

Research Data Services in European Academic Research Libraries

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Abstract

Research data is an essential part of the scholarly record, and management of research data is increasingly seen as an important role for academic libraries. This article presents the results of a survey of directors of the Association of European Research Libraries (LIBER) academic member libraries to discover what types of research data services (RDS) are being offered by European academic research libraries and what services are planned for the future. Overall, the survey found that library directors strongly agree on the importance of RDS. As was found in earlier studies of academic libraries in North America, more European libraries are currently offering or are planning to offer consultative or reference RDS than technical or hands-on RDS. The majority of libraries provide support for training in skills related to RDS for their staff members. Almost all libraries collaborate with other organizations inside their institutions or with outside institutions in order to offer or develop policy related to RDS. We discuss the implications of the current state of RDS in European academic research libraries, and offer directions for future research.

Key Words: research data services; data management; academic libraries

1. Introduction

Advances in technology now allow for the collection, storage, analysis, and communication of increasing amounts of scientific data on a global scale (Hey, Tansley, & Tolle, 2009; Open Data Charter, 2015; Royal Society, 2012). In this environment, good research data management becomes essential to ensure transparency of scientific research, preserve data, enable reuse and

reanalysis of data, and advance knowledge (Kim, 2013; Borgman, 2015; Research Councils U.K., 2015). In addition, governments, funding agencies, and publishers around the world are requiring researchers to develop data management plans and, in many cases, to make the data resulting from their research openly available (European Commission, 2016 and 2016a; Coates, 2015; Digital Curation Center, n.d; National Science Foundation, n.d.; Office of Science and Technology Policy, 2013; Shearer, 2015; Wellcome Trust, 2010). As a result of all of these forces, research data is increasingly seen as an essential part of the scholarly record. Because academic libraries traditionally have a role in providing access to the scholarly record in many forms, it is not surprising that the management of research data is a global issue for academic libraries (Brown, Wolski, & Richardson, 2015; Chiware & Mathe, 2015; Corral, Kennan, & Afzal, 2013; Cox & Pinfield, 2014; Diekema, Wesolek, & Walters, 2014; Kim, 2013; Si, Xing, Zhuang, Hua, & Zhou, 2015; Tenopir, Birch, & Allard, 2012; Tenopir et al., 2015b).

Management of research data can take many forms, and there are a wide range of possible research data services that libraries offer, from merely helping researchers locate resources about data management planning or metadata standards in their disciplines to the creation and maintenance of full digital data repositories. To discover what types of research data services (RDS) are being offered by European academic research libraries and what services are planned for the future, an international research team funded by LIBER (Ligue des Bibliothèques Européennes de Recherche – Association of European Research Libraries) and DataONE (Data Observation Network for Earth) conducted a survey of LIBER academic members in the spring of 2016.

The LIBER-DataONE survey, reported here, builds on earlier DataONE surveys of academic libraries in the United States and Canada (hereinafter referred to as North American) that are

members of the Association of College & Research Libraries (ACRL) (Tenopir et al., 2012; Tenopir et al., 2015b). The 2011 baseline survey found that most libraries in the sample did not yet offer RDS, but more were planning on doing so in the future (Tenopir et al., 2012). The follow-up survey conducted in 2014 with this same population found very little change in the percentage of libraries offering RDS (Tenopir et al., 2015b), despite the facts that many more had planned to offer services and that a majority of survey respondents agreed that losing data jeopardizes the future of scholarship and librarians should be stewards of all types of scholarship, including data sets.

Follow-up interviews with library directors who participated in the 2014 survey suggest that many factors may contribute to the level of library involvement in RDS remaining static, including lack of time, shortage of trained personnel, and absence of top-level institutional support for these activities (Tenopir et al., 2015b). Both North American surveys found that a greater percentage of larger institutions, defined by student enrollment, offered various types of RDS. Among those institutions that offered any RDS, informational and consultative services, such as providing support for finding and citing data, were more commonly offered than technical services, such as preparing data for deposit into a repository (Tenopir et al., 2012; Tenopir et al., 2015b).

Because many of the European countries led the way in requiring data management plans and provision of open data, we can expect that European libraries will be leaders in RDS. This survey examines current practice and future plans for providing RDS in European academic research libraries. Research questions that drove this study were:

- Are informational/consultative RDS offered by more European libraries than technological RDS, as in North American libraries?
- Are more European libraries planning to offer RDS in the future than currently offering RDS, as in North American libraries?
- How are European libraries developing staff capacity for RDS?
- Who are European libraries collaborating with on RDS?
- What types of data are supported by European libraries which offer RDS?
- What are the attitudes towards RDS among European library directors?
- Are there differences in RDS offered by libraries in different regions within Europe?

2. Related Work

International surveys of researchers have found that even if researchers are willing to share data, many lack the time, expertise, and resources to fully comply with institutional or funders' mandates for depositing data. They may require assistance with activities such as creating metadata, locating datasets, and finding appropriate places to store their data (Aydinoglu, Suomela, & Malone, 2014; Enke et al., 2012; Kratz & Strasser, 2015; Schmidt, Gemeinholzer, & Treloar, 2016; Specht et al., 2015; Tenopir et al., 2011, 2015a). Earlier surveys of researchers suggest roles for research libraries in providing support for research data management, an extension of the library's traditional role in providing research and reference services (Si et al., 2015; Tenopir et al., 2012; Tenopir et al., 2015b; Vlaeminck, 2013).

Research data services (RDS) provided by libraries vary and may include: creation and management of institutional data repositories, providing tools for data mining and visualization, training for researchers on data management activities, guidance on institutional policies, help

with creating data management plans and metadata for data sets, and assistance with intellectual property and privacy issues surrounding research data, and other services (Flores, Brodeur, Daniels, Nichalls, & Turnator, 2015; Koltay, 2016; Linde, Noorman, Wessels, & Sveinsdottir, 2014; Tenopir et al., 2012; Tenopir et al., 2015b; Vlaeminck, 2013).

Providing RDS in libraries takes skilled professionals as well as resources and time. Libraries vary in how well they are able to support RDS and what range of services they offer (Corrall, Kennan, & Afzal, 2013; Cox & Pinfield, 2014; Si et al., 2015). Rittel and Weber (1973) coined the term “wicked problem” to describe a complex societal problem that is difficult to solve due to a number of factors. These factors include the understanding that such problems are unique; there is no “stopping rule” or criteria to determine whether the problem has been solved; and there is neither a definitive formulation of the problem itself nor a definitive list of possible solutions, meaning that various stakeholders may have different views on each of these. The problem of research data management has been characterized as a “wicked” one, due to the sheer scale and complexity of both data and data management activities, the number of stakeholders, heterogeneity of data types to be managed, and lack of clarity on appropriate roles for stakeholders, including libraries, as well as what support services to offer (Awre et al., 2015; Cox, Pinfield, & Smith, 2016).

