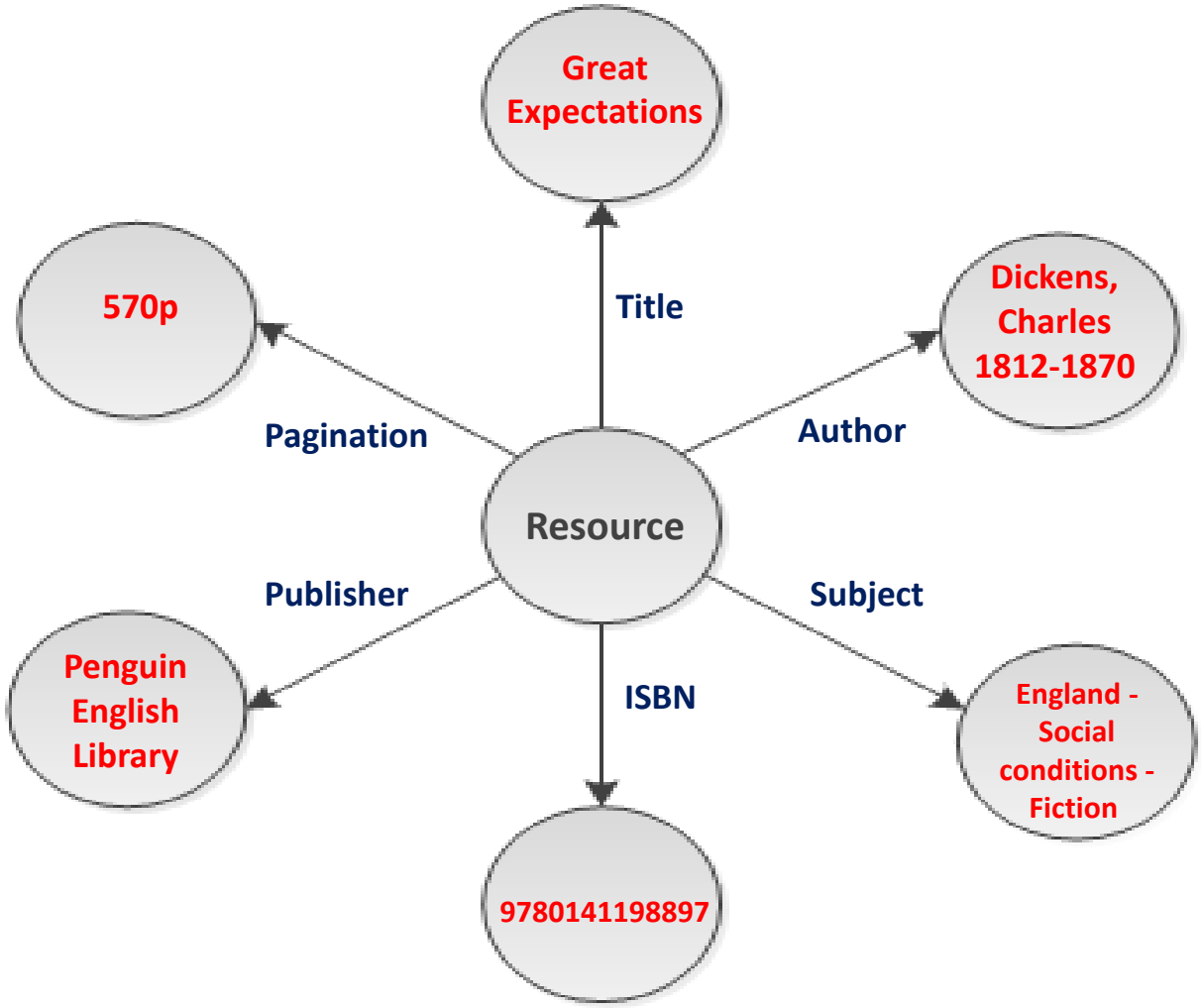


A Change in Emphasis

- **From self contained records** *describing resources*
- **To simple statements** *about resource properties (e.g. [This book] [has the author] [Charles Dickens])*
- **With 'records' assembled from selected statements**

