

**NANYANG
TECHNOLOGICAL
UNIVERSITY**
SINGAPORE

Information Sharing Session

Building Library Capabilities for Research Data Management Services

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NTU Library
Office of Information, Knowledge &
Library Services

In collaboration with:



COAR-Asia OA

18 Dec 2020



AGENDA

- What is research data management (RDM)?
- Motivations for academic libraries moving into RDM services
- Roles of academic libraries in RDM
- Competencies for librarians moving into RDM
- Q&A
- First steps (*breakout room discussions*)



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WHAT IS RESEARCH DATA?



Research Data

- Can exist in any **FORMAT** in which it is created
 - Examples: text, numeric, audio-visual, models, computer code, discipline-specific, instrument-specific.
- Includes:
 - **PRIMARY** data (data that are collected for the specific research problem, using procedures that fit the research problem best.
 - **SECONDARY** data (data that has been collected by others, for another purpose, but has some relevance to your research needs)



WHAT IS RESEARCH DATA MANAGEMENT?



Research Data Management

- Focuses on what is needed for validation and re-use

Who do you think would be interested to validate or re-use research data and why would they be?



Are Cry Studies Replicable? An Analysis of Participants, Procedures, and Methods Adopted and Reported in Studies of Infant Cries

by  Giulio Gabrieli ¹ ,  Giulia Scapin ² ,  M

¹ Psychology Program, Nanyang Technological University, Singapore

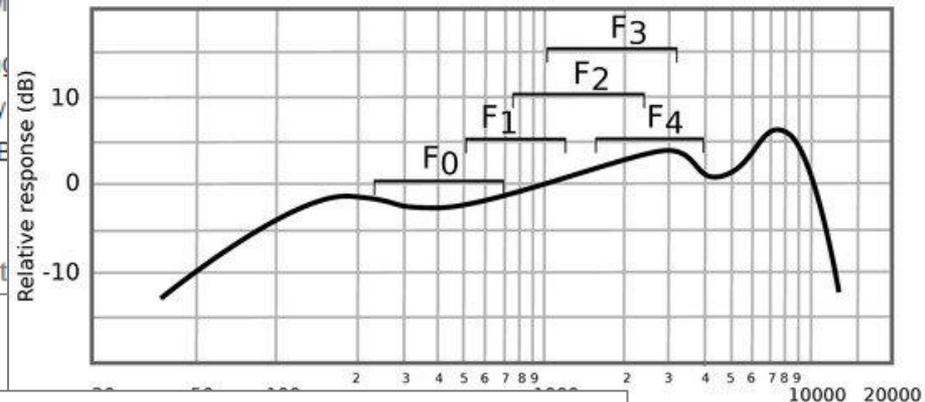
² Department of Psychology and Cognitive Science, University of Padua, Italy

³ National Institute of Child Health and Human Development, Bethesda, MD, USA

* Author to whom correspondence should be addressed.

Acoustics 2019, 1(4), 866-883; <https://doi.org/10.3390/acoustics1040052>

Example of microphone frequency response chart



5. Conclusions

This study investigates how cry research [26] wrote that the absence of acoustic who state that acoustical analysis of infant's vocal tract is difficult to ignore standardized datasets and guidelines for

In this review, 180 research articles compare and make assumptions about

Supplementary Material

Externally hosted supplementary file 1

Doi: 10.21979/N9/UDQBK

Link: <https://researchdata.ntu.edu.sg/dataset.xhtml?persistentId=doi:10.21979/N9/UDQBK>

Description: Supplementary files are available at <https://researchdata.ntu.edu.sg/dataset.xhtml?persistentId=doi:10.21979/N9/UDQBK>

Gabrieli, G.; Scapin, G.; Bornstein, M.H.; Esposito, G. Are Cry Studies Replicable? An Analysis of Participants, Procedures, and Methods Adopted and Reported in Studies of Infant Cries. *Acoustics* 2019, 1, 866-883. <https://doi.org/10.3390/acoustics1040052>



Why is responsible research data management important?

Unmute and share your thoughts on this question.

Alternatively, type your answer in the Chat.



Why is responsible research data management important?