3. Methodology

With assistance from the LIBER Board of Directors, the survey instrument from earlier DataONE surveys of academic libraries was revised and pilot tested by several European academic library directors. Based on feedback, the demographic section was shortened to better fit the European context and questions were added about type of data and subject disciplines

served. (See Appendix B for the survey instrument.) Questions include demographics (size of student body population and country); RDS currently offered; RDS planned; staffing considerations; policies and procedures; disciplines served and types of data processed; collaborations; and opinions. The unit of analysis is the academic library; participants were asked to respond on behalf of their institution, with only one response per library.

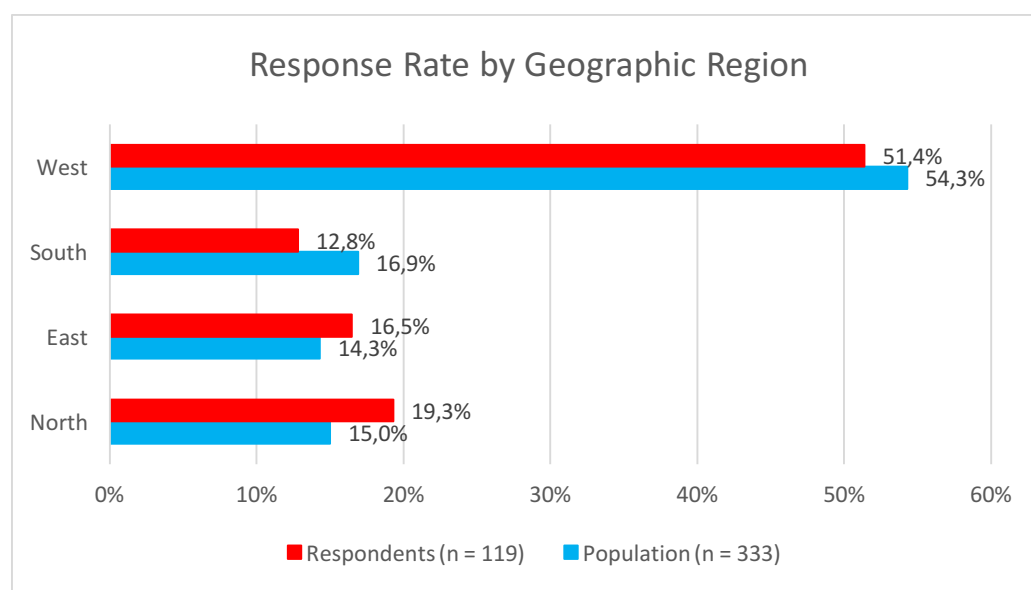
The research protocol was approved by the University of Tennessee Institutional Review Board (IRB) for Human Subjects with a letter of support from the University of Tampere. The survey instrument was built using the Qualtrics software and was hosted by the University of Tennessee. All analysis was done using Excel, SPSS or R software at the University of Tennessee, University of Tampere, and University of Göttingen. The survey instrument was distributed via email by LIBER to its member institutions in February 2016. A follow-up reminder was sent two weeks after the initial email and the survey was open for approximately six weeks. A total of 333 of the LIBER members were identified as European university libraries; 119 responded to at least one question beyond the demographic questions, for a response rate of 35.7%. Responses are representative of the population.

Limitations include that libraries offering RDS or planning to do so may be more likely to have responded to the survey. Also, in accordance with IRB regulations, respondents were allowed to skip any question and leave the survey at any time, so each question may have a different number of responses and only a few questions have the total of 119 respondents. The survey instrument was only in English, perhaps limiting responses in some countries.

In total, libraries from 22 countries participated to the survey. Data does not include responses from European LIBER member libraries from Croatia, Cyprus, France, Hungary, Luxembourg,

Malta, Portugal, Romania, Serbia, Slovakia, and Turkey. Countries were categorized into four regions; West, East, North, and South in order to study regional differences in RDS provision. Categorization is based on regions used in the OpenAIRE project¹ that aims to promote open scholarship by improving discoverability and reusability of research publications and data. East and North regions are somewhat overrepresented in our data. West and South regions are underrepresented, notably due to the lack of responses from France. (See Figure 1.)

Figure 1: Response Rate Categorized by Geographic Region



4. Results

4.1 Types of Services Offered and Planned

As in previous surveys conducted with libraries in North America, European academic research libraries (henceforth referred to as “libraries”) are more likely to offer consultative-type RDS services than hands-on/technological services. Consultative services frequently involve a personal client-librarian relationship and inform the client (often a student or faculty member)