Remodelling The Data

Simple Triple Statements



Common Vocabularies

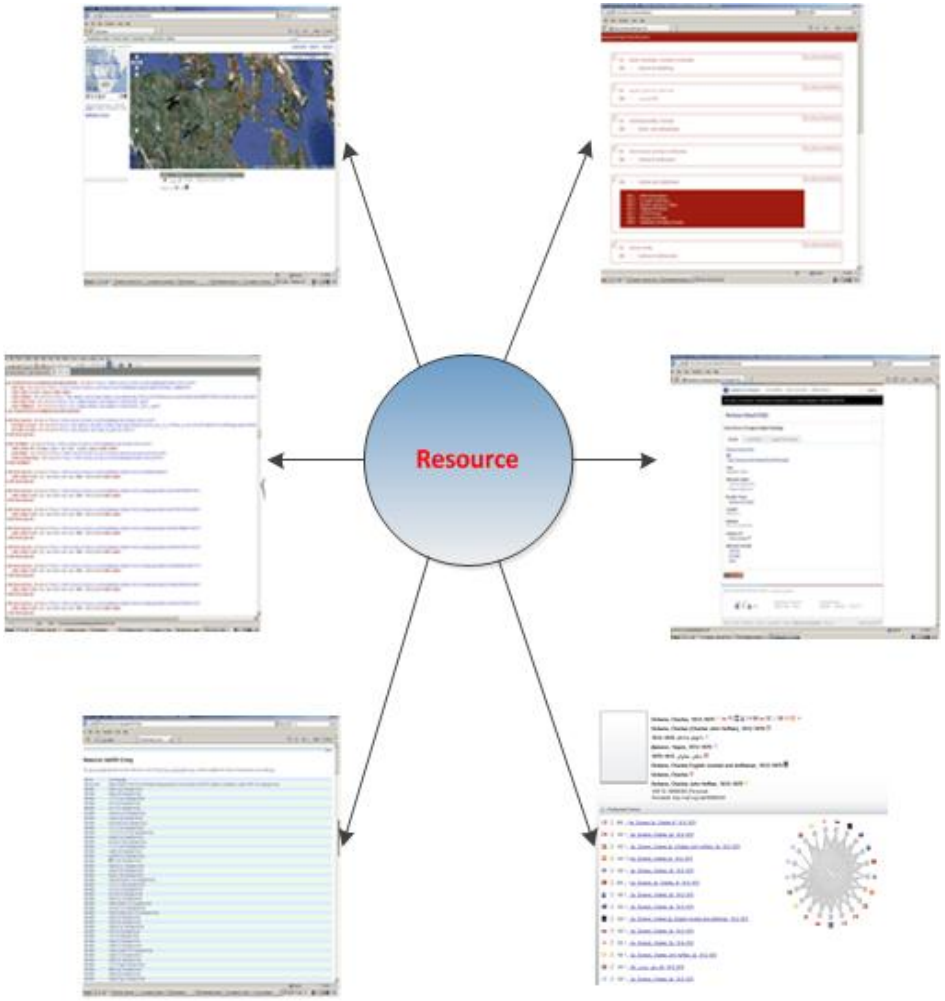
Selection

- **Bibliographic Ontology**
- **Bio: a Vocabulary for Biographical Information**
- **British Library Terms**
- **Dublin Core**
- **Event Ontology**
- **FOAF: Friend of a Friend**
- **ISBD**
- **Org: an Organisation Ontology**
- **OWL**
- **SKOS**
- **RDF Schema**
- **WGS84 Geo Positioning**