REDUCES RISKS OF:

1. Data loss
2. Data leak
3. Copyright infringement
4. Breach of contract

IMPROVES:

1. Validation
2. Reuse
3. Visibility
4. Collaboration
5. Research integrity



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- Competencies for librarians moving into RDM
- First steps



Why are academic libraries moving into RDM services?

Unmute and share your thoughts on this question.

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What strengths of academic libraries would be useful for RDM services?

1. Information organisation: Metadata, discovery & access
2. Repository management
3. Preservation
4. Engagement and user education
5. Scholarly communication



Why are University Libraries Providing RDM Services?

- Libraries & universities are long-lived institutions that do not traditionally rely on short term funding cycles, **unlike many disciplinary repositories**. Many may not have a suitable discipline repository to share their data.
- Libraries have demonstrated a sustainable model for **collection of, preservation of, and access to information**.
- Libraries are filled with people who are trained in and participate in already developed and well-characterized practices and principles of **information management**, from description to organization to access to rights management, and on, and on.
- Libraries are often already established partners in research, having provided **guidance & resources at other stages of the research lifecycle**.
- **Libraries provide instruction** in and distribute information about other areas of information management. By adding data to this instructional portfolio, libraries can train the next generation of researchers in data standards & standard practices.



Library Roles in RDM:
<https://nml.gov/data/library-roles>

University Libraries Providing RDM Services

• Nanyang Technological University

RDM Services in Library <https://libguides.ntu.edu.sg/rdm>

• Stanford University

Data Management Services in Library
<https://library.stanford.edu/research/data-management-services/contact-us>

• Harvard University

RDM Services in Library: <https://hlrdm.library.harvard.edu/about>

• MIT

RDM Team in Library
<https://libraries.mit.edu/data-management/about-us/>

• Purdue University

RDM & Curation Services in Library
<https://www.lib.purdue.edu/researchdata>

• University of Oxford

RDM Team in Library
<https://www.bodleian.ox.ac.uk/data/support-and-training/research-data-management>

• University of Cambridge

RDM Team overseen by Library and Research Office:
<https://www.data.cam.ac.uk/research-data-management-team>

• TU Delft

RDM Services in Library
<https://www.tudelft.nl/en/library/current-topics/research-data-management/r/buttons/contact/>

• University of Queensland

RDM Team in Library
<https://guides.library.uq.edu.au/for-researchers/uq-research-data-manager/requesting-help>

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What roles can academic libraries play in RDM?



DATA MANAGEMENT PLANNING*

- Template design
- User education
 - user guides
 - workshops
 - consultation

*A Data Management Plan (DMP) is a formal document that the Principal Investigator develops at the start of the research project which describes the kind of data that will be collected or used, how it will be managed in terms of storage, organisation, access, back-up, security and preservation during and after the project.

Rans, J and Whyte, A. (2017). 'Using RISE, the Research Infrastructure Self-Evaluation Framework' v.1.1 Edinburgh: Digital Curation Centre. Available online: www.dcc.ac.uk/guidance/how-guides



NTU Research Data Policy: Library's role

5.2.4 LIBRARY

- 5.2.4.1 Provide **training** and **advice** on research data management including metadata description, DMP preparation, copyright and licenses.
- 5.2.4.2 Develop, revise and maintain the **NTU DMP template**.
- 5.2.4.3 Develop and manage the **NTU Data Repository** for submission of final research data.

NTU Research Data Policy: <http://bit.ly/NTUresearchdataPolicy>



NTU DMP Template & User Guide

1. Types and Size of Data
2. Collection Methods and Organization of Data
3. File Formats & Software/Tools
4. Management of Proprietary Secondary Data
5. Management of Sensitive Data
6. Access & Usage Restrictions
7. Data Documentation and Metadata
8. Data Storage During Project
9. Data Storage After Project

What?

How?

Who?

Where?

NTU DMP template: <https://libguides.ntu.edu.sg/rdm/dmptemplate>



What roles can academic libraries play in RDM?



Data Repository

- Set up repository
- Work with data depositors to co-curate research data
- User education
 - user guides
 - workshops
 - consultation

Rans, J and Whyte, A. (2017). 'Using RISE, the Research Infrastructure Self-Evaluation Framework' v.1.1 Edinburgh: Digital Curation Centre. Available online: www.dcc.ac.uk/guidance/how-guides



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What competencies are needed for librarians moving into RDM?



