

Linked Data for Professional Education (LD4PE)

An IMLS funded Project



What Is LD4PE?

- Linked Data for Professional Education (LD4PE) is a project under the jurisdiction of the DCMI Education & Outreach Committee, funded by the Institute of Museum and Library Services (IMLS).
 - The intent is that the LD4PE website will continue to be supported by DCMI and its members as part of DCMI's larger education and outreach activities, and be used in other activities as appropriate once the project is completed.
- The project has developed a Web-based Linked Data platform to support the structured discovery of the learning resources available online by open educational resource (OER) and commercial providers.
 - At the heart of the Linked Data project and website is a competency framework for Linked Data that supports indexing learning resources according to the specific competencies, skills, and acquired abilities they address.
 - To do this, the LD4PE website itself leverages Linked Data technology by assigning global identifiers (URIs) to statements of competency, then citing those URIs in metadata descriptions of learning resources.

Who Is Involved?





Key Project Personnel

- University of Washington
 - Michael Crandall
 - Stuart Sutton
 - David Talley
 - Abi Evans
- Kent State University
 - Marcia Zeng
 - Sean Dolan
- DCMI
 - Stuart Sutton
 - Tom Baker
 - Joseph Chapman
- Content Partners
 - Elsevier
 - Michael Lauruhn
 - Access Innovations
 - Marjorie Hlava
 - Synaptica
 - David Clarke
 - Sungkyunkwan University
 - Sam Oh
 - OCLC
 - Eric Childress

