



http://needpix.com

# Research Data Management and Digital Curation: What Role can Metadata Practitioners play?

Presented by Johann van Wyk LIASA-IGBIS Webinar, 6 October 2020



### Content

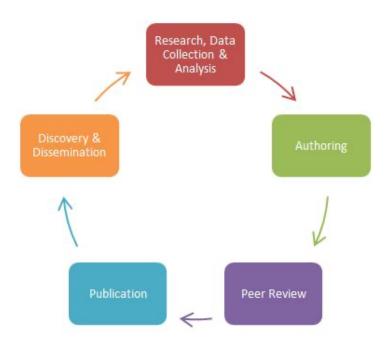
- Introduction
- Overview of Scholarly Communications: definition; key developments; why necessary, lifecycle, typical actors/stakeholders; typical scholarly communications activities in libraries
- Implementation of RDM, digital curation and related Scholarly Communications activities at UP Library Services
- Research Data Management (RDM) and related concepts to RDM
- Typical data curation activities
- Scholarly Communications support in the research lifecycle
- Potential activities in which metadata practitioners can play a role
- Metadata Standards: a complex universe
- What role can the cataloguer/metadata specialist play in RDM?
- Training/upskilling opportunities for seasoned cataloguing practitioners in RDM/digital curation
- Does IGBIS/LIASA have a role to play?
- The future of Scholarly Communications



### **Scholarly Communications**

### What is Scholarly Communications?

- It is the system through which research and other scholarly writings are created, evaluated for quality, disseminated to the scholarly community, and preserved for future use (ACRL, 2003)
- Scholarly Communication can also be depicted as a lifecycle
- Actors in the scholarly communications cycle include researchers, university research offices, funders, peer reviewers, publishers and libraries.





# Key Developments in Scholarly Publishing

1665-1945

1945-1970

1971-1995

1996-2004

2005-2019

2020-Future

#### **Formation**

- 1665- Launch of the first 2 scientific journals (printed): 'Journal des Sçavans' and 'Philosophical Transactions of the Royal Society
- 1800s- Gradual growth of number of journal titles and books – need for system of classification
- 1876- Dewey Decimal Classification patented

### Rapid Growth

- Post 2<sup>nd</sup> World War research funding increases
- Universities & Learned societies form a partnership with commercial publishers – publishers become powerful actors in publishing
- Journals start competing through rankings
- 1964- Journal rankings and impact factor metrics introduced by Science Citation Index

### Print Publishing

- Explosion of number of journal titles in print
- Explosion of number of scholarly books
- The Cost of print journals subscriptions continues to rise year over year
- Academic publishers start exploring pricing models for digital publishing

### Digital Age

- Biomed Central explores a new pricing model (APCs) which charges authors to enable free open access to articles
- Libraries negotiate digital licenses to access online content
- Institutional repositories are developed by academic libraries
- 2001 Public Library of Science (PLOS) is founded
- Web 2.0 tools to disseminate scholarship

### Open Access

- Open Access
   Movement continues to move forward
- Funder Mandates requiring research to be freely available
- Focus moves to Open Science and Libraries becomes the custodians of research data, OERs and Open Journal Systems (OJS)
- Scholarly Communications positions/teams emerge
- Research Data Repositories developed

#### 4IR

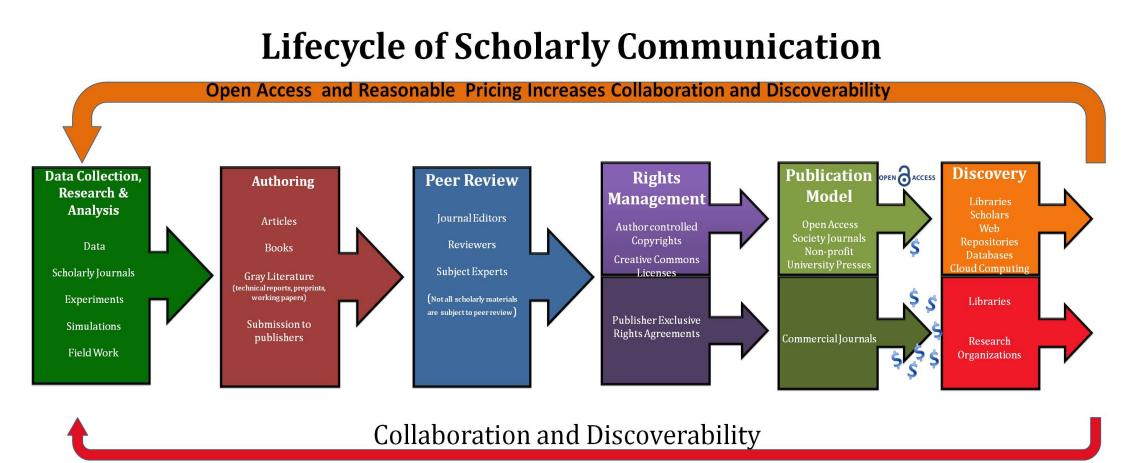
- Long-term preservation of formal and informal digital scholarly objects
- More focus on Linked Data and semantic web & Al
- More focus on aligning policies and processes to legislation, e.g. POPIA and GDPR
- More involvement in management of active data during data analysis process
- Data Intensive Research

# Why is Scholarly Communication necessary in Libraries?

- Scholarly Communication has always been at the core of our business
- "Historically the role of libraries in the scholarly communication lifecycle was confined to information consumer -- they collected and organized scholarly resources for discovery and use by others" (ACRL, 2020)
- "Technological innovation in production and dissemination of scholarship, challenges to traditional publishing practices concerning business models and intellectual property management, and efforts to increase access to scholarship", have led libraries to innovate their services "to become a prominent actor and information producer" (ACRL, 2020)



### Lifecycle of Scholarly Communications



The structure of scholarly communication has developed over centuries to create, evaluate, certify, disseminate and preserve the intellectual outputs of scholars. It involves three major stakeholders -the scholars who create the knowledge, publishers, who review, edit, package and distribute the knowledge and the libraries/repositories that collect preserve and organize the knowledge. The digital revolution has enabled quicker and cheaper access to a wide range of information and alternative models of publication. Digital Publishing, Digital Repositories, Open Access Journals are all representatives of the alternative models of publications. Creative Commons Licensing Agreements allow wider distribution and use of scholarly materials.

# Typical Actors/Stakeholders in the Scholarly Communications Process

- Researchers
- Peer Reviewers
- Funders
- Publishers
- Libraries
- Information Technology Services
- University Research Offices

### **Actors Within Libraries:**

- Information Specialists (librarians)
- Scholarly Communications Librarian
- Copyright Specialist
- Metadata Professionals
- Library Technical Services
- Library IT Services
- Open Scholarship librarian(s)
- Data Curation Specialist(s)



### Typical Scholarly Communication activities in libraries

- Consultancy on Academic writing (sometimes this is hosted in libraries)
- Advocacy and support for open access to scholarship
- Adoption of collection development policies that reprioritizes collection development budgets to strategically support open scholarship and addresses economic challenges of traditional scholarly publishing (ACRL, 2020)
- Development, hosting and management of open journal systems (OJS)
- Management of Article Processing Charges (APCs)
- Training and consultation on Impact metrics (Bibliometrics & Altmetrics)
- Training and consultation on Researcher Profiles and Tools to enhance research impact
- Assist and advise on the generation of Persistent Identifiers (e.g. DOI and ORCID)



### Typical Scholarly Communication activities in libraries

- Assist and advise on the generation of Persistent Identifiers (e.g. DOI and ORCID)
- Development, hosting and management of Open Education Resource (OER) systems
- Promote the right of fair use to promote preservation, access, use and discovery of materials
- Promote FAIR (Findable, Accessible, Interoperable and Reusable) guiding principles
- Training and consultancy on IP rights, licensing of materials and copyright (Rights management)
- Development and management of institutional repositories (which could include research data repositories)
- Research Data Management and data curation
- Metadata management