Linking

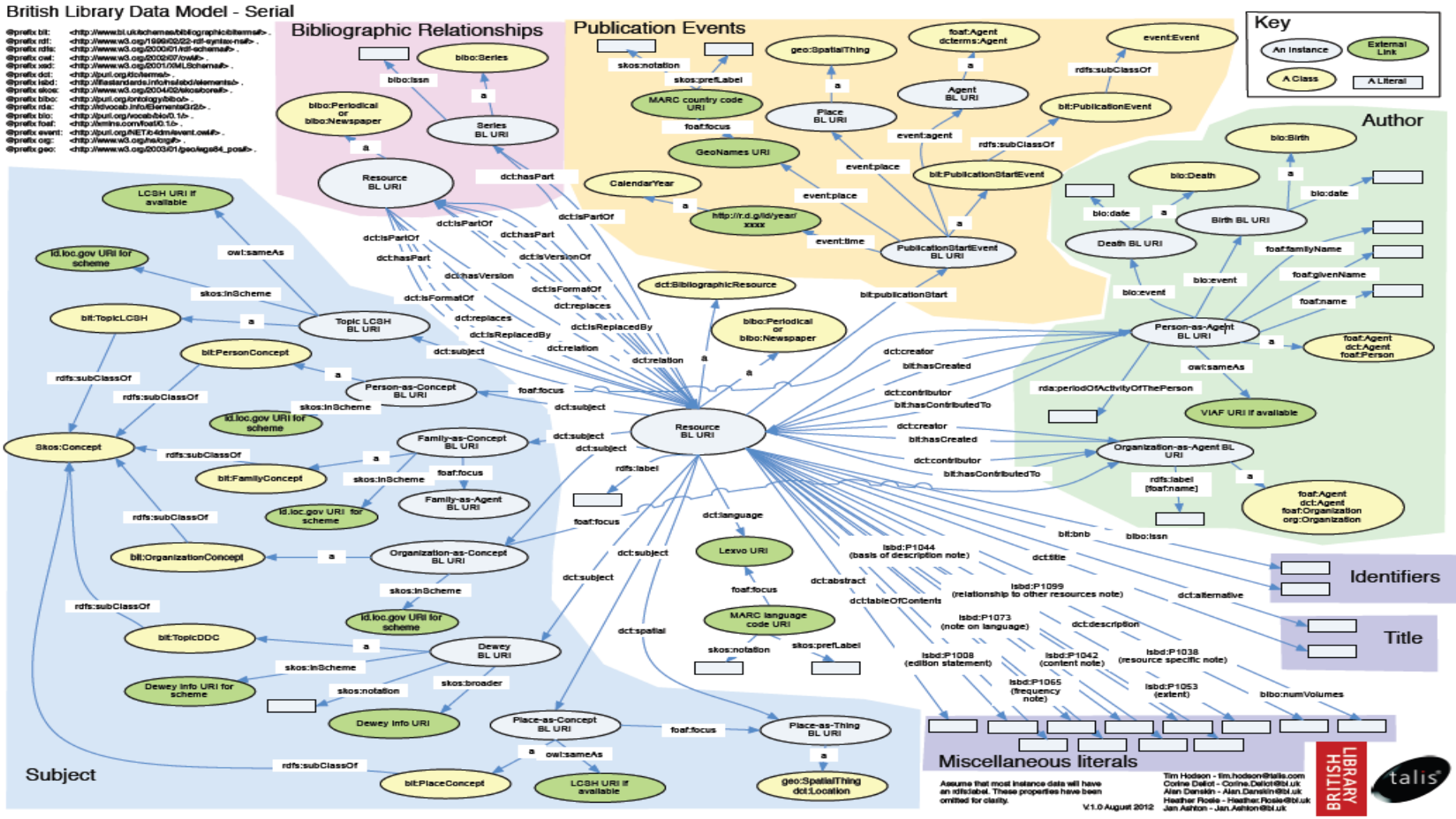
To give our data broader context we linked to:

- **General resources:**
  - *GeoNames*
  - *Lexvo*
  - *RDF Book Mashup*
- **Library resources:**
  - *LCSH*
  - *VIAF*
  - *Dewey.info*



