

# Relationship status: Libraries and linked data in Europe

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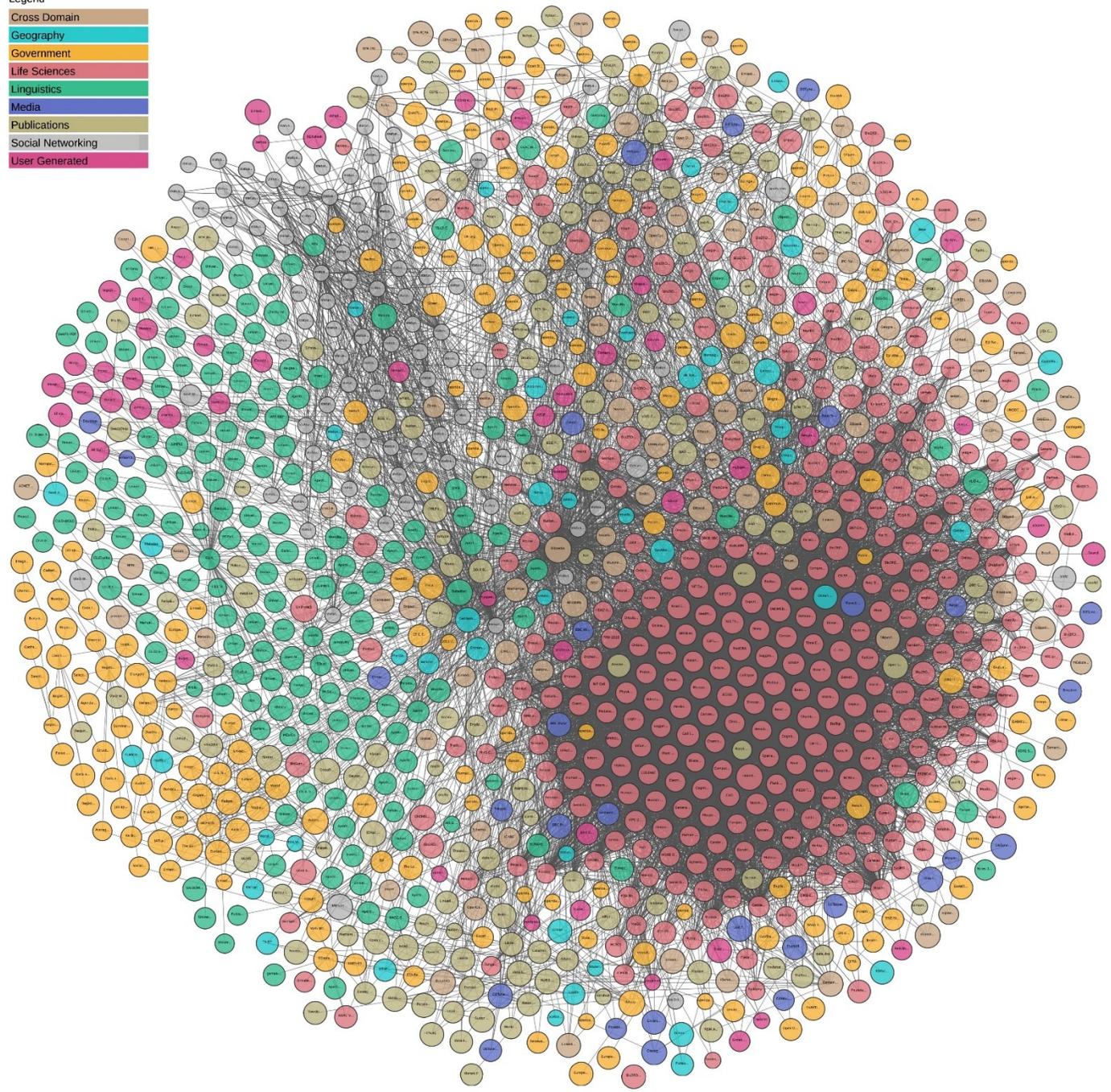
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- Legend**
- Cross Domain
  - Geography
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  - Publications
  - Social Networking
  - User Generated