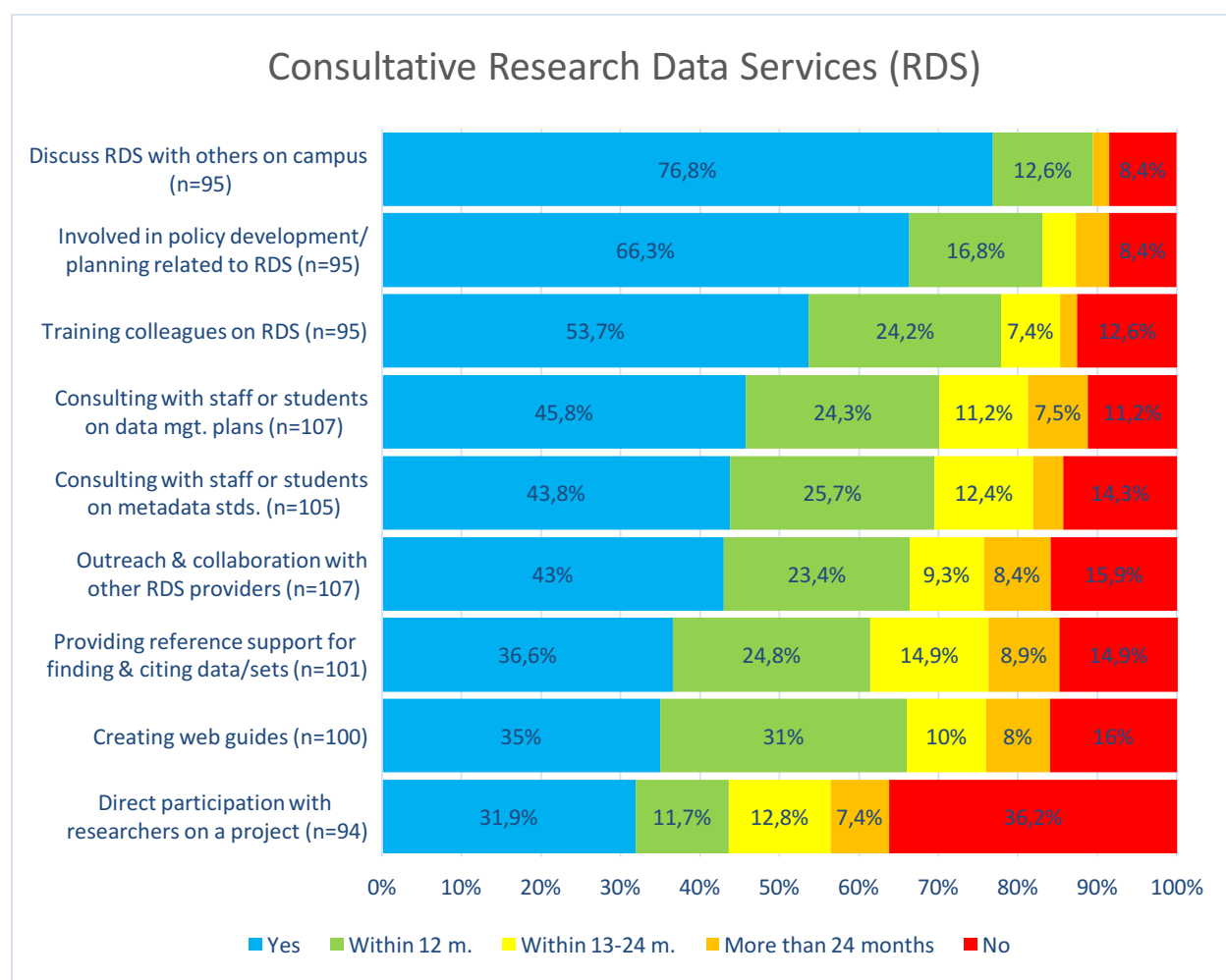
¹ <https://www.openaire.eu/>

about such things as how to find information on data management plans, metadata standards, or data citation practices. These informational services align with traditional reference or instructional services long offered by libraries. Consultative services can also include collaboration with others on planning, projects, or training. (See Figure 2.)

The activities currently conducted by the greatest number of libraries (76.8%) are “discussing RDS with others on campus” and involvement in “policy development/planning related to RDS” (66.3%), which may indicate that many libraries are still in the planning stages or that RDS requires intense ongoing discussion and policy-making. However, less than half (40.9%) of libraries say they currently have policies relating to RDS.

Almost all libraries currently offer or plan within two years to a variety of consultative RDS. The one exception is that currently less than a third of the libraries have services that involve direct participation with researchers on a project, while another third have no plans to offer such services in the future. Directly working with researchers might be considered more of a hands-on activity and may require intense and time-consuming commitments by library staff than just helping researchers locate information.

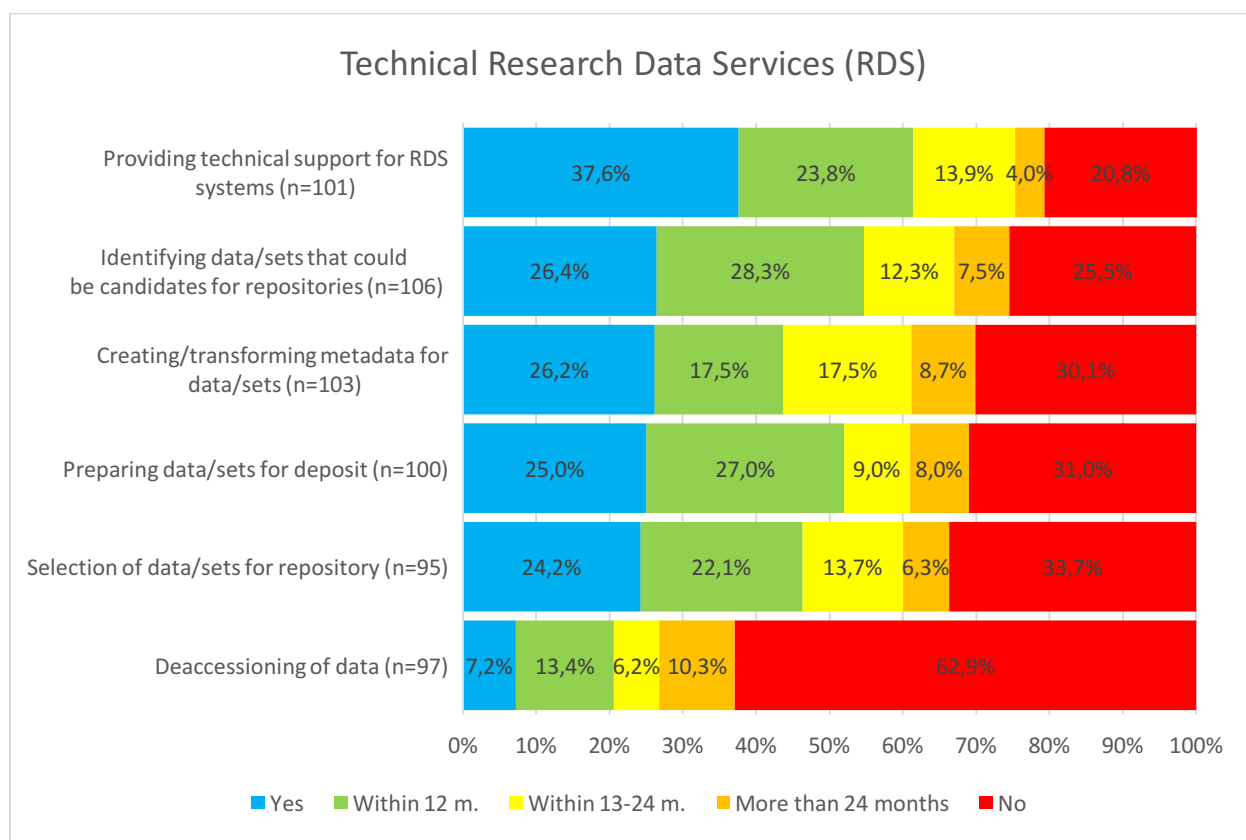
Figure 2: Consultative RDS



Labels not shown for values of less than five percent.

