

Librarians' Competencies Profile for Research Data Management

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Definition

Research data management (RDM) involves services, tools and infrastructure that support the management of research data across the lifecycle. The various aspects of RDM are often distributed across different support services and academic departments (e.g. Research Office, IT Services, Library). Interviews with researchers demonstrate that researchers need support in numerous areas across the entire research lifecycle: planning, organizing, security, documenting and sharing, preparing datasets for deposit and long-term preservation, as well as issues related to copyright, licensing and intellectual property more generally (e.g. Wilson 2013, Parsons et al 2013).

Research data management encompasses a wide array of activities across the research data lifecycle. Generally, it requires a high level of interaction with researchers and also working with other support services including technical services and research officers. For RDM training, therefore, working closely with disciplinary experts is recommended to ensure that the terminologies and practices are relevant to the researcher and the field in which they work. Discipline-specific examples and good practices are also highly valuable for engaging the audience and for putting basic principles in context (Molloy & Snow 2012).

Based on funder requirements the need to support researchers in creating and implementing data management plans has substantially grown over the last years. Several libraries have set up a service to support such needs, often in collaboration with other service units (e.g. research office, IT services, legal advisor, ethics committee). The development of such a service can even serve as a training ground for librarians and other institutional stakeholders (David & Cross, 2015). Several surveys have investigated what research data support services are offered by libraries and/or are currently emerging (e.g. Corral et al, 2013; Cox & Pinfield, 2013; Tenopir, 2014); the results of a recent survey targeting the members of the Association of European Research Libraries (LIBER) will be presented at the LIBER Annual Conference in June 2016.

Library Roles

Libraries' activities in research data management can be usefully conceptualized as falling into three broad categories: providing access to data; supporting researchers and students in managing their data; and managing a data collection. There are overlaps, but each of these areas has some distinctive services and skills requirements.

1. Providing access to data

This area reflects the more traditional services of libraries in the area of research data management in terms of offering consultation and reference services to researchers looking for data sets:

- Identify and locate data sets
- Provide support for access and re-use conditions of data
- Identify software/code in order to understand and reuse data
- Advice on informatics, discovery and analytical tools
- Provide support for data citation and referencing

2. Awareness and support for managing data

This area involved working directly with researchers to educate about the importance of data management and sharing, as well as offering hands on support for researchers across the data lifecycle.

Policy and advocacy:

- Articulate the benefits of research data management
- Promote data sharing and reuse
- Educate about relevant research data policies

Support and training:

- Raise awareness of the need and options of RDM
- Teach data literacy (metadata standards, formats, etc.)
- Assist with completing RDM plans
- Identify effective service workflows
- Identify data standards and formats, and metadata standards
- Identify repositories/data archives for deposit
- Advise about software management

Data audits:

- Identify the range of datasets on campus
- Develop data curation profiles

3. Managing a data collection

Data collection

- Prepare data for deposit
- Appraisal, selection, and ingest of data into repository

Data management

- Manage data collection and metadata

Data preservation:

- Ensure authenticity
- Refresh digital media and migrating data
- Undertake backup and storage

Core Competencies

In most cases, librarians will require some level of subject knowledge to support research data management including at least a basic understanding of the disciplinary landscape, norms, and standards.

Other core competencies are as follows:

1. Providing access to data

Knowledge of:

- Existing data centres, repositories and collections and data discovery mechanisms
- Data manipulation and analysis techniques and tools

Understanding of:

- The way data are organized and structured within collections
- Data licensing and intellectual property issues

2. Advocacy and support for managing data

Knowledge of:

- Funders' policies and requirements
- Data centres, repositories and collections
- Best practices for data structures, types, formats, vocabularies, ontologies and metadata
- Where to find information about data structures, types, formats, vocabularies, ontologies and metadata
- Data management plans and DMP tools
- Data publication requirements of journals
- Data sharing options, open access, IPR, licenses
- Data citation and referencing practices

Understanding of:

- Research practices and workflows
- Disciplinary norms and standards for data management

Ability to:

- Articulate benefits of data sharing and re-use
- Undertake data audit and assessment tools.

3. Managing data collections

Knowledge of:

- Metadata standards and schemas, data formats, domain ontologies, identifiers, data citation, data licensing.
- Discovery tools
- Database design types and structures
- Data linking and data integration techniques
- Data repository and storage platforms

Ability to:

- Select and appraise datasets
- Actively manage research data
- Undertake digital preservation activities
- Apply forensic procedures in digital curation

List of job titles

1. Providing access to data

(Research) Data Librarian, Social Sciences Data Librarian, Geographic Information Systems (GIS) Librarian

2. Support and Advocacy for Managing Data

Data Management Specialist, Data Support Officer, Research Data Support Officer, Data Management Planning Consultant, Research Data Management Project Officer, Research Data Management Service Developer, Digital Research Librarian, Research Data Management Coordinator

3. Managing data collections

Research Data Manager, Research Data Services Manager, Data Repository Manager

Related service areas & roles

Open access and institutional repositories, collection development, advisory services (copyright, policies, etc.), information literacy, digital curation, digital preservation, digital collections

To work with: Data Creator, Data Scientist, Research Coordinator/Manager, Data Curator, Digital Preservation Librarian, Repository Manager, Subject Librarian, Legal Advisor, Research Ethics Advisor, Data Access Manager

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About the Task Force

This document was prepared by the members of the Joint Task Force on Librarians' Competencies in Support of E-Research and Scholarly Communication

The joint Task Force on Librarians' Competencies in Support of E-Research and Scholarly Communication has representation from the [Association of Research Libraries](#) (ARL), the [Canadian Association of Research Libraries](#) (CARL), the [Association of European Research Libraries](#) (LIBER), and the [Confederation of Open Access Repositories](#) (COAR).

The aim of the task force is to outline the competencies needed by librarians in this evolving environment. The first step will be to identify the various avenues of service for libraries within the context of e-research, repository management, and scholarly communication. These services and roles will then be mapped to the competencies required by librarians and library professionals. The task force will also make note of the array of organizational models evolving to support new services.

Task force members

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