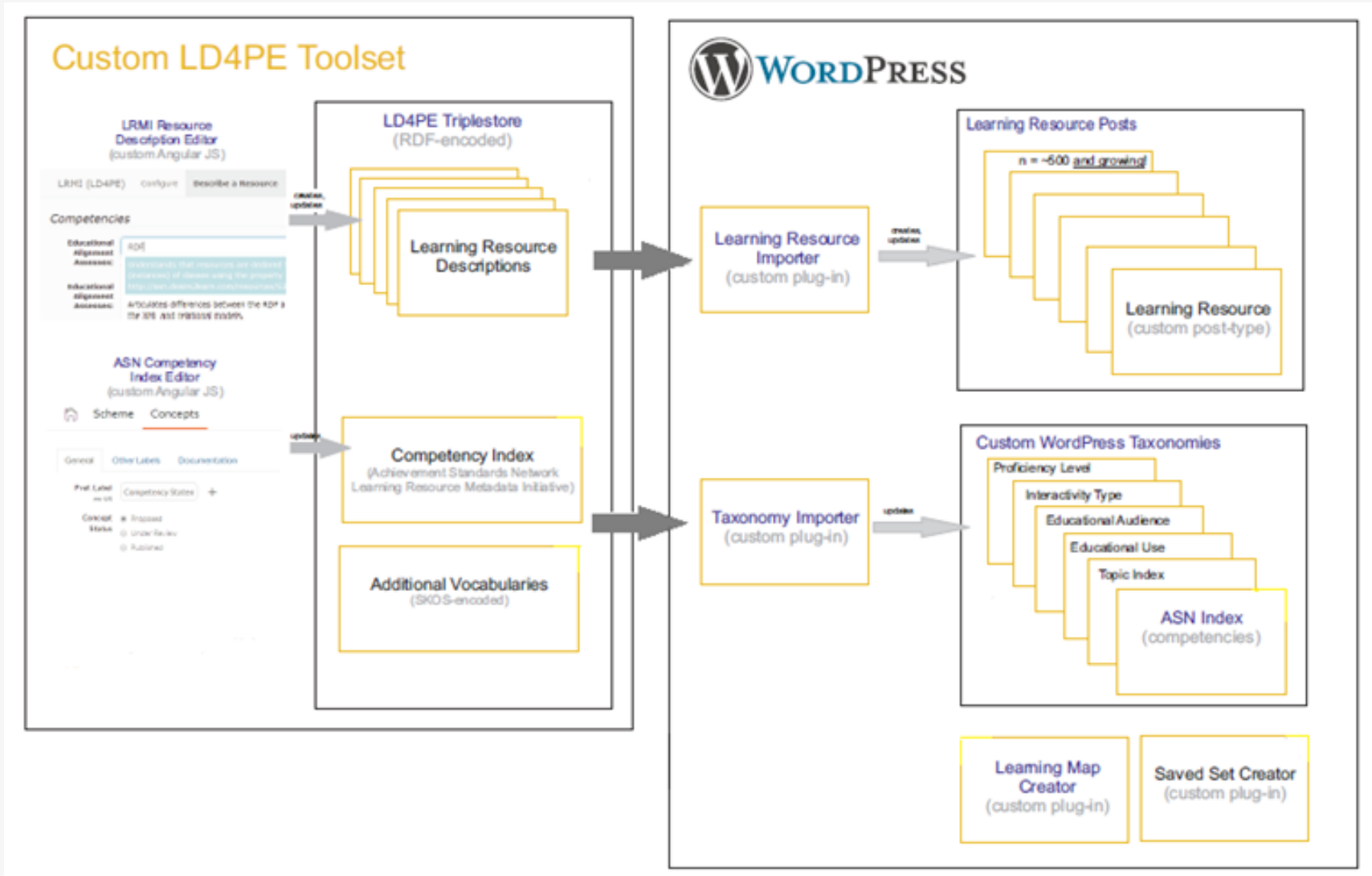


Project Deliverables

- **Competency Framework.** A “Competency Index for Linked Data” based on the Achievement Standards Network Description Language (ASN-DL) for describing formally promulgated competencies and benchmarks.
- **Toolkit.** An openly available, web-based tool set to support the generation of RDF metadata describing : (a) learning resources; and (b) ASN-based competency frameworks and SKOS-based concept schemes.
- **Learning Resource Descriptions.** A set of cataloged learning resources that have been mapped to the competencies and benchmarks of the Competency Index to support competency-based resource discovery by teachers, trainers and learners.
- **LD4PE Website.** A website to be managed by DCMI as part of its educational agenda for open discovery of competency-based learning resources, access to the toolkit, learner trajectory maps, and supporting resources.
- **Best Practices.** Readily accessible best practice documentation for all processes, from community-based competency framework development and learning resource description through learner trajectory creation.



Architecture





Linked Data Competency Index: Mapping the field for teachers and learners

Thomas Baker
Dublin Core Metadata Initiative



Linked Data Competency Index

The Linked Data Competency Index provides:

- a concise and readable map of concepts and skills
- related to practices and technologies of Linked Data
- for benefit of interested learners (and teachers).



“Competency Index”

A **thematic set of competencies** organized by

- **Topic**
 - **Competency**: a tweet-length phrase about knowledge or skills that can be learned
 - **Benchmark**: an action that demonstrates accomplishment in a given competency



Linked Data Competency Index Example

- **Topic:** Querying RDF Data
 - **Competency:** Understands that a SPARQL query matches an RDF graph against a pattern of triples with fixed and variable values
 - **Competency:** Understands the basic syntax of a SPARQL query
 - **Benchmark:** Uses angle brackets for delimiting URIs.
 - **Benchmark:** Uses question marks for indicating variables.
 - **Benchmark:** Uses PREFIX for base URIs.



LD4PE Competency Index

Example topic

- **Topic: Querying RDF Data**
 - **Competency:** Understands that a SPARQL query matches an RDF graph against a pattern of triples with fixed and variable values
 - **Competency:** Understands the basic syntax of a SPARQL query
 - **Benchmark:** Uses angle brackets for delimiting URIs.
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6 topic clusters
30 topics
95 competencies

LD4PE Competency Index

Overview of topics

- **Fundamentals of Resource Description Framework**
 - Identity in RDF
 - RDF data model
 - Related data models
 - RDF serialization
- **Fundamentals of Linked Data**
 - Web technology
 - Linked data principles
 - Linked Data policies and best practices
 - Non-RDF Linked Data
- **RDF vocabularies and application profiles**
 - Finding RDF-based vocabularies
 - Designing RDF-based vocabularies
 - Maintaining RDF vocabularies
 - Versioning RDF vocabularies
 - Publishing RDF vocabularies
 - Mapping RDF vocabularies
 - RDF application profiles
- **Creating and transforming RDF Data**
 - Managing identifiers (URIs)
 - Creating RDF data
 - Versioning RDF data
 - RDF data provenance
 - Cleaning and reconciling RDF data
 - Mapping and enriching RDF data
- **Interacting with RDF Data**
 - Finding RDF Data
 - Processing RDF data using programming languages
 - **Querying RDF Data**
 - Visualizing RDF Data
 - Reasoning over RDF data
 - Assessing RDF data quality
 - RDF Data analytics
 - Manipulating RDF Data
- **Creating Linked Data applications**
 - Storing RDF data



Competencies and benchmarks

- **Topic:** Querying RDF Data
 - **Competency:** **Understands** that a SPARQL query matches an RDF graph against a pattern of triples with fixed and variable values
 - **Competency:** **Knows** the basic syntax of a SPARQL query
 - **Benchmark:** **Uses** angle brackets for delimiting URIs.
 - **Benchmark:** **Uses** question marks for indicating variables.
 - **Benchmark:** **Uses** PREFIX for base URIs.



620 resources described

<http://explore.dublincore.net/explore-learning-resources-by-competency/>

Explore Learning Resources by Competency

Search ...



Browse by Competency

✓ How does this work?

+ New Comp Index (620)

+ Fundamentals of Resource Description Framework (218)

+ Fundamentals of Linked Data (135)

+ RDF vocabularies and application profiles (181)

+ Creating and transforming Linked Data (82)

To Explore Linked Data learning resources, select a competency assertion or topic statement in the adjacent panel to view a listing of associated learning resources.