### Documents guiding Scholarly Communication activities at UP

### **Policies**

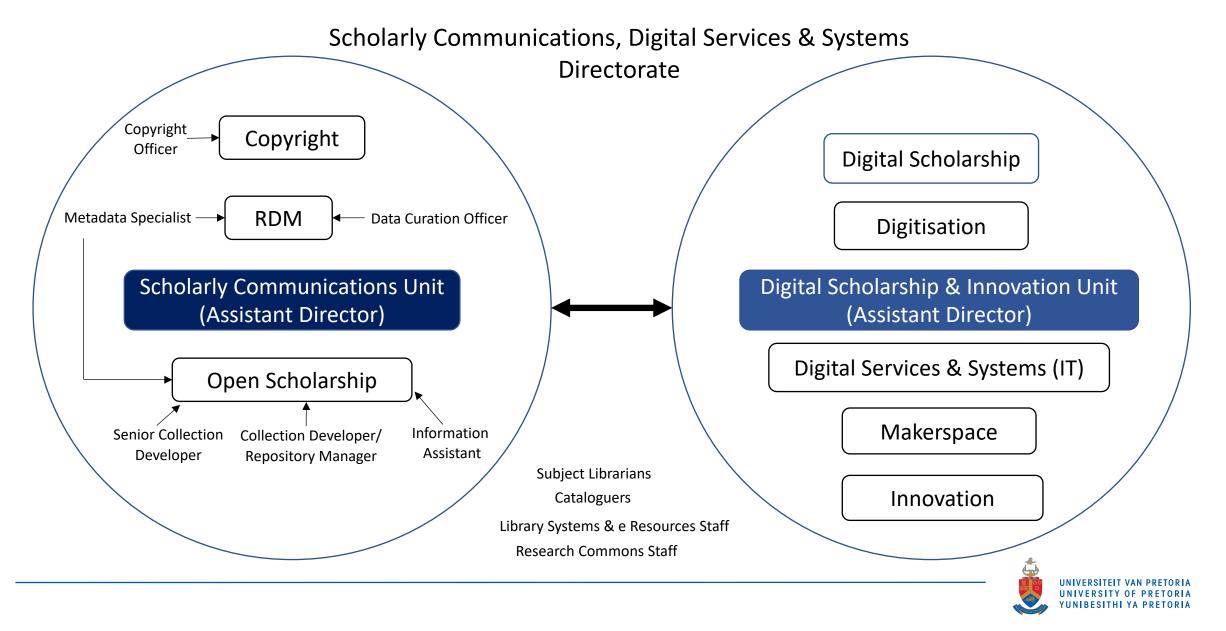
- Code of ethics for scholarly activities
- Policy on Electronic Theses and Dissertations
- Intellectual Property Policy
- Policy on Open Access Publishing Processing Charges
- Policy on Open Access to research papers authored by University of Pretoria researchers
- Research Data Management Policy
- Policy on responsible research
- Information Governance Policy & sub-policies

#### **Procedures/Guidance Documents**

- Research Data Management Procedure document
- Project Research Data Management Plan Template
- Guidelines for application to the open access fund for article processing charges (APCs)
- Guidelines for Self-submission of Theses/Dissertations to UPSpace (Institutional Repository)
- Research Data Management Libguide
- Guide for uploading a dataset onto Figshare



### Structure of Scholarly Communications at UP Library Services



# Digital Scholarship (DS) Activities

**GIS & Digital** Digital **Project** Database Digital exhibits **Project planning** Digital publishing development mapping preservation management Computational Technical upkeep Digitization Data curation text analysis Digital 3-D modeling **Digital** Interface design Encoding and printing collections Scholarship and usability content Activities **Developing DS** Statistical Software & Data Visualization analysis support software Carpentry



DS and Scholarly Communication Activities



# Typical Research Data workflow in publishing to the UP Research Data Repository figshare

### Data Curation Specialist Check that all the field

- Check that all the fields are completed and that file has been attached
- Check that correct License has been added
- Check terms of use

Researcher

submit record

- Creation collections when needed
- Communicates errors to researcher
- Manage workflow and rights on repository
- Negotiates customisations to repository
- Advise & Conduct training
- Provide statistical reports

### **Metadata Professional**

- Checks spelling,
- Check author names
- Check controlled vocabulary used
- Check that DOI has been assigned
- Check confidentiality & embargoes
- Link files to other research outputs
- Check Licenses used
- Negotiate with Data Curation
   Specialist if additional fields should
   be added
- Advise & Conduct training

Record Published



# What is Research Data Management (RDM)?

RDM can be described as "the process of controlling and organising the data generated during a research project, and covers the entire data lifecycle, which includes the planning of the investigation, conducting the investigation, storage and backing up of the data as it is created, preserving the data long-term, after the research investigation has concluded, and making the data accessible for future use" (Van Wyk, 2018)

(Elements of this definition were extracted from definitions from Penn State University Libraries, 2014, Texas A-M University Libraries, n.d.; University of Tennessee Libraries)



# Related concepts to Research Data Management (RDM)

	Digital Curation	Data Curation	Data Stewardship	Data Governance	Data Archiving
Function	Operational function	Operational function	A tactical function	A strategic function	Operational function
Focus	Selection, preservation, maintenance, collection and archiving of digital objects and information	"The active and ongoing management of data through its entire lifecycle of interest and usefulness to scholarship" (Cragin et al. 2007) It can also be described as the process of caring for data and includes some of the following actions: organising, describing, annotating, cleaning, enhancing, collection/aggregation, encoding, preservation, migration of file formats, etc.	Taking responsibility for datasets by adding value through provision of context and linkage (Rusbridge et. al., 2005: 32)	Focuses on the people managing the data	Focuses on the storage and collection of data into archive collections and/or archival systems, e.g Archivematica, Arkivum etc.
Relationship to RDM	Alongside RDM Aspects of it are subsets of RDM	A subset of RDM & Digital Curation	A subset of RDM	A subset of RDM	A subset of RDM

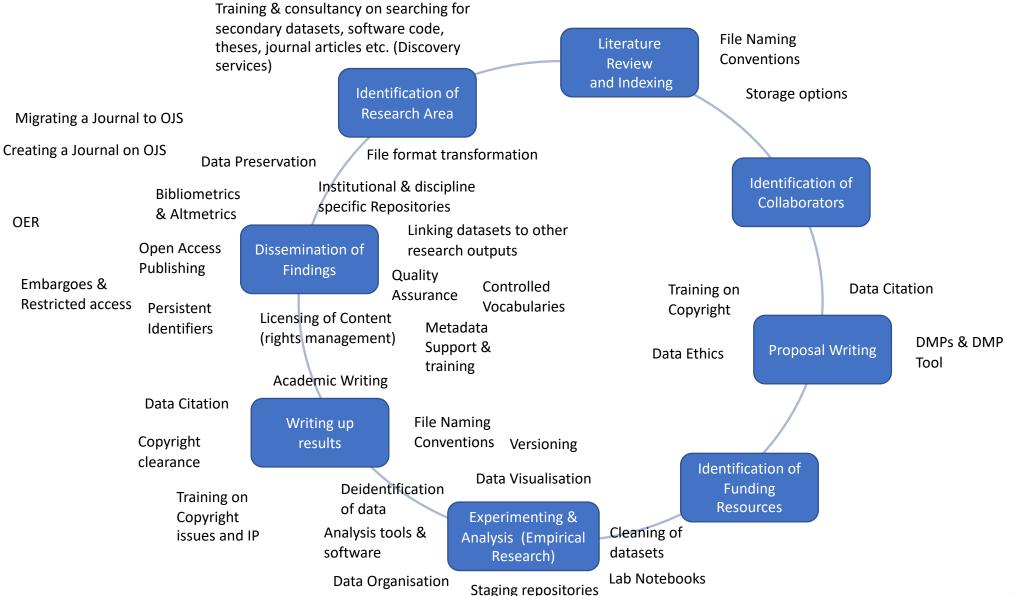
### Typical Data Curation Activities

- Adding preservation metadata to data earmarked for long-term preservation
- Advising on institutional & discipline specific repositories
- Advising and/or managing staging repositories (e.g. Hubzero)
- Advising on storage options
- Application of controlled vocabularies
- Application of data preservation standards
- Bibliometrics & Altmetrics
- Consulting/Advising on the data ethics
- Data Citation
- Data Cleaning
- Data Documentation (e.g. lab notebooks, experimental protocols)
- Data Visualisation