Technical/hands-on RDS are currently offered by fewer libraries, although with the exception of “deaccessioning”, a majority of libraries currently offer or plan to offer some sort of technical RDS. The lower and slower up-take of technical services compared to consultative services may reflect the fact that these services require a substantial investment in time, resources, and new technical knowledge. (See Figure 3.) In the earlier North American surveys, few libraries said they offered many technical services.

Figure 3: Technical RDS



Labels not shown for values of less than five percent.

An exception in European libraries however, is managing or participating in managing technology infrastructure that supports RDS. When asked this question separately, almost two-thirds (63.8%) of libraries say they currently manage or participate in managing technology infrastructure that supports RDS. When asked a follow-up question about what types of management they provide, over three-quarters (78.3%) of those say they are providing data storage. Other types of infrastructure support are offered by fewer of these libraries and include tools for data analysis (23.3%), virtual community support (31.7%), and other (23.3%). The more than one-third (36.2%) of those libraries that do not manage or participate in managing

technology infrastructure supporting RDS say they rely upon other academic institutions, national/disciplinary data services, or other services.

4.2 Differences Based on Geography

Analyses show clear differences between regions in offering RDS. Libraries in the West region are offering RDS more often compared to other regions. There are also differences between regions in the types of RDS offered. (See Appendix 1 - Table 1)

Regarding consultative RDS, a higher share of West region libraries are creating web guides and providing support for finding and citing data. West and South region libraries are the most active in consulting with academic staff or students about data management plans and data and metadata standards--more than half of the libraries that responded in the West region and approximately half of South region libraries are offering these services.

Compared to other regions, libraries in the West and North are more active in collaborating with other research data service providers, discussing RDS with other professionals, training colleagues in their library on RDS, and in policy development or strategic planning related to RDS. The majority of West and North region libraries are currently offering these services.

Direct participation in a research project is not very typical in any region, but it is more common in West and North region libraries.

Libraries in the West region are also most active when it comes to technical RDS. (See Appendix 1 –Table 2.) For example, compared to other regions, a higher share of West region libraries are providing technical support for RDS systems, are preparing data for deposit into a repository, and are creating or transforming metadata. Some West region libraries are participating in deselection of data for removal from repositories, however, the majority of libraries do not have

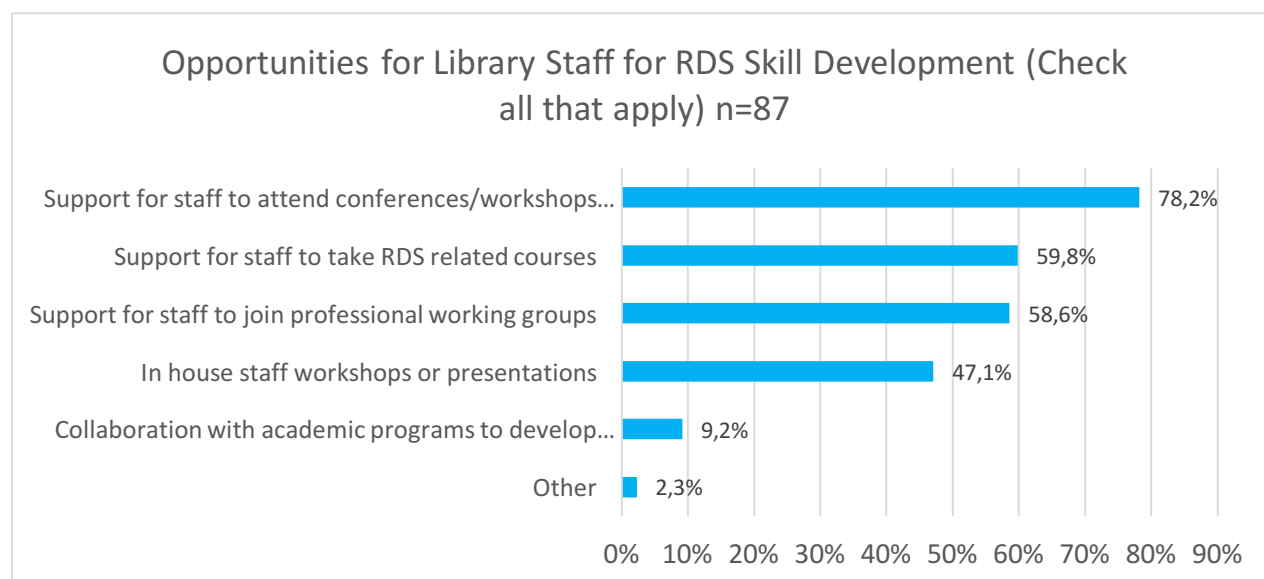
this service and are not planning to offer it in the future. Perhaps libraries, no matter where they are located, have not yet solved the problem of attracting and preserving research data to repositories to the extent that any data needs to be removed.

Libraries in the South region stand out as being most active in participating in identifying data that could be candidates for repositories. Selecting data or data sets for repository is also most common in West and South region libraries – one third of libraries offers this service.