The *Competency Index for Linked Data* (CI) constitutes a set of topically arranged assertions of the knowledge, skills, and habits of mind required for professional practice in the area of Linked Data.

This structure is illustrated in the adjacent panel. CI development is expected to openly crowd-source expertise in the development processes under the guidance of the project's CI Editorial Board (CIEB).

[Learn more about the Competency Index](#) ↗.

IMPORTANT NOTES:



Example: YouTube video tagged using LDCI

[Explore](#)[Tech Talk](#)[Updates](#)[About](#)[Related](#)[J](#)

▼ What's This?

Add Resource to Saved Set

- Save to Your Saved Set - ▾

Add to Set

Create a New Saved Set

Enter a new set name

☒ Set is public

Create New Set

Maximising (Re)Usability Of Library Metadata Using Linked Data

In this video, the speaker explores challenges related to the re-usability of library linked metadata in the field of cultural heritage- and for other purposes. She argues that it is crucial that published Linked Data accurately represent core aspects of the original metadata related to language, provenance, license, and dataset metadata. The speaker proposes a "proper representation" of these features using W3C standards, best practices and guidelines for multilingual Linked Open Data.

URL:

<https://www.youtube.com/watch?v=IIDXZ-wj4Vs> ↗


Keywords: Libraries, Archives, and Museums (LAMs), Lemon (Lexicon Model for Ontologies), Linguistic Linked Open Data, VoID (Vocabulary of Interlinked Datasets), BabelNet

Author: Pérez, Asunción Gómez


Publisher: Technical University of Madrid




Example: YouTube video tagged using LDCI



Search




How to represent in Linked Data ...



- Traditional annotation properties to represent language


bne:XX1718747
rdfs:label "Θερβάντες, Μιγκέλ ντε"@gr.
"Miguel de Cervantes"@es.
"Cervantes di Saavedra, Michele"@it.




- Richer models to represent linguistic information for more demanding applications

Association of the vocabulary to an external lexicon model: Is author of (Femenine and Masculine)

```
# LEMON
Bne:OP5001 lemon:isReferenceOf [lemon:isSenseOf :author_of].
      :author_of a lemon:LexicalEntry;
lemon:form [lemon:writtenRep "es autor de"@es;
```




Asunción Gómez Pérez
Technical University of Madrid,
Spain





<https://dcmi.github.io/ldci/D2695955/>

 **Linked Data Competency Index**

About

The Index

LD4PE Competency Index

A: Fundamentals of Resource Description Framework

A: Fundamentals of Linked Data

A: RDF vocabularies and application profiles

A: Creating and transforming Linked Data

A: Interacting with RDF data

A: Creating Linked Data applications

Structure of the Index

Style of the Index

How to Contribute

Editorial Board

FAQ

[Docs](#) » The Index

 [Edit on Github](#)

LD4PE Competency Index

Version: 2017-06-28 14:34:35

View at: <https://dcmi.github.io/ldci/D2695955/>

Code	Type	Definition
A	Topic Cluster	
B	Topic	
C	Competency	Tweet-length assertion of knowledge, skill, or habit of mind.
D	Benchmark	Action demonstrating accomplishment in related competencies.

Note: Hover over a code to see its URI. Click on a code to visit its full definition on the [Achievement Standards Network](#) website.

A: Fundamentals of Resource Description Framework

- **B:** Identity in RDF
 - **C:** Knows that anything can be named with Uniform Resource Identifiers (URIs), such as agents, places, events, artifacts, and concepts.



Linked Data Competency Index in Chinese

<https://dcmi.github.io/ldci-zh/D2695955-zh/>

Linked Data Competency Index
(Chinese)

Search docs

About

The Index

LD4PE Competency Index

A: RDF (资源描述框架) 基础

A: 关联数据基础

A: RDF词汇与应用纲要

A: RDF数据的生成与转换

A: 与RDF数据的交互

A: 关联数据应用的开发

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代码	类型	定义
A	主题簇	
B	主题	
C	指标	知识、技能与思维习惯的主张（140个字符的Tweet长度）。
D	基准	达成相关能力的行动。

说明: 鼠标悬停在代码上可以看到URI. 点击代码可在网站 [Achievement Standards Network](#) 上访问其定义全文.