Unmute and share your thoughts on this question.

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Rans, J and Whyte, A. (2017). 'Using RISE, the Research Infrastructure Self-Evaluation Framework' v.1.1 Edinburgh: Digital Curation Centre. Available online: www.dcc.ac.uk/guidance/how-guides



What competencies are needed for librarians moving into RDM?

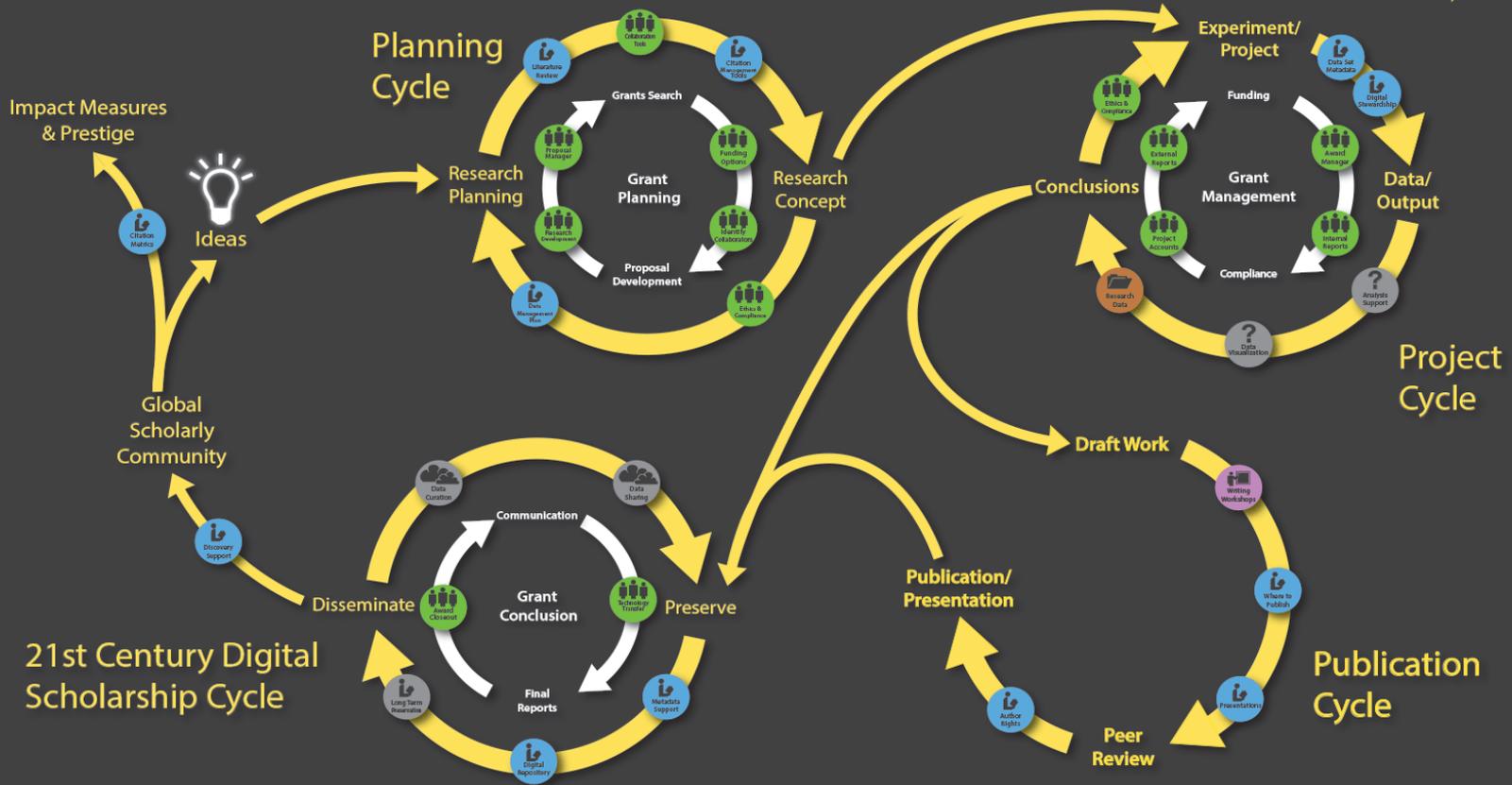
- Knowledge of the 3 lifecycles:
 - Research
 - Publication
 - Research data