4.3 Staff Training and Disciplines Supported

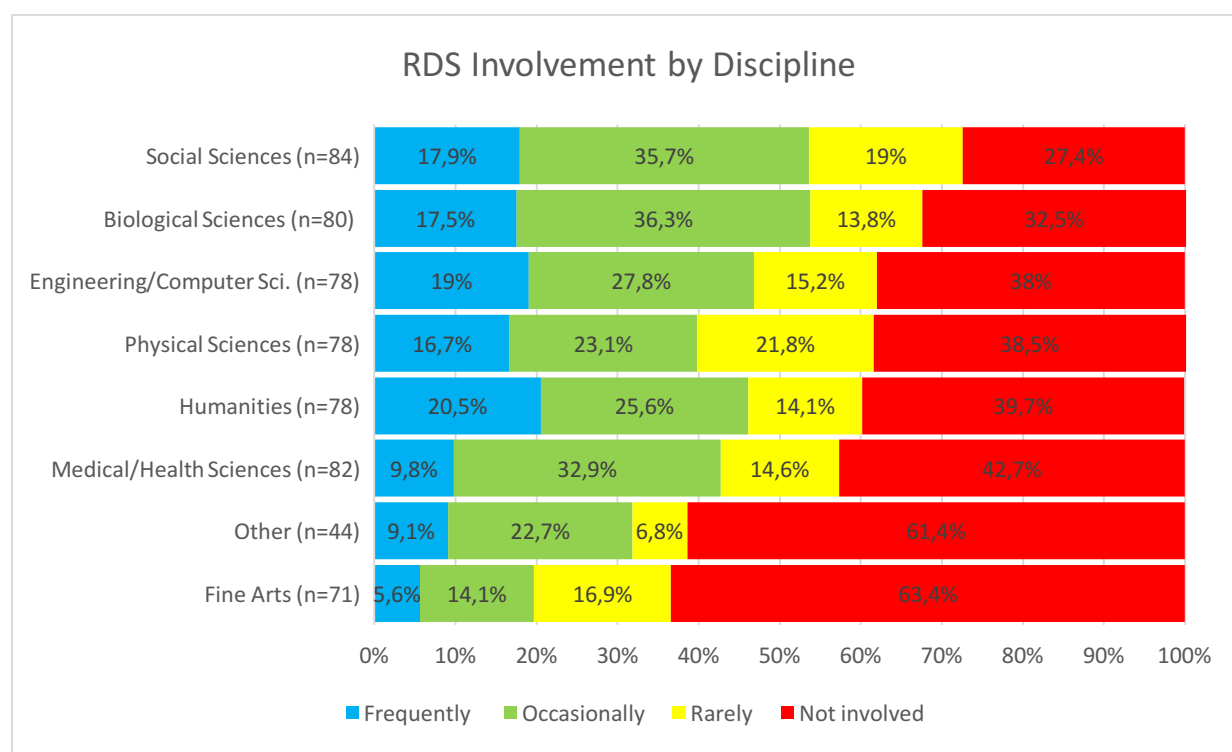
For a library to be successful in providing RDS to patrons, the library needs to have staff who are skilled in RDS. Providing opportunities for current staff to develop RDS skills is one way to ensure that library staff have the requisite skills. Nearly 84% of libraries who responded to a question on whether they provided any opportunities for staff to develop RDS skills responded “yes” they have provided opportunities for library staff to develop skills related to RDS. These development opportunities take many forms, as can be seen in Figure 6.

Figure 6. Opportunities for Library Staff for RDS Skill Development



Libraries offer RDS to staff or students from a variety of disciplines, but over 45% of libraries are involved occasionally or frequently with staff or students from humanities, social sciences, biological sciences, or engineering/computer sciences. (See Figure 7.) Perhaps surprisingly, libraries in the survey are less frequently involved with medical/health sciences and physical sciences than with humanities and social sciences. One explanation may be that medical sciences and physical sciences are employing their own data specialists to manage their research data, another explanation may be that medical/health sciences libraries are underrepresented in our responses. All in all, there is a need for more research on the needs of different disciplines when it comes to RDS.

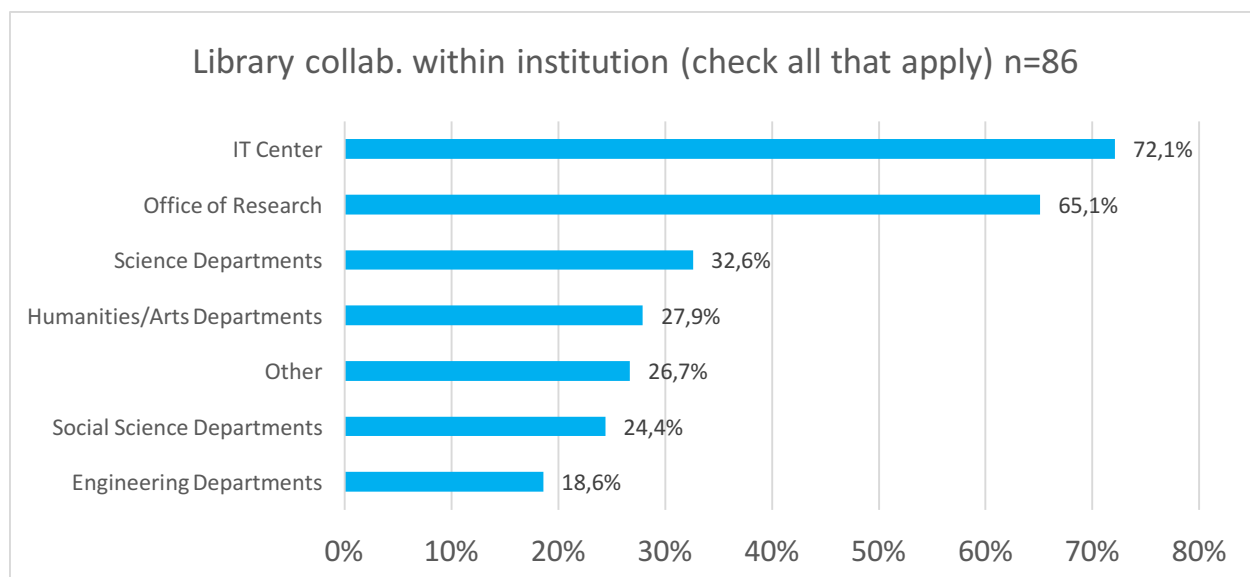
Figure 7: RDS Involvement by Discipline



4.4 Collaboration

Collaboration is essential when offering RDS. Almost all (90.7%) libraries who answered a yes/no question on whether they collaborate say they collaborate with other units or offices within their institutions regarding RDS. The IT Center and Office of Research are the most frequent collaborators; libraries also collaborate with various subject departments. “Other” collaborators include university archives, legal offices, and research support units. (See Figure 8.)