# Linked data: what we know

- Semantic Web = enhanced form of web; content expressed in machine-readable format (Berners-Lee, Hendler, Lassila, 2001)
- SW = goal; LD = means to reach it (Bizer et al., 2009)
- LD as “a means to dismantle data silos” (Heath, 2009)
- W3C standards
- LD applied to library data: Baker et al., 2011; Tallerås, 2013; Shiri & Davoodi, 2016; OCLC surveys 2014, 2015, 2018 (Karen Smith-Yoshimura)

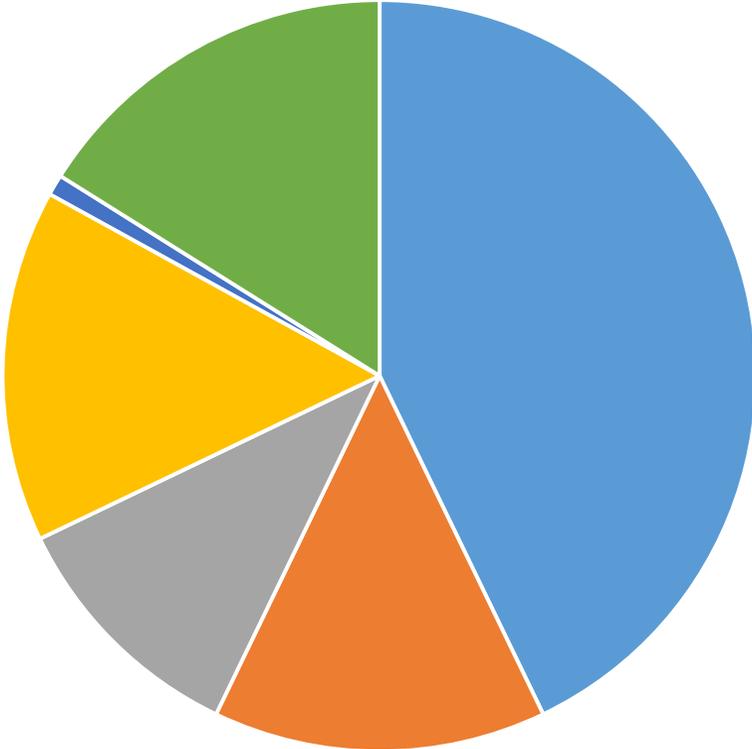
# Linked data use across European national libraries: methodology

- Literature review
- Semi-structured interviews (n=15; Skype, email)
- Departmental ethics approval
- Recruitment through Twitter, libraries' email addresses, electronic mailing lists
- Online resources analysis (n=26; Semantic Radar)

# ‘Linked Data: Opening Scotland’s library content to the world’: methodology

- Short online Qualtrics survey
- Departmental ethics approval
- Recruitment through Twitter, SLIC, CILIPS
- Open from 03/05/17 to 18/05/2017
- n=113 completed responses

# Scottish library types participating in the survey



- Public
- School
- Academic
- Other
- National
- Did not specify

# Scottish Government's Open Data Strategy (2015)

“This strategy seeks to create a Scotland where non-personal and non-commercially sensitive data from public services is recognised as a resource for wider societal use and as such is made open in an intelligent manner and available for re-use by others.”

Source: <http://www.gov.scot/Publications/2015/02/6614>

# Open Government Data

- Open government initiatives spreading world-wide
- Transparency (fight corruption / improve accountability)
- Enable citizens' participation
- Strengthen democracy
- Data generated, gathered and stored by government agencies (e.g., national, school, public libraries) using public money (through taxes) should be available to everyone

# Findings

- Two individual studies revealed similar results
- Status of awareness of “linked data” and “Semantic Web” concepts
- Linked data uses
- Reasons for, challenges/benefits of linked data implementation
- Recommendation and best practice

# Linked data awareness

- European national libraries: lack of awareness among staff (e.g., IT) hinders projects design and actuation
- Scottish libraries:

Do you know what the term 'linked data' means?