A: RDF (资源描述框架) 基础

- B: RDF中的标识
 - C: 知道在RDF中所有东西 (thing) 通过唯一资源识别符URIs进行命名, 例如, 代理、地点、事件、物



Crowdsourcing LDCI maintenance



[Edit on Github](#)

Linked Data Competency Index

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Users can propose new competencies

```
real, imagined, or conceptual.
27 * [C:](http://asn.desire2learn.com/resources/S2709298) Understands that resources are declared to be members (instances) of classes
using the property rdf:type.
28 * [C:](http://asn.desire2learn.com/resources/S2709299) Understands the use of datatypes and language tags with literals.
29 * [C:](http://asn.desire2learn.com/resources/S2709997) Understands blank nodes and their uses.
30 * [C:](http://asn.desire2learn.com/resources/S2710003) Understands that QNames define shorthand prefixes for long URIs.
31 * [D:](http://asn.desire2learn.com/resources/S2710007) Uses prefixes for URIs in RDF specifications and data.
32 * [C:](http://asn.desire2learn.com/resources/S2731549) Articulates differences between the RDF abstract data model and the XML and
relational models.
33 * [C:](http://asn.desire2learn.com/resources/S2731551) Understands the RDF abstract data model as a directed labeled graph.
34 * [C:](http://asn.desire2learn.com/resources/S2731552) Knows graphic conventions for depicting RDF-based models.
35 * [D:](http://asn.desire2learn.com/resources/S2731553) Can use graphing or modeling software to share those models with others.
36 * [C:](http://asn.desire2learn.com/resources/S2709875) Understands a named graph as one of the collection of graphs comprising an
RDF dataset, with a graph name unique in the context of that dataset.
37 * [C:](http://asn.desire2learn.com/resources/S2731590) Understands how a namespace, informally used in the RDF context for a
namespace URI or RDF vocabulary, fundamentally differs from the namespace of data attributes and functions (methods) defined for an
object-oriented class.
38 * [B:](http://asn.desire2learn.com/resources/S2696012) Related data models
39 * [C:](http://asn.desire2learn.com/resources/S2731554) Grasps essential differences between schemas for syntactic validation (e.g.,
XML) and for inferencing (RDF Schema).
40 * [C:](http://asn.desire2learn.com/resources/S2731555) Differentiates hierarchical document models (eg, XML) and graph models (RDF).
```



Propose file change

Add competency related to ShEx

Shape Expressions language is not covered sufficiently in the current version, therefore



LD4PE Competency Index

Who can use it?

- **Students:** help choose courses that cover what you want to learn.
- **Instructors:** design a course, syllabus, homework, quizzes, exams.
- **Employers:** write a job description.
- **Self-learners:** explore technologies and methods related to Linked Data.



LD4PE Competency Index

Learning tailored to the individual

- Since 1800s: “industrial” classroom:
 - instructors lecture (“sage on the stage”)
 - students listen and take notes
 - achievement measured by a grade on the exam
- Trend: learning tailored to the individual:
 - students watch the lectures online *before* class
 - students pursue customized learning objectives
 - instructors give individualized help (“guide at the side”)
 - learners learn at own pace
 - life-long learning
 - achievement measured in competencies acquired



LD4PE is work in progress!

Follow us on Github!



[Edit on Github](#)

Linked Data Competency Index

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How Can I Use LD4PE in self-learning, teaching, and training?

Marcia Zeng
Kent State University

1. **Learning Maps** -- competencies
2. **Saved sets** – resources
3. **OCLC Dataset** -- A dataset to try, with sample queries and a guide sheet.



1. Learning Maps

- Logical sequences; Paths or Trajectories to follow
- Competencies targeted to specific audience or theme
- Each item links to a list of resources which teach the competency

The screenshot shows the LD4PE Exploring Linked Data website. The main heading is 'Explore Learning Resources by Competency'. On the left, under 'Browse by Competency', there is a list of competency categories with their respective counts: 'New Comp Index (620)', 'Fundamentals of Resource Description Framework (218)', 'Fundamentals of Linked Data (135)', 'RDF vocabularies and application profiles (181)', 'Creating and transforming Linked Data (82)', 'Interacting with RDF data (367)', and 'Creating Linked Data applications (0)'. Below this list are three links: 'View the full Competency Index', 'Saved Sets of Learning Resources', and 'Competency-based Learning Maps'. On the right, there is a text area explaining how to explore Linked Data learning resources and a word cloud titled 'SPARQL Graph Linked Data Triple Query Linked Data Principles Dataset RDF'. Below the word cloud, there is a section titled 'IMPORTANT NOTES' with two numbered points.

[View the full Competency Index](#)

[Saved Sets of Learning Resources](#)

[Competency-based Learning Maps](#)



Newly Created Map

Competencies for Catalogers

Created: 8/29/2017

Considers the paradigm shift necessary to catalog to an experiential

Set Creator: [Sean Dolan](#) ↗

Competencies for Data Scientists

Created: 8/11/2017

Recognizing Linked Data as a valuable resource and dealing

Set Creator: [Sean Dolan](#) ↗

Competencies for Web Developers

Created: 7/24/2017

Topics include RDF serializations, microdata for HTML markup

Set Creator: [Sean Dolan](#) ↗

Competencies for Librarians

Created: 7/22/2017

Deals with the challenges of transitioning from traditional bibliographic

Set Creator: [Sean Dolan](#) ↗

Competencies for Archivists

Created: 7/15/2017

For quickly getting archivists up-to-speed with Linked Data semantics


Set Creator: [Sean Dolan](#) ↗

See a list of the learning maps at
<http://explore.dublincore.net/explore-learning-resources-by-competency/learning-maps/>



Example: Individual Learning Map Page

-- a learning map prepared for archivists – what are the key competencies?