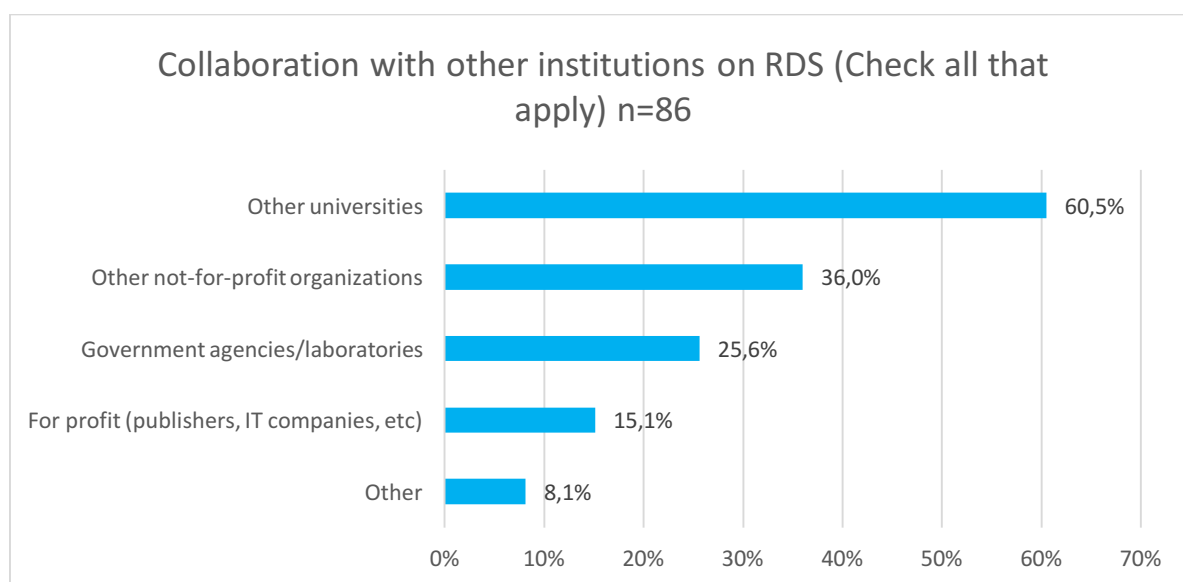
Figure 8. Libraries That Collaborate with Other Units or Offices Within Their Institution on RDS



Libraries also responded that they collaborate with other institutions regarding RDS (76.7%).

Other universities are the most common collaborators. “Other” answers included national and multi-national data and infrastructure services, and data repositories. (See Figure 9.)

Figure 9. Collaboration with Other Institutions on RDS



4.5 Library Director Opinions

Library directors, whether or not their library offers RDS, strongly agree that research data stewardship is important, losing data jeopardizes future scholarship, and the library needs to offer RDS to remain relevant. (See Table 1.) These high levels of agreement on the importance of research data and RDS are the strongest observed in recent studies (Tenopir et al., 2012; Tenopir et al., 2015b).

Table 1: Library Director Opinions on Library Involvement in RDS

	Mean (“Don’t Know” excluded)	SD
Library needs to offer RDS to remain relevant (n=87)	4.51	.822
Library may see decreased funding if not offering RDS (n=88)	3.14	1.167
Losing data/sets jeopardizes future scholarship (n=87)	4.52	.627
Librarians should be stewards of all types of scholarship, including data sets (n=87)	4.58	.677
Researchers will be at a disadvantage for funds if library does not offer RDS (n=87)	4.06	1.016

5. Conclusions

Academic research libraries in Europe are offering or plan to offer a range of research data services. The range of RDS seems to be stabilizing into distinct categories of services. As in North America, European libraries are more likely to offer consultative/reference type services, such as helping clients find information about data management plans, metadata, and data standards, rather than technical RDS such as identifying data for inclusion into a library

repository. In Europe, services offered by the most libraries include discussing RDS and planning or developing policies. Since less than half currently have data policies, this is clearly in the relatively early stages as yet. Hardly any libraries plan to start deaccessioning data, perhaps because libraries are still at the early stages of building data repositories and are not yet concerned about preserving too much data.

Research data services require library staff who are knowledgeable and have the opportunity to learn new skills. Many libraries are providing opportunities for staff to learn more about RDS, while some are hiring new staff for these duties. If libraries reassign staff or hire new staff for RDS, an unanswered question for future research is what library services are being eliminated to accommodate new RDS?

Library directors realize they cannot solve the “wicked” problem of research data by themselves; libraries collaborate with many internal and external partners. Collaboration across campus and with other institutions is vital as many European libraries are working on developing policies or discussing how to offer the best range of RDS. These discussions will be ongoing as more libraries plan to collaborate and develop RDS in the future.

A majority of European library directors recognize the growing importance of research data and are looking for solutions that fit their institutional needs and priorities. Some libraries are further along in providing and planning research data services and will likely take leading roles in ongoing discussions. The academic library is by its nature a critical stakeholder in research data preservation and management now and into the future (Cox & Pinfield, 2014; Koltay, 2016). Future research will show if and how libraries expand their RDS over the next few years, how they will reshape their services to add these new RDS responsibilities, how they customize

services to meet the needs of different subject disciplines, and whether technical RDS expands as a typical offering. The future will bring new opportunities and challenges related to RDS and libraries.

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Appendices

Table 1: Consultative RDS Based on Region

Consultative RDS	Region	Yes	No, but plan to	No
Consulting with academic staff or students on DMPs	West	34 (60.7%)	19 (33.9%)	3 (5.4%)
	East	5 (27.8%)	8 (44.4%)	5 (27.8%)
	North	4 (19%)	13 (61.9%)	4 (19%)
	South	6 (50%)	6 (50%)	0 (0%)
Consulting with academic staff or students on meta/data stds.	West	31 (56.4%)	20 (36.4%)	4 (7.3%)
	East	6 (33.3%)	6 (33.3%)	6 (33.3%)
	North	4 (19%)	12 (57.1%)	5 (23.8%)
	South	5 (45.5%)	6 (54.5%)	0 (0%)
Outreach and collaboration with other research RDS providers	West	30 (55.6%)	19 (35.2%)	5 (9.3%)
	East	2 (11.1%)	7 (38.9%)	9 (50%)
	North	11 (52.4%)	9 (42.9%)	1 (4.8%)
	South	3 (25%)	8 (66.7%)	1 (8.3%)
Creating web guides/aids for data/sets	West	25 (49%)	18 (35.3%)	8 (15.7%)
	East	3 (17.6%)	8 (47.1%)	6 (35.3%)
	North	5 (25%)	14 (70%)	1 (5%)
	South	2 (16.7%)	9 (75%)	1 (8.3%)
Directly participating with researchers on a project	West	20 (40%)	13 (26%)	17 (34%)
	East	3 (21.4%)	5 (35.7%)	6 (42.9%)
	North	6 (30%)	6 (30%)	8 (40%)
	South	1 (10%)	6 (60%)	3 (30%)
Providing support for finding and citing data/data sets	West	25 (47.2%)	23 (43.4%)	5 (9.4%)
	East	5 (29.4%)	7 (41.2%)	5 (29.4%)
	North	4 (20%)	12 (60%)	4 (20%)
	South	3 (27.3%)	7 (63.6%)	1 (9.1%)
Discussing research data services RDS with others	West	43 (86%)	5 (10%)	2 (4%)
	East	7 (50%)	3 (21.4%)	4 (28.6%)
	North	18 (90%)	1 (5%)	1 (5%)
	South	5 (45.5%)	5 (45.5%)	1 (9.1%)
Training colleagues on RDS	West	30 (60%)	15 (30%)	5 (10%)
	East	4 (28.6%)	6 (42.9%)	4 (28.6%)
	North	13 (65%)	5 (25%)	2 (10%)
	South	4 (36.4%)	6 (54.5%)	1 (9.1%)
Involved in policy development related to RDS	West	40 (80%)	8 (16%)	2 (4%)
	East	4 (28.6%)	6 (42.9%)	4 (28.6%)
	North	14 (73.7%)	3 (15.8%)	2 (10.5%)
	South	4 (36.4%)	7 (63.6%)	0 (0%)