- Definitely yes
- Probably yes
- Might or might not
- Probably not

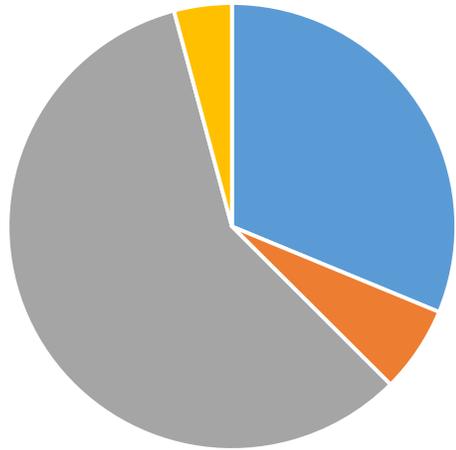
Do you know what the term 'Semantic Web' means?



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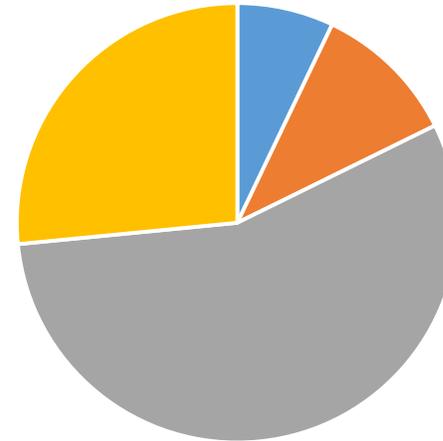
# Linked data implementation status

European nat. libraries



- Have Implemented
- Have plans to implement
- Not implemented
- Taking steps towards

Scottish libraries



- Have implemented
- Have plans to implement
- Have no current plans to implement
- No response

# Uses of linked data

## European nat. libraries

- Provide data to LD data sets (VIAF, Wikidata, Europeana)
- Publish bibliographic and authority data
- National bibliographies
- Digitized resources
- Thesauri and ontologies

## Scottish libraries

- MARC catalogue records
- Digitized resources
- Social media
- Research outputs using RDF, Dublin Core, SPARQL
- OWL, SKOS, Europeana Data Model

# Reasons for implementing linked data

- Popularity of linked data on international scene (perceived/expected benefits)
- Improve data visibility and discoverability
- Enhance existing data sets
- Enriched, open, reusable information, available for various purposes to the wider community
- Adhere to standards (W3C)
- Open up data silos

# Challenges of implementation

- Lack of awareness
- Lack of expertise / time / staff
- Difficulties in obtaining management buy-in
- Licencing constraints (permission needed from database providers to link)
- Potential loss of control of data
- Lack of agreement on standards
- Lack of tools / guidelines

# Benefits of implementation

- Augment visibility and discoverability of library data
- Support interoperability
- Overcome linguistic barriers
- Acquire better understanding of linked data potential
- Enable cataloguing efficiency and innovation (e.g., workload reduction)
- Obtain authoritative position as data provider (to which other institutions will refer to)

# Best practice

- Is LD the right technology for your scope?
- Design a detailed roadmap before acting
- Consider legal issues
- Training
- Adopt tools to support implementation
- Contact/collaborate with LD implementers
- Seek expert developers, if necessary
- URI syntax maintenance
- Reuse data /existing vocabularies, whenever possible
- Adopt entity-based approach to data

# Recommendations

- Teach practitioners what linked data can achieve
- Familiarize yourself with LD
- Focus on goals, rather than technical matters
- Involve your institution/community of stakeholders
- Look at examples offered by successful projects
- Focus on data specific to your institution
- Consider needs of wider community (not just library community)
- Collaborate with local universities/institutions and benefit from their expertise – Collaboration is key!

# Further research / directions

- Encourage open data movement at government level
- Case studies: Successful implementation examples
- Re-use vs creation of ontologies
- Licensing constraints
- Step-by-step implementation guidelines
- Improve communication between system providers/technicians and information professionals
- Collaboration towards design and adoption of a common model, to facilitate data integration

# Conclusions

- Still far from the SW as envisaged by Berners-Lee, Hendler, and Lassila in 2001 – SW enabling better “understanding between humans and machines”
- No agreed-upon standards = risk of “LD silos”
- Need for spreading awareness and advocate for LOD with government / public bodies



Thank you!



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