- Data discovery services (training on searching for secondary datasets, software code etc.)
- De-identification of datasets
- Development & management of a Data Management Plan Tool
- Embargoed & Restricted data
- File format transformation
- File naming conventions
- Generation of Persistent Identifiers (e.g. DOIs, ORCID etc.)
- Licensing of Content (Rights management)
- Linking datasets to other research outputs
- Metadata support & training
- Quality assurance
- Training on Copyright and IP issues
- Using Lab Notebooks to capture workflows of experiments
- Versioning
- Writing and/or advising/training on Data Management Plans



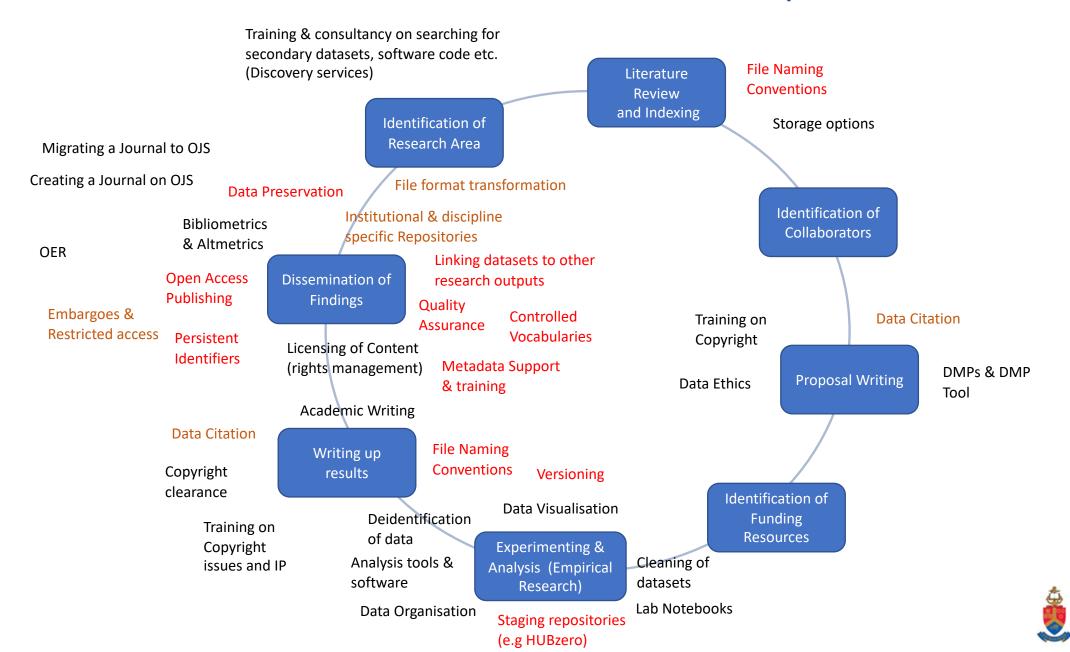
### Scholarly Communications support in the research lifecycle



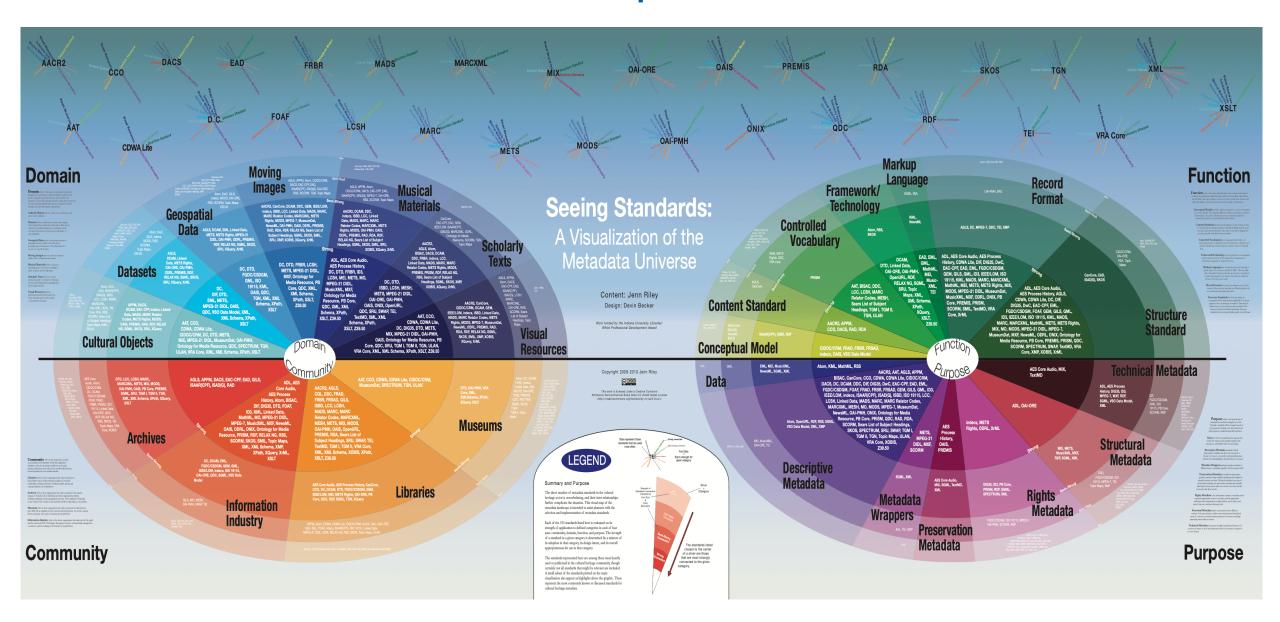
(e.g HUBzero)