Table 2: Technical RDS Based on Region

Technical RDS	Region	Yes	No, but plan to	No
Providing technical support for RDS	West	24 (45.3%)	25 (47.2%)	4 (7.5%)
	East	5 (29.4%)	3 (17.6%)	9 (52.9%)
	North	5 (25%)	7 (35%)	8 (40%)
	South	4 (36.4%)	7 (63.6%)	0 (0%)
Deaccessioning/deselection of data/sets	West	7 (13.7%)	18 (35.3%)	26 (51%)
	East	0 (0%)	3 (20%)	12 (80%)
	North	0 (0%)	4 (20%)	16 (80%)
	South	0 (0%)	4 (36.4%)	7 (63.6%)
Preparing data/sets for deposit	West	19 (36.5%)	21 (40.4%)	12 (23.1%)
	East	3 (18.8%)	4 (25%)	9 (56.3%)
	North	1 (5%)	12 (60%)	7 (35%)
	South	2 (18.2%)	7 (63.6%)	2 (18.2%)
Creating or transforming meta/data for data/sets	West	19 (35.8%)	21 (39.6%)	13 (24.5%)
	East	3 (16.7%)	7 (38.9%)	8 (44.4%)
	North	3 (14.3%)	10 (47.6%)	8 (38.1%)
	South	2 (18.2%)	7 (63.6%)	2 (18.2%)
Identifying data/sets	West	18 (33.3%)	24 (44.4%)	12 (22.2%)
	East	4 (22.2%)	7 (38.9%)	7 (38.9%)
	North	1 (4.8%)	14 (66.7%)	6 (28.6%)
	South	5 (45.5%)	6 (54.5%)	0 (0%)
Selection of data/sets	West	16 (32%)	18 (36%)	16 (32%)
	East	2 (14.3%)	5 (35.7%)	7 (50%)
	North	1 (5%)	10 (50%)	9 (45%)
	South	3 (30%)	7 (70%)	0 (0%)

Appendix B: LIBER survey instrument guide

Research Data Services (RDS) in Academic Libraries: Continuing to Build an Understanding of Library Data Management Practices

LIBER and an international research team invite you to participate in a survey of research data practices in academic libraries in the European Union. This survey asks about the research data practices and plans at your library, so please answer from the perspective of the institution. There should only be one response per library.

Even if your library is not involved with research data, we would like you to respond to this survey. Every response will help us better understand how libraries are managing (or planning to manage) data and will contribute to building better tools and processes for data management and curation.

In addition to demographic information, the survey will ask you how your library participates in data-related activities. As such, no sensitive items are included and the survey therefore poses no foreseeable risk. Also, after data collection, there will be a pre-screening of responses that will include removing or anonymizing any potentially identifying information, thus assuring that the final data set is anonymous, and not link respondents to this study with their answers. Upon publication of the results of the study, the dataset will be made available in an open data repository.

The questionnaire should take you, or someone in your office, about 15 minutes to complete.

Your participation in this research is voluntary, and you may decline to participate without risk. While it is useful to be complete in your responses to the survey, you may skip any questions, and you are free to withdraw from the study at any time. The data from any questions that were answered before exiting the survey will be recorded.

If you have any questions about the study or procedures, please contact Dr. Carol Tenopir (ctenopir@utk.edu) or Dr. Suzie Allard (sallard@utk.edu) of the University of Tennessee or Dr. Sanna Talja, Tampere University, Finland (sanna.talja@tampere.fi). If you have questions about your rights as a participant, contact the University of Tennessee Office of the Research Compliance Officer at (+1) (865) 974-7697.

By proceeding to the survey I acknowledge that I have read the above statements, I am 18 years old or older, and I agree to participate.

Q1 How many FTE (full-time equivalent) students are enrolled in your academic institution?

- ☐ Up to 1,999
- ☐ 2,000 - 4,999
- ☐ 5,000 - 9,999
- ☐ 10,000 - 24,999
- ☐ 25,000 or more

Q2, Where is your institution primarily located? (drop down menu of EU countries with other please specify last

- ☐ Austria
- ☐ Belgium
- ☐ Bulgaria
- ☐ Croatia
- ☐ Cyprus
- ☐ Czech Republic
- ☐ Denmark
- ☐ Estonia
- ☐ France
- ☐ Finland
- ☐ Germany
- ☐ Greece
- ☐ Hungary
- ☐ Ireland
- ☐ Italy
- ☐ Latvia
- ☐ Lithuania
- ☐ Luxembourg
- ☐ Malta
- ☐ The Netherlands
- ☐ Poland
- ☐ Portugal
- ☐ Romania
- ☐ Slovakia
- ☐ Slovenia
- ☐ Spain
- ☐ Sweden
- ☐ United Kingdom
- ☐ Other (Specify) _____

Q3 Which of the following research data services (RDS) does your library currently offer or plan to offer in the future?

	Yes, our library currently offers this service	No, but plan to within the next 12 months	No, but plan to within 13-24 months	No, but plan to do so in more than 24 months	No, and we currently have no plans to do so
Consulting with academic staff or students on data management plans	☐	☐	☐	☐	☐
Consulting with academic staff or students on data and metadata standards	☐	☐	☐	☐	☐
Creating or transforming metadata for data or data sets	☐	☐	☐	☐	☐
Outreach and collaboration with other research data services (RDS) providers either on or off campus	☐	☐	☐	☐	☐
Identifying data / data sets that could be candidates for repositories on or off campus	☐	☐	☐	☐	☐

Q4 Which of the following research data services (RDS) does your library currently offer or plan to offer in the future?