The BNB & Linked Data

Remodelling from MARC to RDF



Linked Data
Potential Benefits

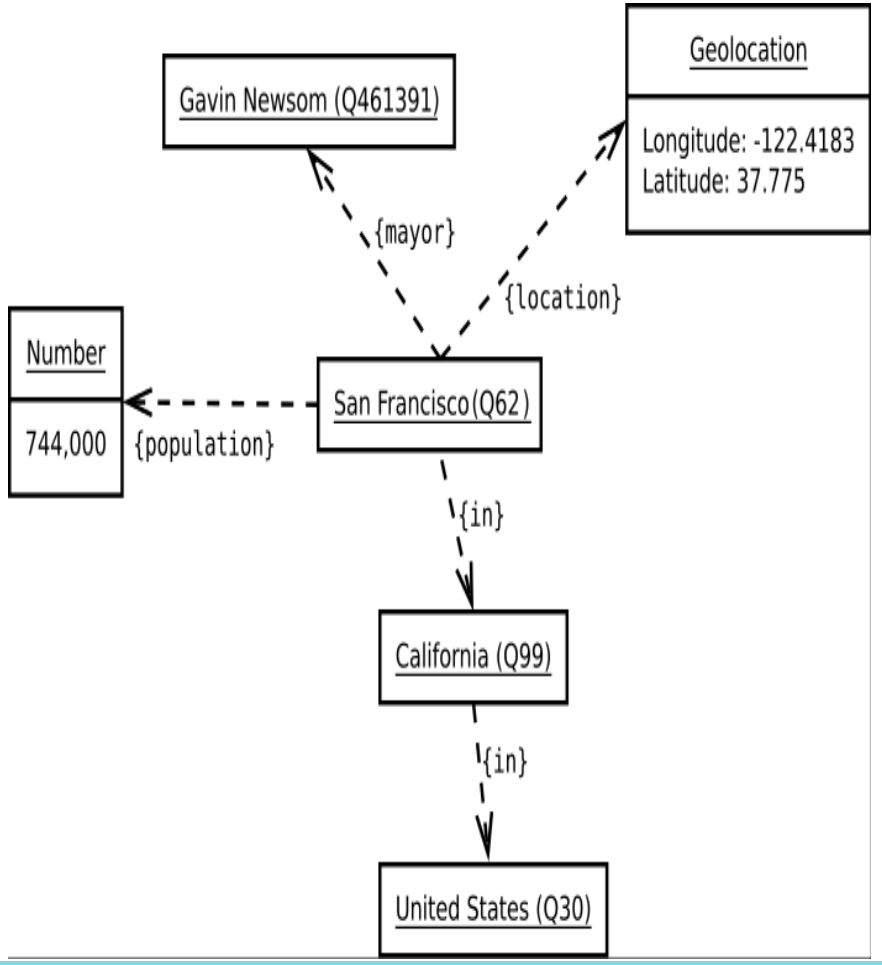
Advantages:

- Multilingual Approaches
- Personalisation
- Inferencing
- Disambiguation

Issues:

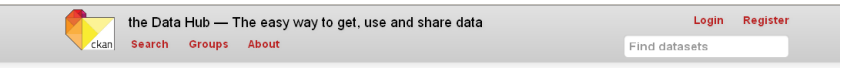
- Trust
- Persistence
- A work in progress…

But don't confuse the technology with the ideology…

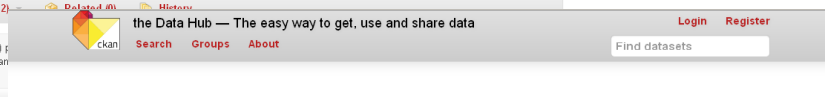


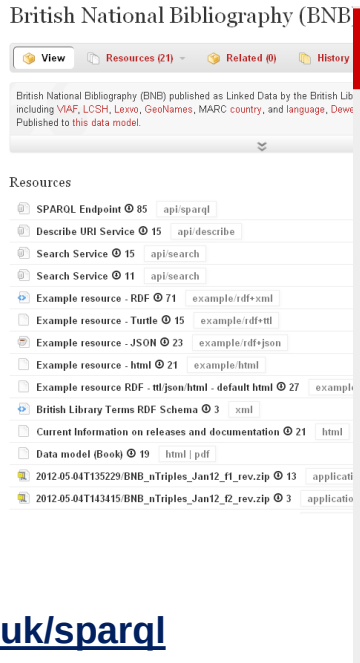
Where Did We Get To?
Multiple Access Routes