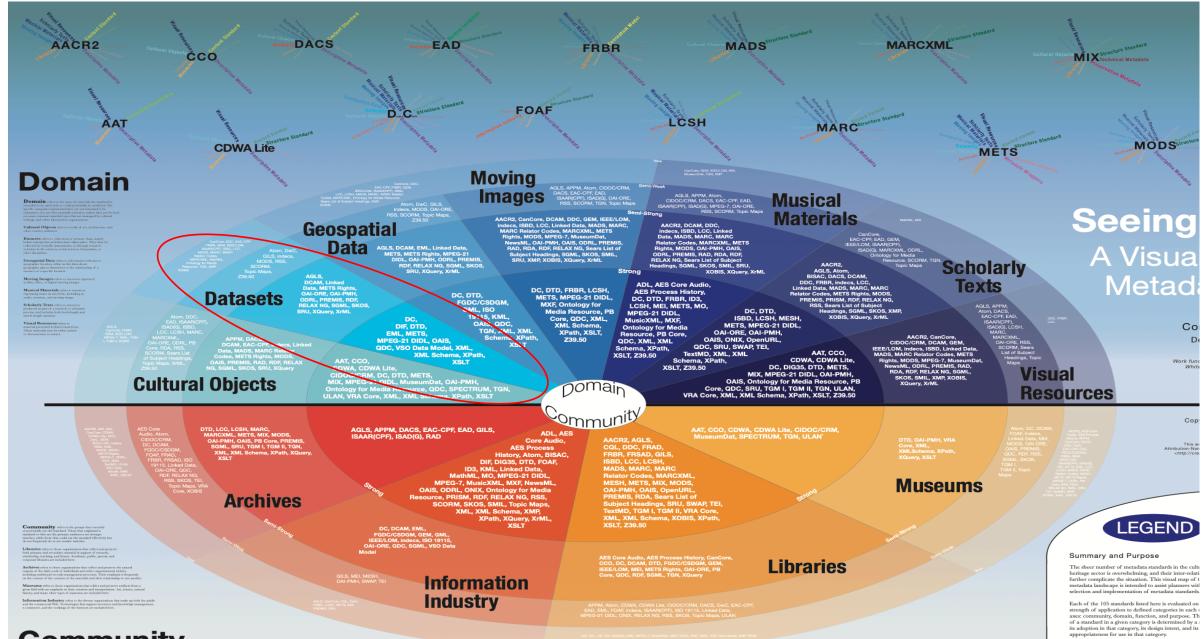


### Potential activities in which the metadata practitioner can play a role



### Metadata Standards: a complex universe





Community

The standards represented here are among those mo used or publicized in the cultural heritage community certainly not all standards that might be relevant are A small subset of the standards plotted on the main visualization also appear as highlights above the grap represent the most commonly known or discussed stacultural heritage metadata.

### **Domain**

**Domain** refers to the types of materials the standard is intended to be used with or could potentially be useful for. The specific categories represented here are not intended to be exhaustive, nor are they mutually exclusive; rather, they are focused on some common material types that are managed by cultural heritage and other information organizations.

Cultural Objects refers to works of art, architecture, and other creative endeavor.

Datasets refers to collections of primary data, largely before interpretive activities have taken place. They may be collected by scientific instruments, or through research activities in the sciences, social sciences, humanities, or

Geospatial Data refers to information relevant to geographic location, either as the data about geographic places themselves or the relationship of a arce to a specific location

Moving Images refers to resources expressed as film, video, or digital moving images.

Musical Materials refers to resources expressing music in any form, including as audio, notation, and moving image.

Scholarly Texts refers to resources produced as part of a research or scholastic process, and includes both book-length and article-length material.

Visual Resources refers to material presented in fixed visual form. These materials may be either artistic or documentary in nature

GILS, indecs, MODS, RSS,

CDWA Lite

**Datasets** 

APPM. DACS. DCAM, EAC-CPF, indec Data, MADS, MARC Relator Codes, METS Rights, MODS, OAIS, PREMIS, RAD, RDF, RELAX NG. SGML. SKOS, SRU. XQuery

**Cultural Objects** 

Moving

DC, DTD,

GDC/CSDGM.

GML, ISO

Atom. DwC. GILS. indecs, MODS, OAI-ORE, RSS, SCORM, Topic Maps, Z39.50

AGLS, DCAM, EML, Linked Data, METS, METS Rights, MPEG-21 DIDL, OAI-PMH, ODRL, PREMIS, RDF, RELAX NG, SGML, SKOS, SRU, XQuery, XrML

AGLS. DCAM, Linked Data, METS Rights. OAI-ORE, OAI-PMH. ODRL, PREMIS, RDF. RELAX NG. SGML. SKOS. SRU, XQuery, XrML

AT. CCO.

Geospatial

19115, KML. DC, OAIS, QDC. DIF. DTD. TGN, XML, XML EML. METS. Schema, XPath, MPEG-21 DIDL, OAIS, QDC, VSO Data Model, XML, XML Schema, XPath. XSLT

CDWA. CDWA Lite. CIDOC/CRM, DC, DTD, METS. MIX, MPEG-21 DIDL, MuseumDat, OAI-PMH, Ontology for Media Resource, QCC, SPECTRUM, TGN, ULAN, VRA Core, XML, XML Schema, XPath, XSLT

**Images** 

AGLS, APPM, Atom, CIDOC/CRM, DACS, EAC-CPF, EAD ISAAR(CPF), ISAD(G), OAI-ORE, RSS, SCORM, TGN, Topic Maps

CIDOC/ ISAAR(CPF

AACR2, D

Semi-Strong

AACR2, CanCore, DCAM, DDC, GEM, IEEE/LOM, indecs, ISBD, LCC, Linked Data, MADS, MARC, MARC Relator Codes, MARCXML, METS Rights, MODS, MPEG-7, MuseumDat, NewsML, OAI-PMH, OAIS, ODRL, PREMIS, RAD, RDA, RDF, RELAX NG, Sears List of Subject Headings, SGML, SKOS, SMIL. SRU, XMP, XOBIS, XQuery, XrML

DC, DTD, FRBR, LCSH,

MXF, Ontology for

METS, MPEG-21 DIDL,

Media Resource, PB

Core, QDC, XML,

XML Schema,

Z39.50

XPath, XSLT,

indecs, IS Data, MAD Relator Co Rights, MOI **ODRL. PREI** RELAX NG. S Headings, SG

Strong

ADL, AES Core **AES Process H** DC, DTD, FRBR LCSH, MEI, METS MPEG-21 DIDL. MusicXML, MXF, Ontology for Media Resource, PB Core QDC, XML, XML Schema, XPath, XSLT, Z39.50

Sch XSLT, Z

DTD, LCC, LCSH, MARC, MARCXML, METS, MIX, MODS, OAI-PMH, OAIS, PB Core, PREMIS, SGML, SRU, TGM I, TGM II, TGN, XML, XML Schema, XPath, XQuery, AGLS, APPM, DACS, EAC-CPF, EAD, GILS, ISAAR(CPF), ISAD(G), RAD

ADL. AES Core Audio, **AES Process** History, Atom, BISAC,

XSLT

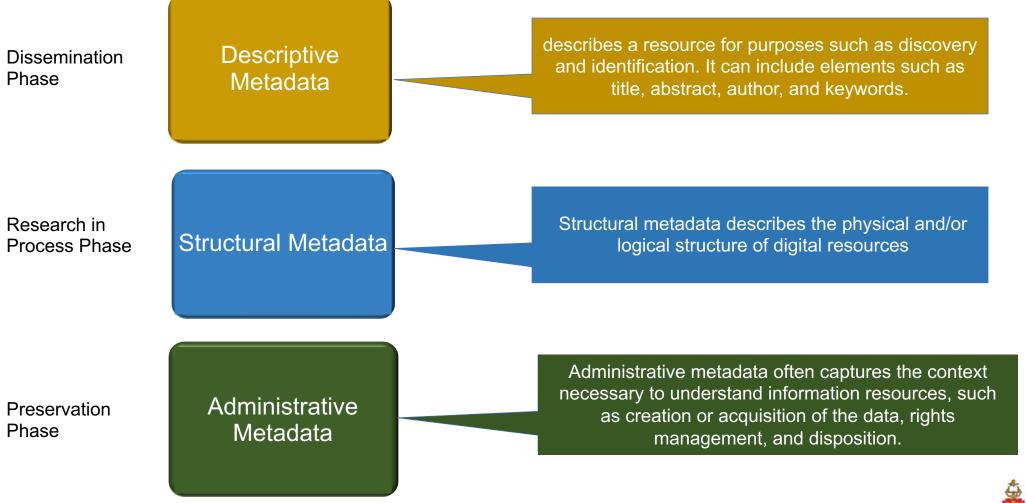
AACR2, AGLS, CQL, DDC, FRAD, FRBR, FRSAD, GILS,

# Processes within the Research Data Lifecycle





### Types of Metadata in RDM





# The changing role of the cataloguer/metadata specialist



THE UNIVERSITY OF RHODE ISLAND

University of Rhode Island DigitalCommons@URI

Technical Services Department Faculty Publications

Technical Services

2011

Is There a Future for Library Catalogers

Michael A. Cerbo
University of Rhode Isl.