	Yes, our library currently offers this service	No, but plan to within the next 12 months	No, but plan to within 13-24 months	No, but plan to do so in more than 24 months	No, and we currently have no plans to do so
Providing technical support for research data services (RDS) systems (e.g., a repository, access and discovery systems)	☐	☐	☐	☐	☐
Providing support for finding and citing data/data sets	☐	☐	☐	☐	☐
Creating web guides and finding aids for data / data sets / data repositories	☐	☐	☐	☐	☐
Deaccessioning/deselection of data / data sets for removal from a repository	☐	☐	☐	☐	☐
Preparing data / data sets for deposit into a repository	☐	☐	☐	☐	☐

Q5. Which of the following research data services (RDS) does your library currently offer or plan to offer in the future?

	Yes, our library currently offers this service	No, but plan to within the next 12 months	No, but plan to within 13-24 months	No, but plan to do so in more than 24 months	No, and we currently have no plans to do so
Directly participating with researchers on a project (as a team member)	☐	☐	☐	☐	☐
Discussing research data services (RDS) with other librarians, or other people on campus, or RDS professionals, on a semi-regular frequency	☐	☐	☐	☐	☐
Training colleagues in your library, or across campus, on research data services (RDS)	☐	☐	☐	☐	☐
Selection of data / data sets for repository	☐	☐	☐	☐	☐
Involved in either policy development or strategic planning related to research data services (RDS)	☐	☐	☐	☐	☐

Q6. Who in the library provides research data reference/consultation/instruction services to researchers?

- ☒ Individual discipline librarians/staff
- ☐ Dedicated data librarian(s)/specialists

- ☐ Other (please specify)

Q7. If your library is involved in any research data services (RDS), who in the library has primary leadership responsibility for plans and programs for research data services (RDS)?

- ☐ A single individual is responsible
- ☐ A group/committee/team is responsible
- ☐ A department/unit is responsible
- ☐ A combination of the above
- ☐ Other (please specify)
- ☐

Q8. Does your library have policies and/or procedures associated with research data services (RDS)?

- ☐ Yes (please describe)
- ☐ No

Q9. Does your library manage, or participate in managing, technology infrastructure that supports research data services (RDS)?

- ☐ Yes
- ☐ No [If no answer, go to Q11]

Q9_Y. You have indicated that your library manages, or participates in managing, technology infrastructure that supports research data services (RDS). Please check all of the technology infrastructure components that apply.

- ☐ Data storage
- ☐ Tools for data analysis
- ☐ Virtual community support
- ☐ Other (please specify)

Q9_N. You have indicated that your library does not manage or participates in managing technology infrastructure that supports RDS. What are the reasons why? (Check all that apply)

- ☐ Another institute/school offers this service
- ☐ Researchers are encouraged to use other national/disciplinary data services
- ☐ Other (specify): _____

Q10. What type of research data is your library archiving?

- ☐ Qualitative
- ☐ Quantitative
- ☐ Both
- ☐ Don't Know
- ☐ None

Q11. Please rate your level of involvement of RDS of any kind with the academic staff or students in your institution in the following subject disciplines:

Discipline Type	Not Involved at all	Rarely Involved	Occasionally Involved	Frequently Involved
Humanities	☐	☐	☐	☐
Fine arts	☐	☐	☐	☐
Medical/health sciences	☐	☐	☐	☐
Other bio sciences	☐	☐	☐	☐
Physical sciences	☐	☐	☐	☐
Engineering/computer sciences	☐	☐	☐	☐
Social sciences	☐	☐	☐	☐
Other	☐	☐	☐	☐

Q12. How has your library developed staff capacity for research data services (RDS)? (Check all that apply.)

- ☐ Hired staff specifically to support research data services (RDS)
- ☐ Reassigned existing library staff
- ☐ Planning to hire library staff

- ☐ Planning to reassign existing library staff
- ☐ Other (please specify)
- ☐ Not applicable

Q13. Have you hired staff for research data services in the last 12 months?

- ☐ Yes
- ☐ No

Q14. Has your library provided opportunities for library staff to develop skills related to research data services (RDS)?

- ☐ Yes
- ☐ No **[If no, or no answer, go to Q15]**

Q14_B. You have indicated that your library has developed opportunities for library staff to develop skills related to research data services (RDS). Which of the following opportunities has your library provided? Please check all that apply.

- ☐ In house staff workshops or presentations
- ☐ Support for library staff to take courses related to research data services (RDS)
- ☐ Support for library staff to attend conferences or workshops elsewhere related to research data services (RDS)
- ☐ Support for library staff to join professional working groups related to research data services (RDS)
- ☐ Collaboration with an academic program to develop professionals with skills related to research data services (RDS)
- ☐ Other (please specify)

Q15. Does your library collaborate with other units or offices in your institution regarding research data services (RDS)?

- ☐ Yes

☐ No [If no, or no answer, go to Q16]

Q15_B. You have indicated that your library collaborates with other units or offices regarding research data services (RDS). Please indicate the unit(s)/office(s) with which you have collaborated (check all that apply).

- ☐ Office of research
- ☐ Science departments
- ☐ Social Science departments
- ☐ Engineering departments
- ☐ Humanities / Arts departments
- ☐ IT Center
- ☐ Other (please indicate the unit or office)

Q16. Does your library collaborate with other institutions regarding research data services (RDS)?

- ☐ Yes
- ☐ No [If no, or no answer, go to Q17]

Q16_B. You have indicated that your library collaborates with other institution(s) regarding research data services (RDS). Please indicate the other type(s) of institution(s) with which your library collaborates (check all that apply).

- ☐ Other universities
- ☐ Government agencies or government laboratories
- ☐ Other not-for-profit organizations
- ☐ For profit companies such as publishers or IT companies
- ☐ Other (please specify)

Q17. The following group of statements relates to your opinion on library involvement in research data services (RDS). Please tell us how much you agree or disagree with each.

	Strongly Disagree	Somewhat Disagree	Neither Agree Nor Disagree	Somewhat Agree	Strongly Agree	Don't Know
The library needs to offer research data services (RDS) to remain relevant to the institution.	☐	☐	☐	☐	☒	☒
The library may see decreased funding if it does not offer research data services (RDS).	☐	☐	☐	☐	☐	☐
Losing data/data sets jeopardizes future scholarship.	☐	☐	☐	☐	☐	☐
Librarians should be stewards of all types of scholarship, including data sets.	☐	☐	☐	☐	☐	☐
Researchers at my institution will be at a competitive disadvantage for funds if the library does not provide research data services (RDS).	☐	☐	☐	☐	☐	☐

Your survey is now complete.

Thank you very much!