- thedatahub.org/dataset/bluk-bnb-basic

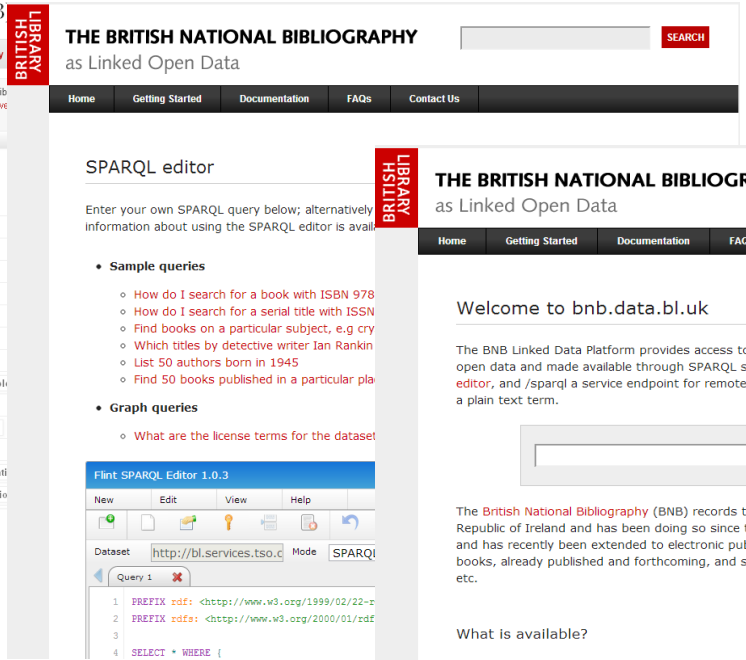


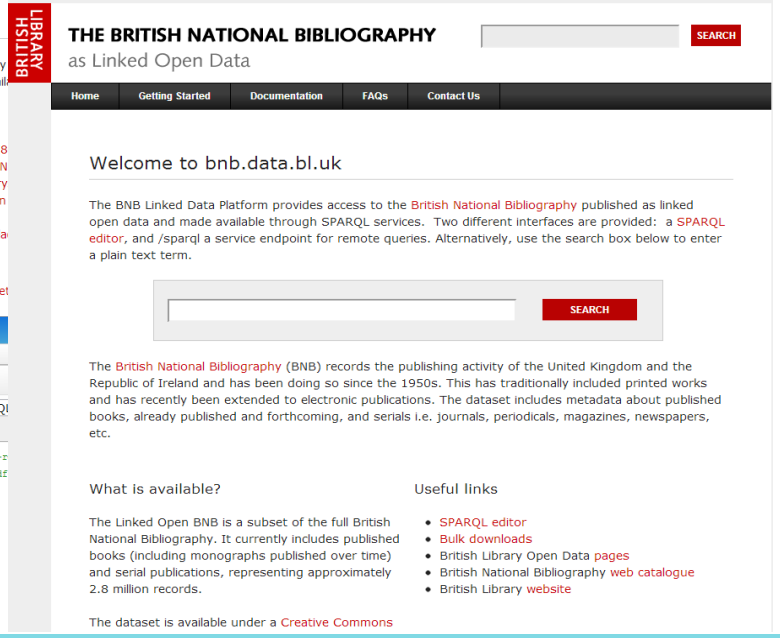
- thedatahub.org/dataset/bluk-bnb





BNB 1950-2012
2.8 Million Records
85 Million Unique Triples

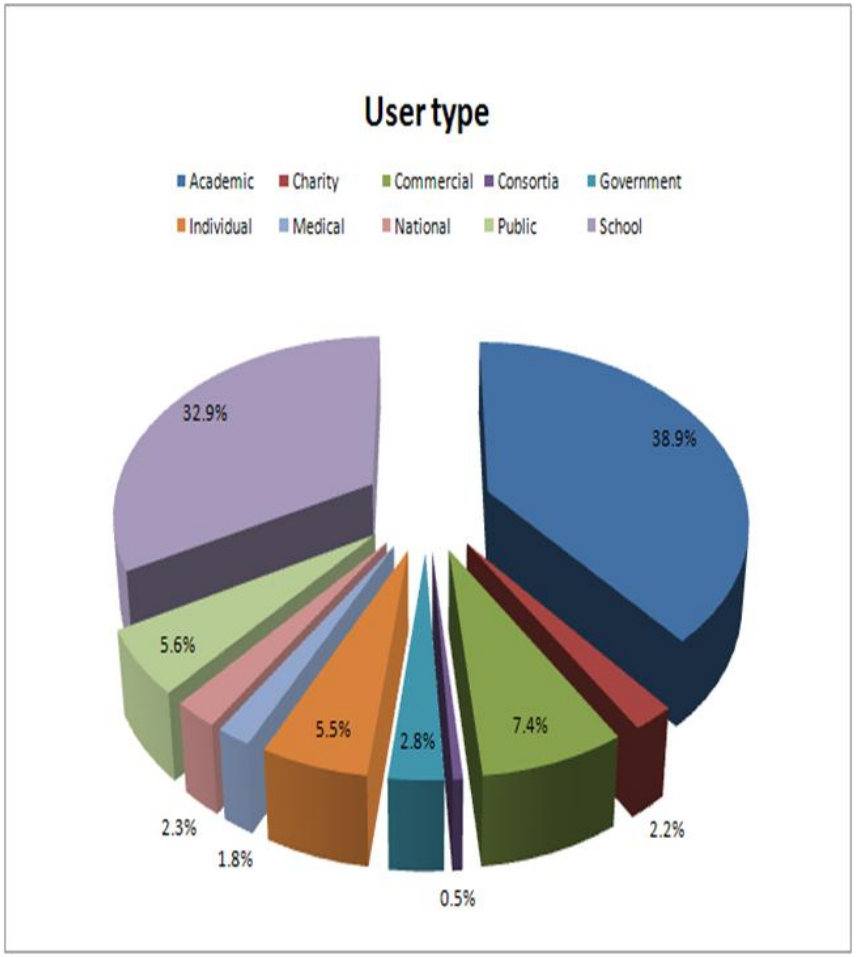




- bnb.data.bl.uk/sparql
- bnb.data.bl.uk

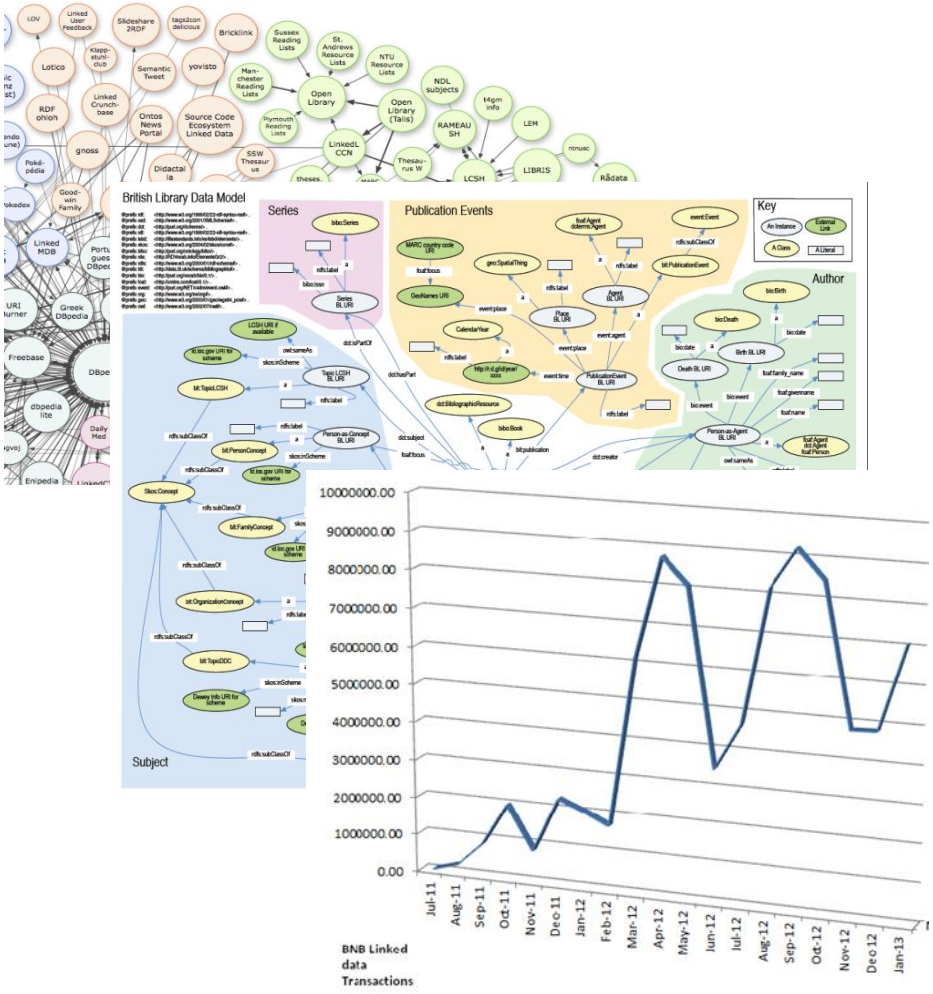
BL Open Metadata Strategy