Hanging Together
the OCLC Research blog

TOIVIE ABOU

### "Future Proofing" of Cataloging

October 11 2019 - by Karen Smith-Yoshimura



Jessie Eastland, Moon in Sunrise Sky, Wikimedia Commons CC-BY That was the topic discussed recently by OCLC Research Library Partners metadata managers, initiated by Melanie Wacker of Columbia, Daniel Lovins of Yale and Roxanne Missingham of Australian National University. Metadata departments not only need to focus on current requirements for their metadata in the library catalog or repositories, but also need to ensure that they look ahead to future uses of their metadata in emerging services. The work of the PCC Task Group on URIs in MARC and the PCC ISNI Pilot are network-level efforts; involving metadata staff in academic projects, research data, or identity management tasks are examples taking place on the local level. As technologies change there will be new opportunities to unleash the power of our metadata in legacy records for future, different interactions and uses. Our cataloging heritage equips us to use metadata for revealing collections in new ways beyond our current systems.

Our discussions focused on identifiers, viewed as a transition bridge from legacy and current metadata to future applications. Although few identifiers are now leveraged as they could be, many institutions are adding ISNs and FAST headings to their catalog records, and for records describing materials in Home > Vol 57, No 7 (1996) > Vellucci

ACRL College & Research Libraries News

### Association of College & Research Libraries

The Way I See It: Future catalogers: Essential colleagues or anachronisms?

By Sherry L. Vellucci

Broadening the idea of cataloging to "d

Do we need on-site professional catalor program addressed this issue for public academic libraries as well. Most of the catalogers, offering comforting platitud cataloging tasks. I believe the cataloge firmed and hopeful that theirs was a protwo serious concerns. First, although d

Emerging information standards and technologies: cataloging and metadata professionals' perspectives

Jung ran Park and Yuji Tosaka

#### Introduction

The need to keep their knowledge and expertise up to date always has been an integral part of professional life for practicing librarians. This professional need takes on new importance these days with accelerating advances in information

technologies and continue to facilitate robust resource discovery and access for their users.

Finding a better CE path forward for the cataloging and metadata community is the

repository and webinar series. This paper reports on the survey results relating to the current state of

Hanging Together
the OCLC Research blog

HOME ABOUT

LIBRARIES / METADATA

New skill sets for metadata management
April 17, 2017 - by Karen Smith-Yoshimura

That was the topic discussed recently by OCLC Research Library Partners metadata managers, initiated by



They identify and map semantic to end users. For the more r talent from other industries. Inment, non-profit, and private



field with an eve toward setting

priorities and target areas for our digital

Sarah Theimer

Principal Cataloger and Metadata Librarian Syracuse University Library



# What role can the cataloguer/metadata specialist play in RDM?

- Advise researchers, repository managers and data curation staff on metadata standards for different types of collections and disciplines
- Provide support to ensure that metadata is interoperable to enable cross-domain and crosscommunity search and discovery
- Develop metadata standards for complex research data records that can assist in relating recorded observations to published analyses or to various related entities and descriptors
- Play an important role to add preservation metadata to data that will go for long-term preservation
- Could assist researchers in preparing data for long-term preservation, by advising on metadata standards
- Could advise researchers on where to submit data for preservation
- Could advise researchers on which preservation file formats to use



# What role can the cataloguer/metadata specialist play in RDM? (2)

- Assist with name authority control on data repositories (especially in open source data repositories)
- Advise and train researchers on file naming conventions and metadata standards in their subject fields
- Advise/Assist researchers in adding metadata to their active data (research-in-process phase)
- Advise and give training on the organising data folders and files
- In some instances assist researchers in cleaning their datasets before it is published, e.g. by using OpenRefine to do that
- Advise on or implement controlled vocabularies, or check use of controlled vocabularies in repositories
- Advise on or implement or give training on persistent identifiers (e.g. ORCID, DOIs)
- Linking of data records to research outputs (e.g. research articles, books, theses & dissertations etc.)



# Training/upskilling opportunities for seasoned cataloguing practitioners in RDM/digital curation

### **Nationally**

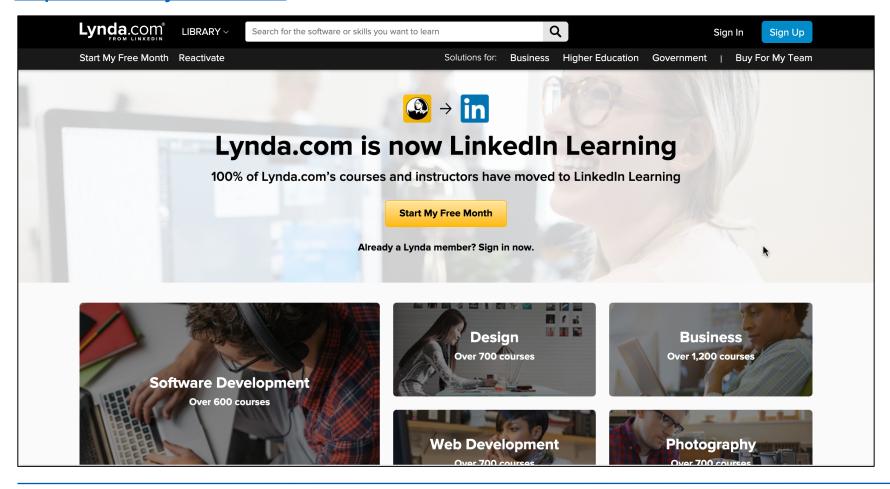
- The Library and Information Study Centre (LISC) at the University of Cape Town (UCT) are presenting several courses in data curation and RDM. It was the first university in Africa to offer a full Masters course specialising in Digital Curation. A short course in Research Data Management is also offered on an annual basis.
- UNISA offers a Master of Arts in Information Science; Master of Information Science and one can choose Data Curatorship as a research area
- The Information Science department at UP has an M. IT in Librarianship (Stream B), which includes one module in RDM training.
- Informally, the Network of Data and Information Curation Communities (NEDICC) has a programme
  of workshops on RDM conducted by South African & invited international trainers
- Annually DIRISA hosts a National Data Workshop
- eResearch Africa conference takes place every 2<sup>nd</sup> year with one stream focusing on data curation