[Explore](#) [Tech Talk](#) [Updates](#) [About](#) [Related](#) [Join](#)

Build a Learning Map

▼ How does this work?

[<< Show all Learning Maps](#)

[Learning Maps Listing](#) 

Learning Map: Competencies for Archivists

▼ What's This?

For quickly getting archivists up-to-speed with Linked Data so that their digital collections can be published and shared.

Understands that Linked Data (2006) extended the notion of a web of documents (the Web) to a notion of a web of finer-grained data (the Linked Data cloud).

68 resources


Knows the "five stars" of Open Data: put data on the Web, preferably in a structured and preferably non-proprietary format, using URIs to name things, and link to other data.

0 resources

Knows that anything can be named with Uniform Resource Identifiers (URIs), such as agents, places, events, artifacts, and concepts.

17 resources


Understands that a "real-world" thing may need to be named with a URI distinct from the URI for information about that




- Below each competency, the number of resources tagged to it are listed.
- Clicking this link will take you to these resources.



Competency Page with List of Tagged Resources

 **Exploring
Linked Data**

Explore Tech Talk Updates About Related Join

 **Competency:** Understands That Linked Data (2006) Extended The Notion Of A Web Of Documents (The Web) To A Notion Of A Web Of Finer-Grained Data (The Linked Data Cloud).

Desiderata For An Authoritative Representation Of MeSH In RDF

Although the Semantic Web provides a framework for the integration of resources on the web, datasets are not always made available in RDF by their [...]

★★★★★ (Please share your rating)

Semantic Web Misconceptions

The Semantic Web has been talked about for more than a decade. Over those years, several mistaken or misleading ideas about the Semantic Web have [...]

★★★★★ (Please share your rating)

The Semantic Web And Linked Data Concepts: A Basic

Transforming The Medical Subject Headings Into Linked Data: A New Article In The Journal Of Library Metadata

This article reviews the pilot project to convert the Medical Subject Headings (MeSH) from XML to Linked Data/RDF. The article examines the collaborative process, the [...]

★★★★★ (Please share your rating)

Europeana: Moving To Linked Data

This article describes the pilot project undertaken by Europeana. Its goal was to replace data societies within the cultural heritage domain with "a distributed information [...]"

★★★★★ (Please share your rating)

The Semantic Web And Linked Data Concepts: A Basic



Learning Map: Competencies for Catalogers

What's This?

Considers the paradigm shift necessary to catalog to an expanded audience (the Web) as well as technical details involved.

Understands that Linked Data (2006) extended the notion of a web of documents (the Web) to a notion of a web of finer-grained data (the Linked Data cloud).

69 resources

Knows Tim Berners-Lee's use of HTTP URIs that can be used to identify URIs of other things.

0 resources

Knows that Uniform Resource Locators (URLs) are independent identifiers.

18 resources

Understands that a "resource" is distinct from the URI.

0 resources

Knows the subject-pr

46 resources

Understands the difference

14

Understands the use of datatypes and language tags with literals.

15 resources

Knows graphic conventions for depicting RDF-based models.

10 resources

Distinguishes the RDF abstract data model and concrete serializations of RDF data.

41 resources

Recognizes that owl:sameAs, while popular in formal semantics that can entail unintended

13 resources

Identifies resource attributes and relationships as candidates for RDF properties.

9 resources

Uses RDF Schema to express semantic relationships.

53 resources

Coins namespace URIs, as needed, for any purpose required.

14 resources

Knows Simple Knowledge Organization System (SKOS) vocabulary for expressing concepts that are organized into informal hierarchies, and

24 resources

Knows SKOS eXtension for Labels, or SKOS-XL (2009), a small set of additional properties for describing and linking lexical labels as instances of the class Label.

4 resources

Managing identifiers (URI)

19 resources

Creating RDF data

44 resources

Cleaning and reconciling RDF data

17 resources

Mapping and enriching RDF data

32 resources

Knows the SPARQL 1.1 Update language for updating, creating, and removing RDF graphs in a Graph Store

32 resources

Understands the difference between SQL query language (which operates on database tables) and SPARQL (which operates on RDF graphs).

43 resources



Making new maps



Explore

Learning Maps

List Learning Maps Created By

All users

Create a New Learning Map

Enter new map name

Enter new map description

Create New Map

Authenticated users can assemble nodes from the [Competency Index](#) into structures or as personalized pathways created by instructors or learners as re users of the Explore Linked Data site and opened for public access by them. [Learning Map Builder](#) to compile your own personalized map.

More about Learning Maps

LOD Basics

Created: 3/11/2017

Basic concepts of LOD for beginners.

Set Creator: [sophy](#)



1. Select the competency and benchmarks you need
2. Click on “Add to map”, now it is added to your map.

Build a Learning Map

▼ How does this work?