Achievements

- **900 organisations in over 90 countries use free services** *e.g. Open Library, BBC & Wikimedia Commons*
- **Worked with Government, W3C & developers** *on technical, standards & licensing issues*
- **95% satisfaction rate -** *from 2012 survey*
- **Creation of Linked Open BNB** – *cited by Cabinet Office as best practice example*



BL Linked Open Metadata
Benefits

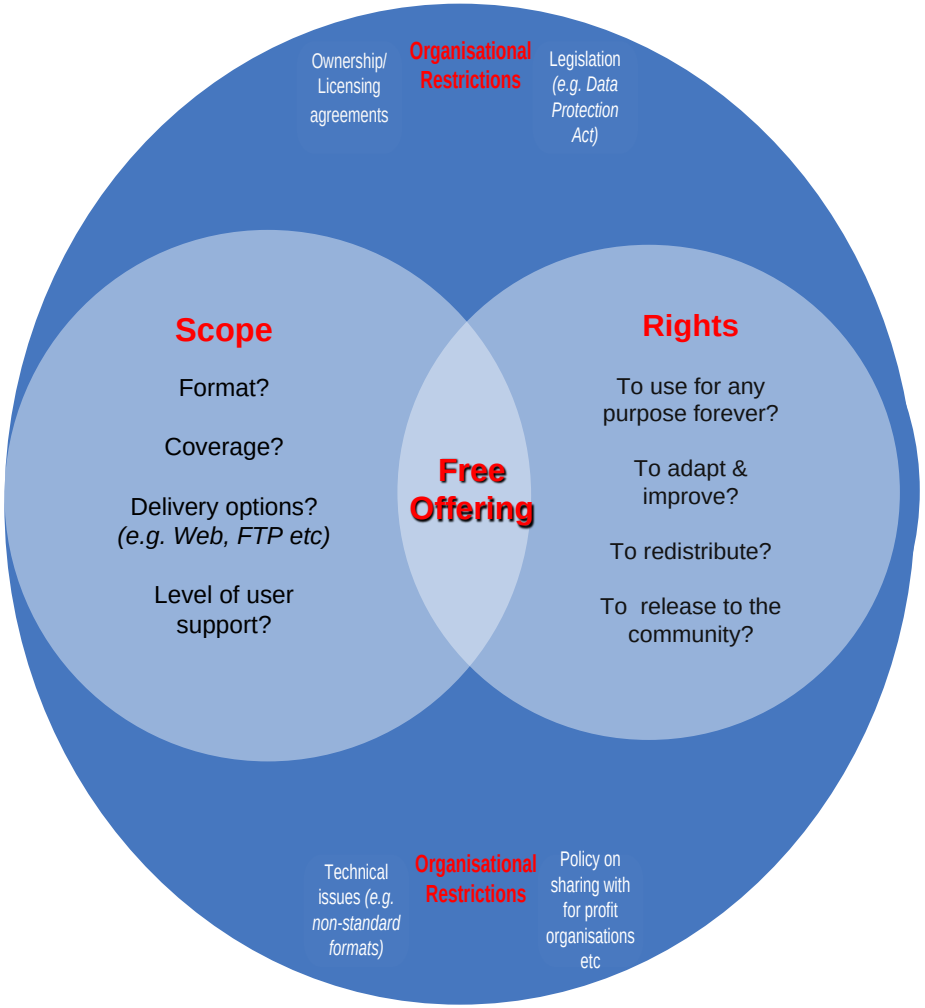
- **Presence, visibility** *& 'first mover advantage'*
- **BL data models –** *influential on wider developments*
- **New collaborations** - *with public & private sector groups e.g. Microsoft*
- **New staff expertise**
- **Confirmation that valuable data will be used** *– with up to 9 million BNB transactions monthly*