# LinkedIn Learning (formerly Lynda.com)

https://www.lynda.com/

Courses at a cost

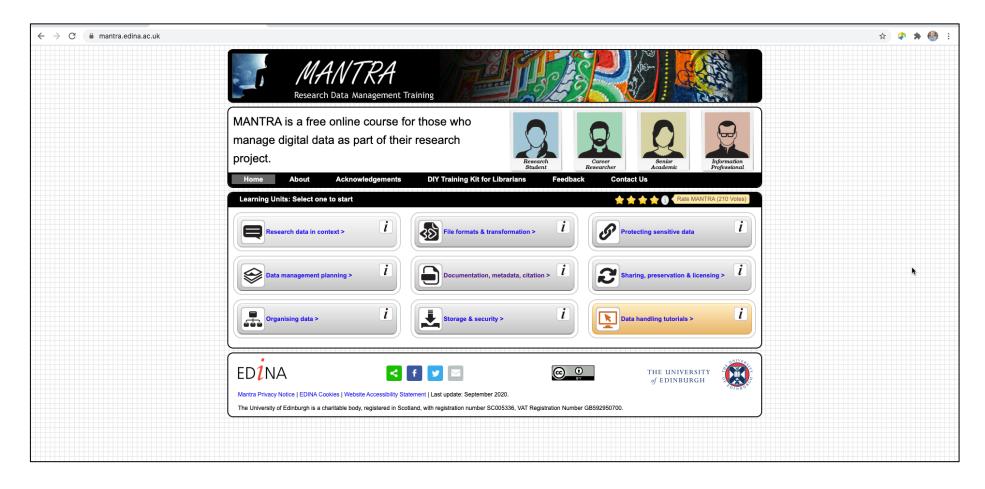


Various courses on metadata, research data curation and RDM



# MANTRA Online training on Research Data Management

https://mantra.edina.ac.uk/





### IASSIST workshops and conference

https://iassistdata.org/tags/community-of-data-professionals/



<u>HOME</u>

BOUT CONFERENCES

IQ JOURNAL

#### **COMMUNITY OF DATA PROFESSIONALS**



### SUMMARY OF THE ONLINE DISCUSSION, TOWARDS DEFINING GEOSPATIAL DATA LITERACY

BY AMANDA TICKNER & JENNIE MURACK

☐ September 15, 2020

The Geospatial Interest Group hosted a webinar and discussion on March 24, 2020, Towards Defining Geospatial Data Literacy, in order for participants to think about data literacy concepts that are unique to geospatial data and how these are presented in our teaching. Little has been written specifically about geospatial data literacy and the goal of this discussion was to gather information on what GIS and data educators see as important components.

CONTINUE READING



#### RACISM, DATA, AND IASSIST

BY IASSIST

☐ September 13, 2020

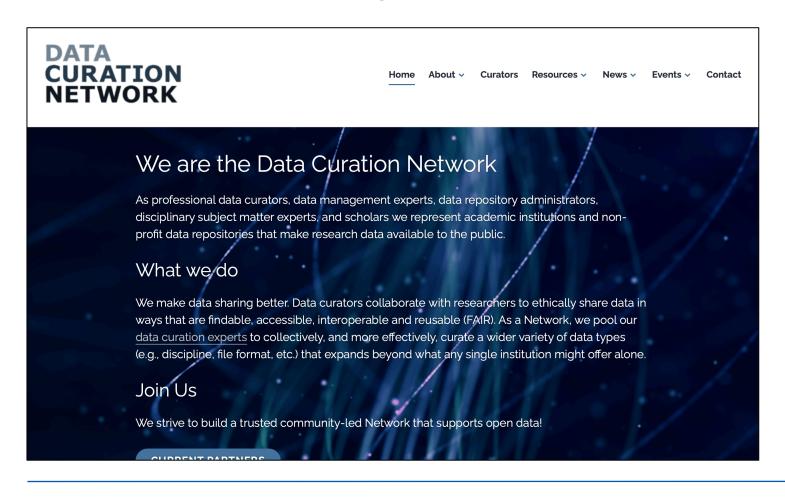
Since the murder of George Floyd in Minneapolis in May, race and racism have been in the headlines around the globe. The Black Lives Matter movement may have been born out of a uniquely American situation but the wrongs against which it protests exist in other parts of the world. If we learn nothing else from the current global focus on racism and its historical precedents, we learn that taking comfort in being 'not racist' is insufficient, bordering on complacent.

- Interest groups
- Workshops
- Annual Conferences



### **Data Curation Network**

### https://datacurationnetwork.org

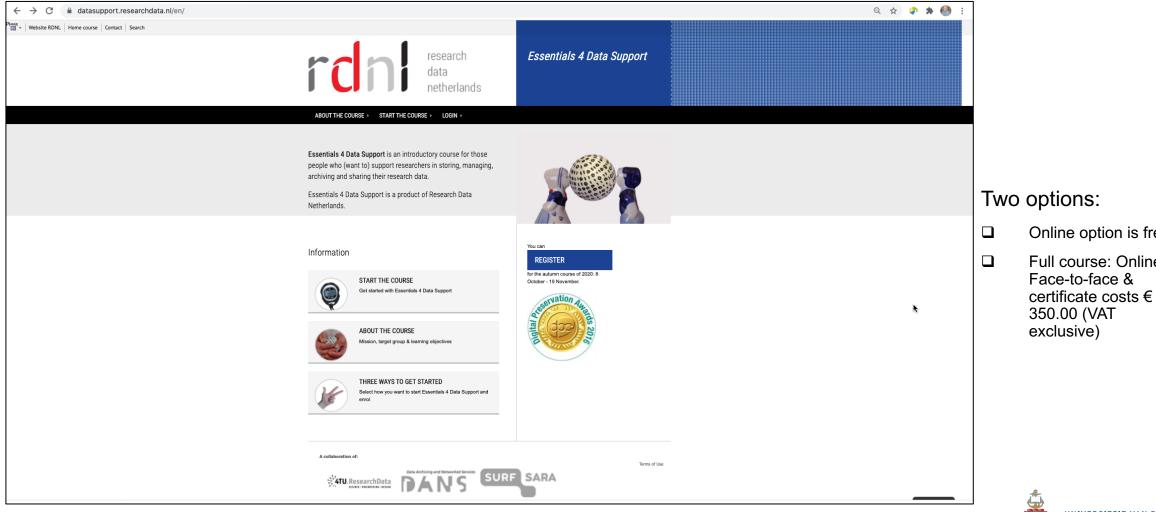


- Valuable resources
- Workshops
- US-focused



# **Essentials 4 Data Support Course**

https://datasupport.researchdata.nl/en/

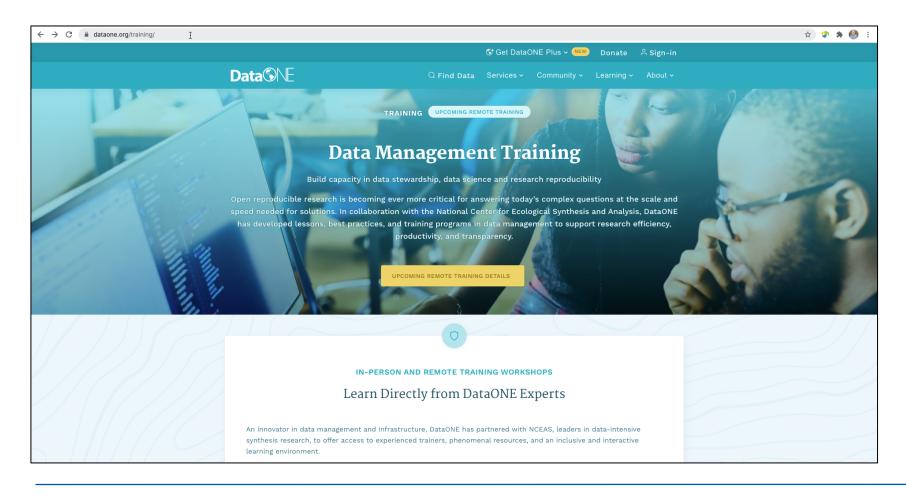


- Online option is free
- Full course: Online +



# DataONE training workshops

https://www.dataone.org/training/



- ☐ In-person and online
- ☐ Workshops at a cost



### Library Juice Academy

We have updated our privacy policy to cover student data, meaning communications and assignments within our Moodle

### https://libraryjuiceacademy.com/

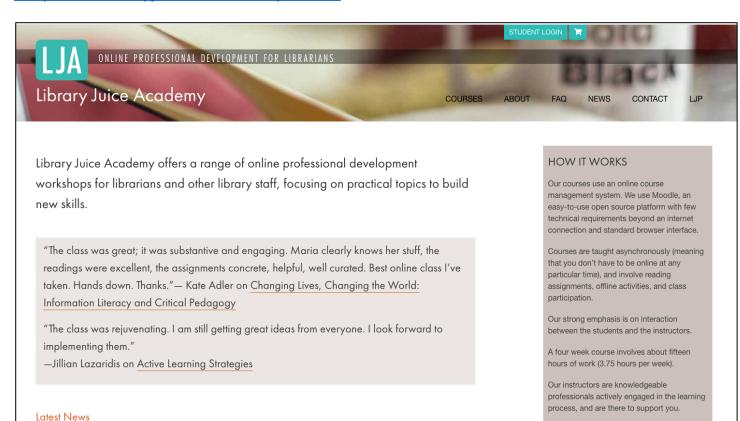
Updated Privacy Policy

platform.