+ New Comp Index [Add to map >>](#)

+ Fundamentals of Resource Description Framework [Add to map >>](#)

- Fundamentals of Linked Data [Add to map >>](#)

+ Web technology [Add to map >>](#)

1 - [Linked Data principles](#) [Add to map >>](#)

Knows Tim Berners-Lee's principles of Linked Data: use URIs to name things, use HTTP URIs that can be resolved to useful information, and create links to URIs of other things. [Add to map >>](#)

Knows the "five stars" of Open Data: put data on the Web, preferably in a structured and preferably non-proprietary format, using URIs to name things, and link to other data. [Add to map >>](#)

Learning map saved!

Learning Map: LOD Basics

▼ What's This?

☐ Public (anyone can view) ☒ Private (only I can see)

Basic concepts of LOD for beginners.

Linked Data principles

53 resources | [Remove from learning map](#)

Knows Tim Berners-Lee's principles of Linked Data: use URIs to name things, use HTTP URIs that can be resolved to useful information, and create links to URIs of other things.

0 resources | [Remove from learning map](#)

RDF data model

142 resources | [Remove from learning map](#)

Knows the "five stars" of Open Data: put data on the Web, preferably in a structured and preferably non-proprietary format, using URIs to name things, and link to other data.

0 resources | [Remove from learning map](#)

[Save](#)

Map name & description

Contents

[Delete Map](#)
[Edit Description](#)
[Edit Name](#)

Contents



2. Saved Sets

- Curated collection of learning resources
- Targeted to specific audience or theme
- Each item links to resource's description page

LD4PE Exploring Linked Data

Explore Tech Talk Updates About Related Join

Explore Learning Resources by Competency

Browse by Competency

▼ How does this work?

+ New Comp Index (620)

- + Fundamentals of Resource Description Framework (218)
- + Fundamentals of Linked Data (135)
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- + Creating Linked Data applications (0)

View the full Competency Index

Saved Sets of Learning Resources

Competency-based Learning Maps

To Explore Linked Data learning resources, select a competency assertion or topic statement in the adjacent panel to view a listing of associated learning resources.

The Competency Index for Linked Data (CI) constitutes a set of topically arranged assertions of the knowledge, skills, and habits of mind required for professional practice in the area of Linked Data.

This structure is illustrated in the adjacent panel. CI development is expected to openly crowd-source expertise in the development processes under the guidance of the project's CI Editorial Board (CIEB). [Learn more about the Competency Index](#).

IMPORTANT NOTES:

1. The CI on this page is a work in progress. The CI Editorial Board (CIEB) is developing the competencies and benchmarks and anticipates completion of the CI by June 2016. As sections of competencies are approved by the CIEB, they are added to the version of the CI on the left and learning resources are mapped to it.
2. The CI development work is being partially funded through an [IMLS National Leadership Grant for Libraries](#).

LD4PE Exploring Linked Data

Explore Tech Talk

Saved Sets

Select a User -

- ✓ All users
- dalley
- Abi Evans
- Sean Dolan
- keven
- sophy
- catalog
- mw2064

This page displays a listing of Saved Sets of learning resources created by users and those opened by others for public access. [Register an account](#) or [Log in](#).

▼ More about Saved Sets

Resources for Catalogers

Created: 8/31/2017

Set Creator: [Sean Dolan](#)

Resources for Data Scientists

Created: 8/11/2017

Recognizing Linked Data as a valuable resource

Set Creator: [Sean Dolan](#)

<http://explore.dublincore.net/explore-learning-resources-by-competency/all-saved-sets>



Resources for Catalogers

Created: 8/31/2017

Set Creator: Sean Dolan

Resources for Data Scientists

Created: 8/11/2017

Recognizing Linked Data as a valuable resource and dealing with unfamiliar data

Set Creator: Sean Dolan

Resources for Web Developers

Created: 7/24/2017

Emphasizing how Linked Data effects page markup and search engine optimization

Set Creator: Sean Dolan

Resources for Librarians

Created: 7/22/2017

These resources focus on transitioning from traditional bibliographic records to

Set Creator: Sean Dolan

Resources for Archivists

Created: 7/15/2017

Some of these resources present Linked Data in the context of library and archival data that are invaluable to this audience.

Set Creator: Sean Dolan

SKOS

Created: 3/11/2017

Learning SKOS for transferring thesauri into LOD

Set Creator: sophy

PCC Standing Committee on Training Recommended

Created: 10/25/2016

Set Creator: mw2064

- Authenticated users can save Sets as either Public or Private
- Any user can view Public Sets

Learning Resources in Saved Set: Resources for Catalogers (13 resources)

The Academy Unbound Linked Data as Revolution

Much has been said about Linked Data, its ties to the Semantic Web, and its application for libraries, but what is it exactly and how[...]

Metadata Crosswalks

This slide presentation focuses on search interoperability, which the author defines as the "ability to perform a search over diverse sets of metadata records to [...]"