Research Lifecycle at University of Central FL

Version 2.0

A library-led institutional collaboration to develop a mental model of research support and services



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- Legend**
- Research Data Management
 - Faculty Center for Teaching and Learning
 - Libraries
 - Office of Research and Commercialization
 - Institute for Simulation & Training
 - Not yet supported

Design Inspiration by OpenWetWare

Survey on Skills for Data Librarians

DATA MANAGEMENT SKILLS:

1. Development of data services (81%)
2. Support for general data management (78%)
3. Data management planning (72%)
4. Data preservation, curation, or stewardship (64%)
5. Support for institutional repository (58%)

TEACHING SKILLS:

1. One-to-one consultation or instruction (87%)
2. Development of online tutorials, course materials, or instructional guides (67%)
3. Staff/librarian training (67%)
4. Development of course content or curricula (64%)
5. Course-integrated instruction (62%)

LIBRARY SKILLS:

1. Scholarly communication support (copyright, support for scholarly publishing) (57%)

NETWORKING & OUTREACH SKILLS:

1. Developing relationships with researchers, faculty, etc. (94%)
2. Data-specific liaison services (70%)

PERSONAL ATTRIBUTES:

1. Oral communication and presentation skills (91%)
2. Teamwork & interpersonal skills (89%)
3. Written communication skills (89%)
4. Innovation & creativity (85%)
5. Customer service skills (85%)
6. Teaching skills (80%)
7. Management & leadership skills (71%)

Federer, L. (2018). Defining data librarianship: a survey of competencies, skills, and training. Journal of the Medical Library Association. <https://dx.doi.org/10.5195%2Fjmla.2018.306>



Core Competencies

Librarians will require some level of subject knowledge to support RDM, including at least a basic understanding of the disciplinary landscape, norms, and standards.

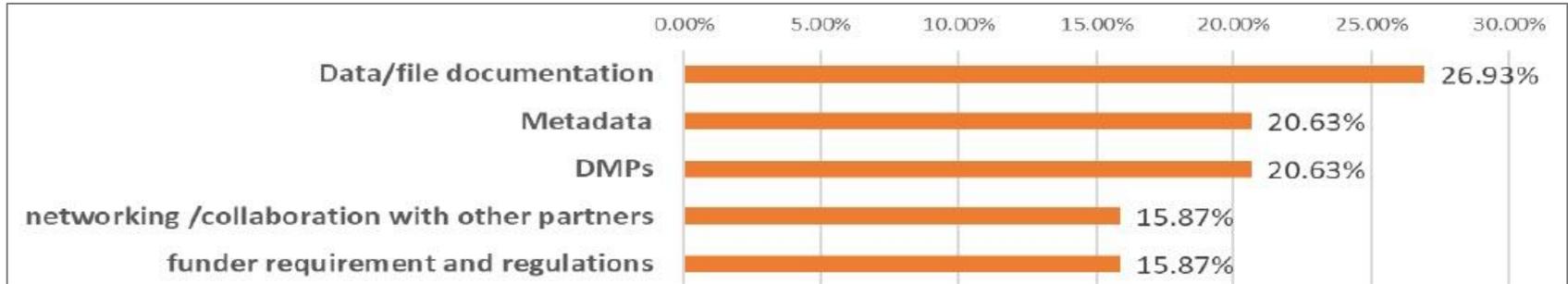
Other core competencies (summary):

Providing access to data	Advocacy and support for managing data	Managing data collection
<p>Knowledge of:</p> <ul style="list-style-type: none">Existing data centres, repositories and collections and data discovery mechanismsData manipulation and analysis techniques and tools	<p>Knowledge of:</p> <ul style="list-style-type: none">Funders' policies and requirementsBest practices for data structures, types, formats, vocabularies, metadataData management plans and DMP toolsData publication requirements of journalsData sharing options, open access, IPR, licensesData citation and referencing practices	<p>Knowledge of:</p> <ul style="list-style-type: none">Metadata standards and schemas, data formats, domain ontologies, identifiers, data citation and licensing.Discovery toolsDatabase design types and structuresData linking and data integration techniquesData repository and storage platforms