### Online courses at a cost

REVIEW IN CATALOG AND

INDEX JOURNAL



### **Course Topics**

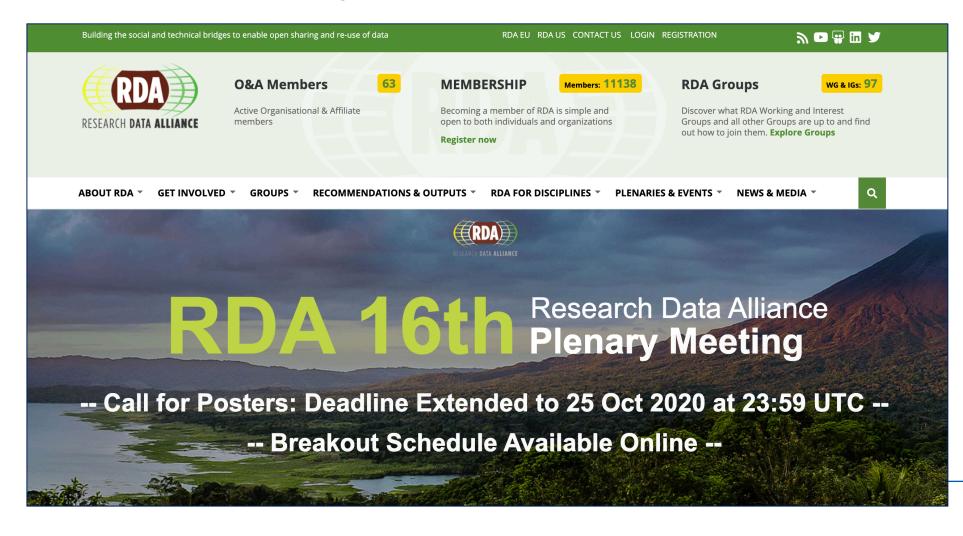
- Accessibility
- Assessment
- Cataloging
- Coding
- Collections
- Digital Collections
- Diversity
- Faculty relations
- Instruction
- Legal issues
- Management
- Museums
- Non-traditional skills
- Outreach
- Productivity
- Programming
- Public Libraries
- Public Services
- Readers' Advisory
- Reference

- Scholarly Communication
- Software
- Special Collections
- Special Libraries
- Subject Specialities
- Support staff
- Technical Services
- Theory
- User Experience
- Web Development
- Workplace Issues
- Youth Services



### Research Data Alliance

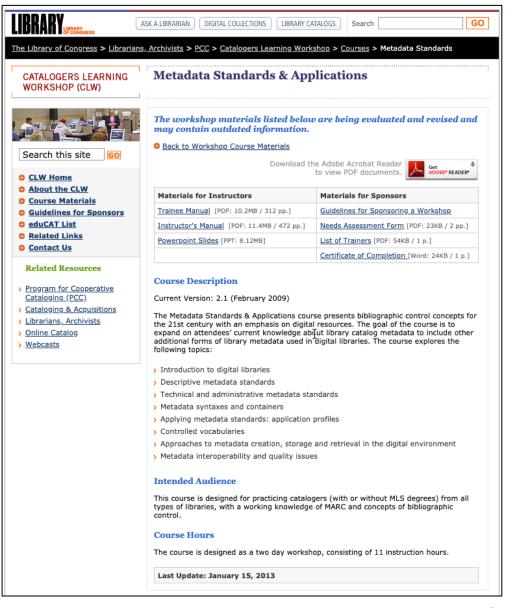
https://www.rd-alliance.org/



- Interest Groups (IG)
- Work Groups (WG)
- Webinars (training)
- WG/IG collaborative Meetings
- Plenary Meetings (conferences)



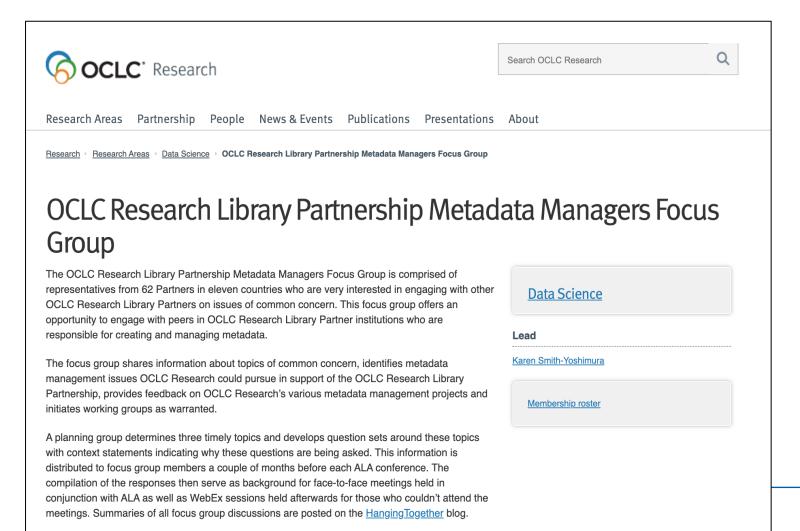
# Library of Congress Catalogers Learning Workshop (CLW)



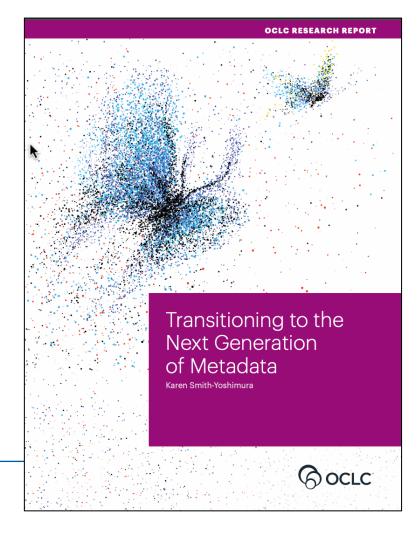


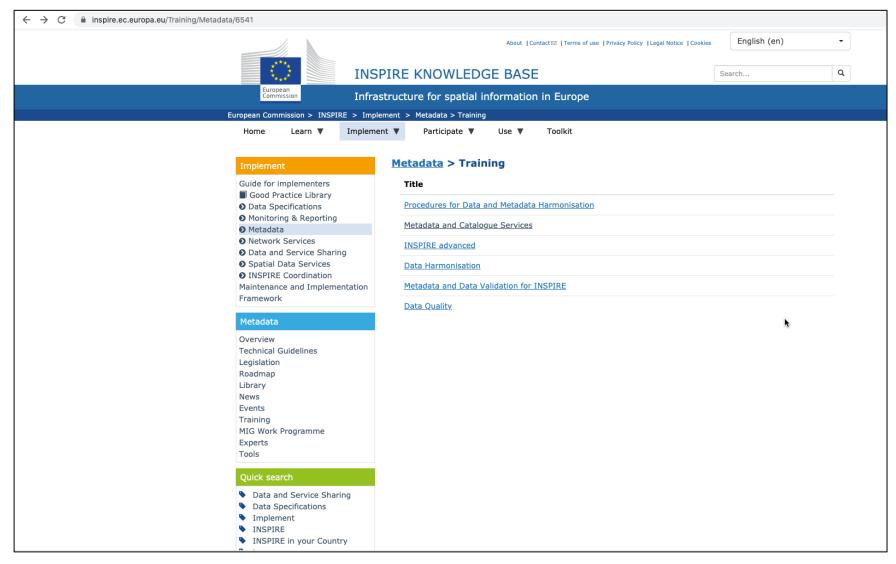
# Valuable source of information: OCLC Research Library Partnership Metadata Managers Focus Group