Linked Data at the National Library of Sweden

This talk explains how LIBRIS, the National Library of Sweden's union catalog, has been linked via an interface to RDF datasets. The first speaker discusses[...]

Free Your Metadata: Clean up your metadata

A brief tutorial containing both a screencast and text instructions for cleaning an example dataset (from the Powerhouse Museum) using Open Refine (formerly Google Refine)[...]

The Vocabulary Mapping Framework (VMF): An Introduction v1.0

This document provides an introduction to the structure and development of the Vocabulary Mapping Framework (VMF) up to the end of the first stage of[...]

Linked Data Patterns

This resource is a pattern catalogue for modelling, publishing, and consuming Linked Data which adopts a tried and tested means of communicating knowledge and experience[...]

BIBFRAME Training at the Library of Congress: Introduction to the Semantic Web and Linked Data

This resource was developed by the Library of Congress as one part of a pilot training project which tested the use of BIBFRAME for bibliographic[...]

An Introduction to RDF Schema

This slide presentation discusses RDF Schema, including classes, subclasses, and instances. Concepts such as domain and range, datatypes and literals, labels and comments are also[...]

Joining the Linked Data Cloud in a Cost-Effective Manner

Linked Data holds the promise to derive additional value from existing data throughout different sectors, but practitioners currently lack a straightforward methodology and the tools[...]

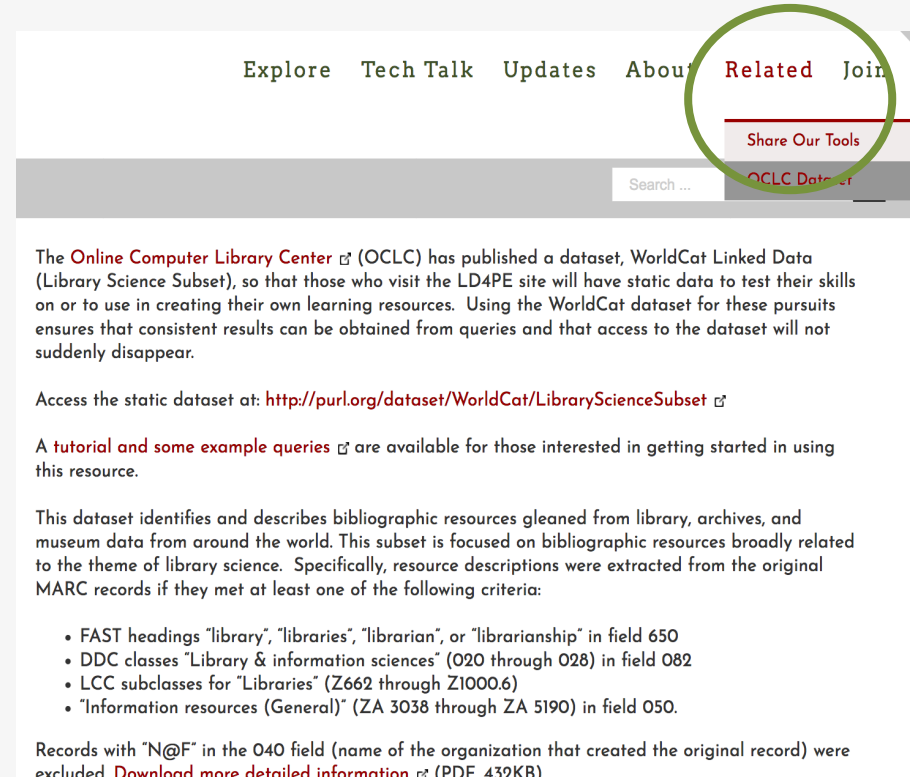
Publishing Relational Databases as Linked Data

These slides appear to have been used for a course in Database Management Systems at the University of Toronto, but contain material which the creator[...]



3. The OCLC Dataset

- Static data to test skills on or to use in creating new learning resources
- Ensures that consistent results can be obtained from queries and that access will not suddenly disappear
- Identifies and describes bibliographic resources gleaned from library, archives, and museum data from around the world.
- Extracted from the original MARC records based on:
 - FAST headings
 - DDC classes
 - LCC subclasses



Explore Tech Talk Updates About **Related** Join

Share Our Tools

Search ... OCLC Dataset

The [Online Computer Library Center](#) (OCLC) has published a dataset, WorldCat Linked Data (Library Science Subset), so that those who visit the LD4PE site will have static data to test their skills on or to use in creating their own learning resources. Using the WorldCat dataset for these pursuits ensures that consistent results can be obtained from queries and that access to the dataset will not suddenly disappear.

Access the static dataset at: <http://purl.org/dataset/WorldCat/LibraryScienceSubset>

A [tutorial and some example queries](#) are available for those interested in getting started in using this resource.