Linked Open Data
Challenges

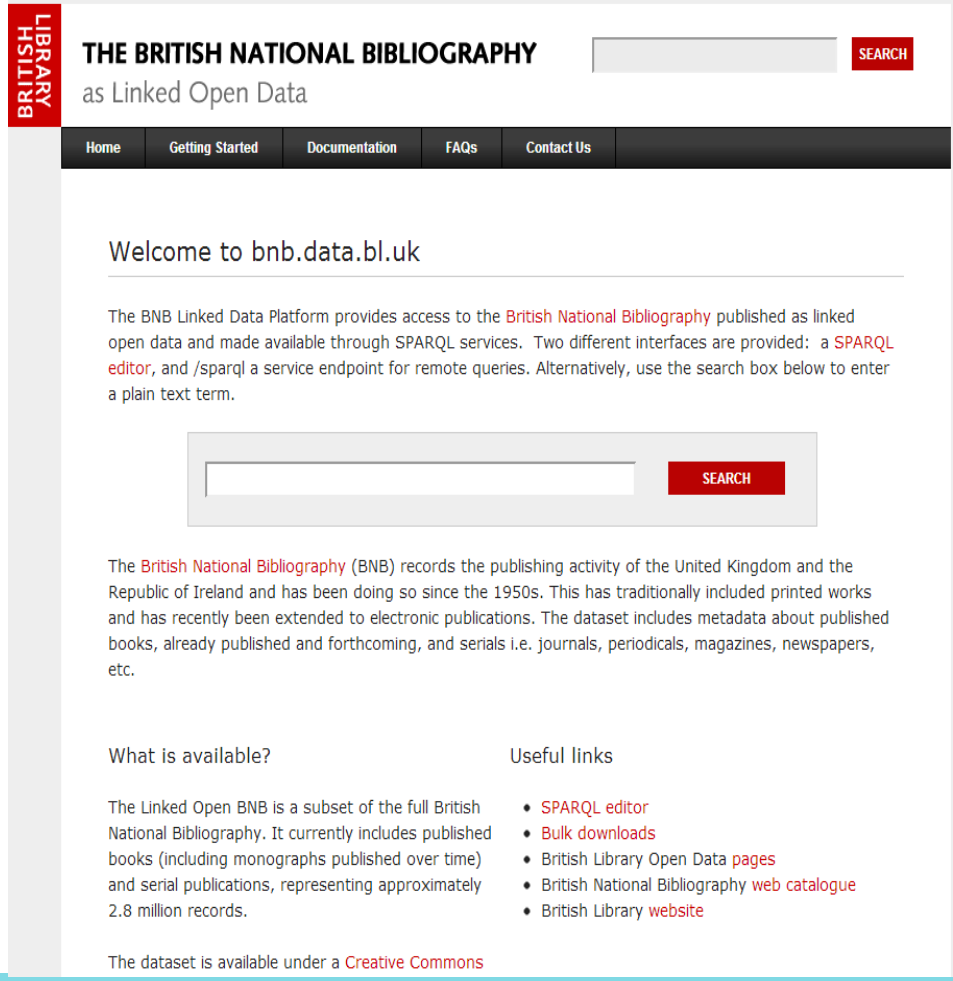
How to?

- **Capture value** *& gain attribution for effort despite 'cloning'!*
- **Ensure expectations are met -** *Government & wider community*
- **License 3rd party data** - *to support open re-supply*
- **Ensure effective service maintenance** - *& persistence*



Conclusions
Linked Open Data

- **Open Data offers knowledge organisations new opportunities** - *authority, persistence & stability being seen as invaluable for future information infrastructure*
- **Lower barriers for data re-use increase its community value** - *& improves access to information/culture*
- **Improved web integration of resources increases visibility** - *& reaches new users*
- **A global pool of reusable data** – *creates new opportunities & enables organisations to add unique value*



Thank You

Questions?

http://twitter.com/#!/BLMetadata
metadata@bl.uk

http://www.bl.uk/bibliographic/datafree.html