https://www.oclc.org/research/areas/data-science/metadata-managers.html



Report available at: https://bit.ly/2GCB8gD





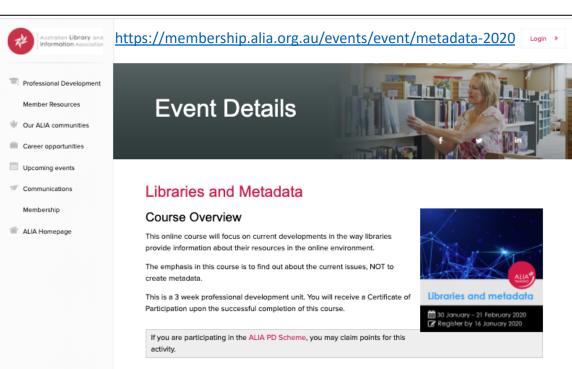
# INSPIRE Knowledge Base training

Free Online Self-learning Courses provided by European Commission

https://inspire.ec.europa.eu/Training/Metadata/6541



# Example of an online course that was arranged by a Library Association: ALIA



#### Course Content

Privacy Policy Contact Us

This course will cover the following topics:

- Libraries and metadata current standards and practices
- Resource description and access (RDA)
- Machine-readable cataloguing (MARC)
- o Resource Description Framework (RDF)
- Dublin Core (DC)
- Libraries and metadata the future
- Bibliographic Framework Initiative (BIBFRAME)
- Linked data

Background information, definitions, and more in-depth readings will be provided, and participants will be engaging with each other and teaching staff through forums, quizzes and other online activities.

#### Right for you if...

This course would suit ANYONE who would like to be introduced to the world of metadata, and for those who wish to learn more about current and future developments.

#### Course Delivery

Contact with facilitators will be through **online** forums on Moodle (the online Learning Management System used by TAFE NSW for these courses).

# Does LIASA/IGBIS have a role to play?

- LIASA/IGBIS can collaborate with NeDICC to present workshops/webinars/ short courses focused on various aspects of RDM/data curation relevant to the cataloguer/metadata professional
- Members of LIASA/IGBIS can become involved in the Research Data Alliance Metadata Directory Workgroup at <a href="https://www.rd-alliance.org/groups/metadata-standards-directory-working-group.html">https://www.rd-alliance.org/groups/metadata-standards-directory-working-group.html</a>
- Members of LIASA/IGBIS can become involved in the Research Data Alliance Metadata Interest Group at <a href="https://www.rd-alliance.org/groups/metadata-ig.html">https://www.rd-alliance.org/groups/metadata-ig.html</a>



### The future of Scholarly Communications

- Traditional scholarship can be described "as a sensemaking network of humans exchanging scholarly writing, but this is changing into a sense-making network of humans and machines, with the communications produced and consumed by both" (De Roure, 2014: 235)
- Shift towards data-driven and data-intensive science and the issue of Big Data
- Citizen Science, also called Science 2.0 (e.g. through social media) leads to new forms of Big data
- Internet of Things makes possible growing computational capacity and real-time analysis and producing even more data
- The new research environment will enable the researcher to bundle (link) the whole research workflow together: e.g. machine actionable data management plans, datasets, software used, analysis workflow, logs, papers, presentations, and articles/books/theses, hence the concept of Virtual Research Environments (e.g. see Open Science Framework). This is also where linked data becomes crucial.

# The following skills/expertise will become essential

- Skilled in various Metadata standards and syntaxes
- Skilled in Linked Data and Semantic Data
- Skilled in Library Carpentry (Coding skills)
- Knowledgeable and skilled in controlled vocabularies
- Organisational skills
- Skilled about file naming conventions
- Skilled about preservation systems and preservation file formats
- Training skills
- Skilled about licensing (Creative commons, software licenses etc) and persistent identifiers
- Knowledgeable about Virtual Research Environments
- Knowledgeable about preservation of digital objects (websites, social media, data, software, articles, books, etc)
- Skilled about various repository systems



# **Thank You**



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### **Bibliography**

- ACRL. 2003. Principles and strategies for the reform of scholarly communication 1.
   Chicago, IL: Association of College and Research Libraries. [Online] available at <a href="http://www.ala.org/acrl/publications/whitepapers/principlesstrategies">http://www.ala.org/acrl/publications/whitepapers/principlesstrategies</a> (Accessed 27 September 2020)
- ACRL. 2020. Scholarly Communication Toolkit: Scholarly Communication overview.
   Chicago, IL: ACRL. [Online] available at <a href="https://acrl.libguides.com/scholcomm/toolkit">https://acrl.libguides.com/scholcomm/toolkit</a>
   (Accessed 5 October 2020)
- Cragin, M.H., Heidorn, P.B., Palmer, C.L. and Smith, L.C. 2007. An educational program on data curation. Poster for 2007 STS Conference poster session[Online] available at <a href="http://hdl.handle.net/2142/3493">http://hdl.handle.net/2142/3493</a> (Accessed 28 September 2020).
- De Roure, D. 2014. 'The future of scholarly communications'. *Insights*, November, vol.27, no.3, p. 233-238. DOI: <a href="http://doi.org/10.1629/2048-7754.171">http://doi.org/10.1629/2048-7754.171</a> (Accessed 5 October 2020)



### **Bibliography**

- European Commission. 2019. Future of Scholarly Publishing and Scholarly Communication: report of the Expert Group to the European Commission. Brussels: European Commission. [Online] available at: <a href="https://www.eosc-portal.eu/sites/default/files/Kl0518070ENN.en\_.pdf">https://www.eosc-portal.eu/sites/default/files/Kl0518070ENN.en\_.pdf</a> (Accessed 5 October 2020)
- Regazzi. J.J. 2015. Scholarly Communications: a history from content as king to content
  as kingmaker. London: Rowman & Littlefield
- Riley, J. & Becker, D. 2010. Seeing standards: a visualization of the metadata universe.
   [Bloomington, IN]: Indiana University Libraries. [Online] available at <a href="http://jennriley.com/metadatamap/">http://jennriley.com/metadatamap/</a> (Accessed 28 September 2020)
- Rusbridge, C., Burnhill, P., Ross, S, Buneman, P., Giaretta, D., Lyon, L. & Atkinson, M. 2005.
   'The Digital Curation Centre: a vision for digital curation'. In: 2005 IEEE International
   Symposium on Mass Storage Systems and Technology, 20-24 June 2005, Sardinia Italy.
   [SI.]: IEEE Xplore, p. 31-41.

# Bibliography

Van Wyk, B.J. 2018. The relationship between research data management and Virtual Research Environments. DPhil thesis. Pretoria: University of Pretoria. [Online] available at: <a href="http://hdl.handle.net/2263/64292">http://hdl.handle.net/2263/64292</a> (Accessed 5 October 2020)