This dataset identifies and describes bibliographic resources gleaned from library, archives, and museum data from around the world. This subset is focused on bibliographic resources broadly related to the theme of library science. Specifically, resource descriptions were extracted from the original MARC records if they met at least one of the following criteria:

- FAST headings "library", "libraries", "librarian", or "librarianship" in field 650
- DDC classes "Library & information sciences" (O20 through O28) in field 082
- LCC subclasses for "Libraries" (Z662 through Z1000.6)
- "Information resources (General)" (ZA 3038 through ZA 5190) in field 050.

Records with "N@F" in the 040 field (name of the organization that created the original record) were excluded. [Download more detailed information](#) (PDF 439KB)

Access the static dataset at: <http://purl.org/dataset/WorldCat/LibraryScienceSubset>



DOWNLOAD as:
N-TRIPLES
MARC/XML

License:
ODC-BY

AVAILABILITY:
through
December
2027

WorldCat Linked Data (Library Science Subset)

VoID Dataset Description

<<http://purl.org/dataset/WorldCat/LibraryScienceSubset>>

cc:attributionName	"WorldCat Linked Data (Library Science Subset)"	
cc:attributionURL	< http://purl.org/dataset/WorldCat/LibraryScienceSubset >	
cc:morePermissions	< mailto:data@oclc.org >	
cc:useGuidelines	rdf:value	<div>Attribution The preferred form of attribution is: "Contains OCLC WorldCat Linked Data (Library Science Subset) information made available under the ODC Attribution license. The OCLC cooperative requests that uses of WorldCat derived data contained in this work conform with the WorldCat Community Norms." Special cases: In circumstances where providing the full attribution statement above is not technically feasible, the use of canonical WorldCat Work URIs is adequate to satisfy Section 4.3 of the ODC Attribution license.</div>
schema:description	"WorldCat Linked Data (Library Science Subset) is a dataset that identifies and describes bibliographic resources that are gleaned from library, archives, and museum data from around the world. This subset is focused on bibliographic resources broadly related to the theme of library science . WorldCat is a registered trademark of OCLC Online Computer Library Center, Inc."	
dcterms:license	< http://opendatacommons.org/licenses/by/1.0/ >	
schema:publisher	< http://viaf.org/viaf/156508705 >	
	foaf:homepage	< http://www.oclc.org/ >
	foaf:page	< http://worldcat.org/identities/locn-n78-15294 >
	schema:sameAs	< http://dbpedia.org/resource/Online_Computer_Library_Center >

ACCESS THE DATASET AT: <http://purl.org/dataset/WorldCat/LibraryScienceSubset>



TUTORIAL :

- DOWNLOAD DATASET
 - N-Triples
- STORE PERSISTENTLY
 - Apache Jena's TDB (Triple Store)
- Query using SPARQL
 - Command Line using TDBQUERY (similar to ARQ)
 - Interpreting and Storing Results

```
| p |
|-----|
| schema:name |
| <http://www.w3.org/1999/02/22-rdf-syntax-ns#type> |
| schema:creator |
| schema:workExample |
| schema:bookFormat |
| schema:about |
| schema:exampleOfWork |
| schema:inLanguage |
| <http://purl.org/library/placeOfPublication> |
| schema:numberOfPages |
| schema:datePublished |
| <http://www.w3.org/2007/05/powder-s#describedby> |
| schema:isPartOf |
| schema:publication |
```

Figure 15: Result set for triple statements sharing subject variable (truncated)

```
get_french.rq - Notepad
File Edit Format View Help
PREFIX schema:<http://schema.org/>

SELECT DISTINCT ?s ?name
WHERE {
  ?s a schema:Book;
     schema:inLanguage "fr";
     schema:name ?name.
}
```

Figure 12: SPARQL query to retrieve all *books* written in *French*

PDFs AVAILABLE:

- Simple Query 1: Union and Shared Subjects
- Simple Query 2: Optional and Turning an Object into a Subject
- Simple Query 3: Negation Using Not Exists and Minus
- Additional SPARQL Exercises
- Answers and Walkthrough



The Future of LD4PE

Stuart Sutton
University of Washington



The Future of LD4PE

- DCMI participation in the LD4PE project
 - From IMLS planning grant to its current realization
 - Why? Opportunity!
 - Opportunity for DCMI to help frame the substance behind metadata best practices—to help identify and describe what it takes for a professional to engage in those practices.
 - Opportunity to pioneer a mechanism to shift development of competency frameworks from a traditional top down, highly structured process to a more dynamic, bottom up, stakeholder-driven process.



The Future of LD4PE

- Engagement beyond Linked Data
 - For DCMI, the Linked Data index has served as a training ground
 - A point of departure for development of competency indexes defining knowledge, skills and acquired abilities in other areas of metadata interest:
 - *Knowledge Organization Systems* development and application
 - *Application Profiles* design and implementation
 - Etc.



QUESTIONS?

[HTTP://EXPLORE.DUBLINCORE.NET/](http://explore.dublincore.net/)

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