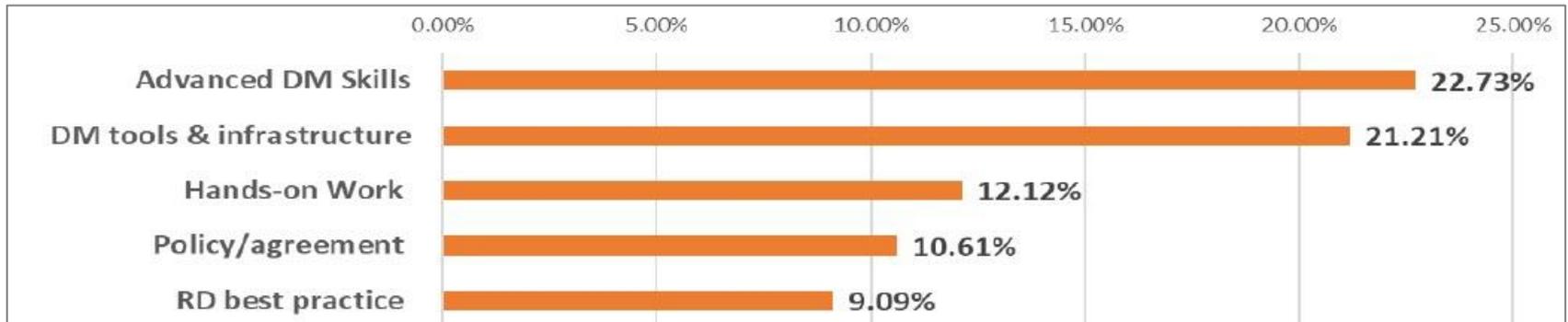
Ruttenberg, J., & Shearer, K. (2016). Librarians' competencies profile for research data management. *Librarian Competencies in Support of Research Data Management, Scholarly Communication, Open Access*. <https://www.arl.org/news/librarian-competencies-in-support-of-research-data-management-scholarly-communication-open-access/>



What three things have you learned about RDM that was absolutely mandatory?



What further RDM training was needed?



Tang, R., & Hu, Z. (2019). Providing Research Data Management (RDM) Services in Libraries: Preparedness, Roles, Challenges, and Training for RDM Practice, *Data and Information Management*, 3(2), 84-101. doi: <https://doi.org/10.2478/dim-2019-0009>



Courses & Learning Resources

Delivering research data management services

Free (without certification)

USD 69 (with certification)

<https://www.futurelearn.com/courses/delivering-research-data-management-services>

MANTRA research data management training

Free

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

Research data management librarian academy

Free

<https://www.canvas.net/browse/simmonsu/courses/research-data-management>

Research data management and sharing

Free (without certification)

USD 49 (with certification)

<https://www.coursera.org/learn/data-management>

RDM ROSE learning materials

Free

<http://rdmrose.group.shef.ac.uk/>



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1. Discuss in breakout rooms:

Have you started with RDM service in your institution?

If yes, which areas have you started with?

If no, which area do you think is the most important to start with?

2. Return to main group and share.



- Policy development
- RDM implementation roadmap
- Staff investment
- Technology investment
- User education & services
- Data management planning support
- Repository support

Rans, J and Whyte, A. (2017). 'Using RISE, the Research Infrastructure Self-Evaluation Framework' v.1.1 Edinburgh: Digital Curation Centre. Available online: www.dcc.ac.uk/guidance/how-guides



Feedback



We'd love to hear your feedback
<https://bit.ly/NTUsharing2020>



Upcoming

Services and Challenges in Managing the Institutional Research Data Repository

Date:

22 June 2021 (Tuesday)

11:00am – 12:30pm Singapore Time

Register:



<http://bit.ly/sharingJun2021>



Email: library@ntu.edu.sg

RDM Libguide: <https://libguides.ntu.edu.sg/rdm>

THANK YOU

