

Competency Index for RDF & Linked Data (w/ Learning Objects coded by relative quantity)

KEY: **Green** = Many to Moderate; **Blue** = Moderate to Few; **Red** = Few to None

- **Topic Cluster: RDF & Linked Data fundamentals**
 - **Topic Lifecycle of Linked Data**
 - **Topic Background technologies**
 - **Topic Background standards**
 - **Topic Existing key vocabularies and their namespaces**
 - **Competency** Investigates, evaluates and keeps abreast of significant developments in RDF vocabularies
 - **Topic RDF data model**
 - **Competency** Demonstrates understanding of the abstract data model of RDF as a directed labeled graph
 - **Competency** Understands the distinction between the RDF data model and its various serializations
 - **Competency** Demonstrates an understanding of the naming of anything that can be identified with URI including agents, places, events, artifacts and concepts
 - **Competency** Understands the grammatical components of the RDF triple - SUBJECT, PREDICATE, OBJECT
 - **Competency** Distinguishes between data type properties and object properties
 - **Competency** Understand and use RDFS in defining and interpreting RDF vocabularies
 - **Competency** Understands and explains the differences and similarities between the RDF abstract data model and the XML and relational (Codd) abstract data models
 - **Competency** Understands the uses and roles of domain and ranges
 - **Competency** Understands inferencing and the means by which it is achieved
 - **Competency** Understands the distinction between a validating schema (e.g., .xsd) and an inferencing schema (e.g., .rdf, .owl) as well as the benefits and limitations of each
 - **Topic Policy & best practice development**
 - **Competency** Develops policies for creation and management of RDF vocabularies
 - **Topic Perspectives, dispositions and habits of mind**
 - **Competency** Participates in development and maintenance activities of RDF vocabularies and application profiles

- **Topic Cluster: Searching and querying**
 - **Topic Discovery of RDF vocabularies and data sets**
 - **Competency** Monitors registries and referatories of RDF vocabularies, OWL ontologies and RDF data stores
 - **Topic Assessment of RDF vocabularies and data sets**
 - **Topic Anatomy of a simple SPARQL query**
 - **Topic Querying RDF data using SPARQL**
 - **Competency** Understands the SPARQL 1.1 query language, protocol, functions and operators
 - **Competency** Uses query forms including ASK, SELECT, DESCRIBE, CONSTRUCT
 - **Competency** Uses query patterns including BGP, UNION, OPTIONAL, FILTER
 - **Competency** Uses sequence modifiers including DISTINCT, REDUCED, ORDER BY, LIMIT, OFFSET

- **Topic Updating RDF with SPARQL 1.1**
 - Competency Performs data management using INSERT, DELETE, DELETE/INSERT
 - Competency Performs graph management using LOAD, CLEAR, CREATE, DROP, COPY/MOVE/ADD
- **Topic Reasoning over RDF**
 - Competency Understands how reasoning and data integration can be achieved by utilizing domain knowledge embodied in RDFS and OWL
 - Competency Utilizes the entailment regimes of RDFS and SPARQL 1.1 and understands their limitations
 - Competency Understands OWL properties, property axioms, axioms and class constructions in reasoning
- **Topic Cluster: Creating, publishing and manipulating RDF**
 - **Topic Creating a domain model**
 - Competency Understands the domain being modeled
 - Competency Creates a graphical representation of the domain entities and the relationships among them
 - **Topic Creating a new RDF vocabularies**
 - Competency Understands the role of RDFS and uses it in defining new RDF vocabularies
 - Competency Follows naming conventions in coining new terms (properties & classes)
 - Competency Creates new terms (properties & classes) following **commonly** agreed upon conventions and best practices
 - **Topic Generating RDF data from non-RDF sources**
 - Competency Uses available tools to cleanse a dataset by finding and correcting errors, removing duplicates and unwanted data
 - Competency Reconciles data to link to external resources
 - Competency Uses available applications for named entity recognition, extraction and reconciliation
 - **Topic Describing RDF resources for discovery**
 - Competency Creates metadata describing the RDF schema to make it discoverable
 - Competency Publicizes the RDF schema by registering it with relevant services
 - **Topic Generating RDF instance data**
 - Competency Creates RDFa markup for HTML pages using an RDF schema
 - **Topic Creating an application profile**
 - **Topic Creating and using SPARQL endpoints**
 - Competency Creates SPARQL endpoints for RDBMS
 - Competency Uses SPARQL endpoints for RDBMS
 - Competency Demonstrates knowledge of factors influencing whether to publish RDF or provide a SPARQL endpoint
 - **Topic Publishing RDF**
 - Competency Determines whether to use hash ("#") or slash ("/")
- **Topic Cluster: Visualizing graphs**
- **Topic Cluster: Implementing applications**

Topics not in the Competency Index so far, but for which I am finding resources for:

- Linked Open Data
- Linked Open Government Data
- NoSQL vs. Relational Database Models
- Creating Mashups with Linked Data
 - (Sort of falls under “Topic: Visualizations”)
- Info about specific RDF serializations (JSON-LD, Turtle)
 - (Sort of addressed in “Competency: Understands the distinction between the RDF data model and its various serializations”)
- SKOS
- Tutorials using specific software tools (e.g., Karma, Google Refine, Cayley, Apache Jena, Fuseki, Twinkle, Virtuoso)
 - In many cases these resources come directly from the organization
- JavaScript, jQuery, AJAX
 - Mainly comes up in resources discussing APIs that require prior knowledge
 - APIs would fall under “Topic: Implementing applications”?