

Open Content Activities in Libraries: Same Direction, Different Trajectories

Findings from the 2018 OCLC Global Council Survey

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ERRATA

Page 12, figure 1

The divided portions of the EMEA and APAC sections of the pie chart in figure 1 inaccurately represented the numeric values shown in the legends. This error has been corrected and the pie chart now accurately represents the data. This change has been corrected in the report and in the graphics gallery PowerPoint on the supplementals web page. The author thanks Sylvia Moes for spotting the error.

Page 21, table 7*

- The data in column AU (%) was in error. The data has been replaced with AU (%): 94%, 91%, 77%, 64% 91%, 64%
- The columns containing the data for the UK (#, %) and CA (#, %) were missing. The following data has been inserted into the table:

UK (#, %): 30, 90%; 14, 93%; 16, 63%; 27, 81%, 14, 57%; 29, 83% CA (#, %): 17, 71%; 8, 88%; 13, 77%; 15, 80%, 10, 70%; 15 73%

Page 24, figure 6*

- Subheading UK: The fourth label, "Institutional repository (n=14; 85%)" was in error. It has been replaced with "Digital collections library (n=14; 85%).
- Subheading NL: The first label, "Digital collections library (n=14; 85%)" was in error. It has been replaced with "Institutional repository (n=14; 86%)."
- * These changes have been corrected in the report and in the graphics gallery PowerPoints on the supplementals web page.

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FOREWORD

This report is the culmination of efforts from across the OCLC membership to answer the question raised at a Global Council (GC) meeting: "What is the status of open access and open content in libraries across the globe?" Once surfaced, open access (OA) became the GC annual theme in 2018, leading to a series of activities and engagements with GC and OCLC members worldwide. The OCLC Research staff focused the research questions, and a comprehensive survey instrument was developed and launched in November 2018. The distribution of the survey was supported and promoted by Global Council delegates to ensure feedback from libraries in as many countries as possible, and through this effort we succeeded in obtaining participation from 82 countries.

High-level survey findings were published in 2019.¹ This report gives a fuller presentation and analysis of the survey findings; it communicates the results of the status of OA activities that are underway, the challenges that libraries are encountering trying to support OA initiatives, and in many cases, the aspirations of libraries to support OA. Ultimately, the report also shares ideas that OCLC members identified for OCLC to support libraries' aspirations toward OA, which will further the conversations regarding the nature of open access and the roles libraries play to support OA in different contexts.

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^{1.} A summary of the high-level findings from the Open Content Survey has been published. See: https://www.oclc.org/content/dam/oclc/services/brochures/216262-WWAE_Open-Content-survey-results.pdf.

EXECUTIVE SUMMARY

The 2018 Open Content Survey initiated by the OCLC Global Council aimed at learning more about open content activities in libraries worldwide: their efforts, investments, and opinions. By defining libraries' open content activities broadly—including, as well as looking beyond, open access scholarly content—the survey captured a large range of activities and services devoted to this type of content from a variety of library types (national, public, special, and academic) and from all regions of the world. This approach offers a new perspective on open content activities within the library community as it uncovers and highlights the maturity and versatility of these activities.

This report synthesizes current and future planned open content activities and areas of investment for a large cohort of research and university libraries. This subgroup of 511 respondents from 69 countries is highly involved in open content activities (97%), and the overwhelming majority are stepping up their activities and planning new ones. Overall, the figures suggest a future increase in involvement of 10-18% across all open content activities. Future growth areas that indicate likely new emerging services are the management of open research data and interactions with (digitized) open collections through statistical and machine learning techniques.

Research and university libraries are mostly engaged in the following three open content activities: 1) managing the institutional repository with open access content, 2) digitizing and making their analogue collections open (available online, in the public domain), and 3) managing their digital library with open collections. Findings also point to significant country-specific differences and dynamics regarding level and maturity of engagement with and successfulness of specific open content activities. In some cases, these differences seem to reflect national differences in adoption of open science policies, open access mandates, and research evaluation practices.

Making a distinction between open and paid content in their budgeting and planning practices is not something libraries usually do, and this is something that participating in this survey has made respondents aware of. Last, but not least, survey responses demonstrate that libraries see OCLC as supporting and having a future role in supporting their open content activities, particularly in making open content discoverable and usable.

INTRODUCTION

By 2018, the turbulent developments around open access (OA) were reaching a peak with a growing number of governments, universities, research organizations, and funders announcing open access policies and mandates. The scientific publishing ecosystem was shifting from paywalled to open access, and monitors tracking the proportion of OA literature reported increases exceeding the 50% mark. It was the year of Plan S.² In Europe in particular, the OA movement seemed to be gaining momentum, nearing its tipping point. Libraries were directly affected by these developments and quick in responding to change. As a result, OA resources have become part of academic librarians' everyday workflows and user interactions—a change from the situation a decade ago, when there was concern of a possible disconnect between OA rhetoric and actual practice in libraries.3 Libraries are now expected—by researchers, funders, faculty colleagues, and especially end users—to provide services that support open materials as fully as any other kind of content.4

It was in this context that OCLC's Global Council expressed interest in investigating libraries' efforts and ambitions to support access to open content, asking, "What is the status of open access and open content in libraries across the globe?" The member-elected Global Council is comprised of 48 delegates and works to reflect the interests, issues, concerns, and challenges that OCLC members face, worldwide. To bring more voices into the OA/open content conversation, a survey was developed to gather initial information on libraries' open content efforts, investments, and opinions. It's important to emphasize that this research effort is broadly inclusive of all open resources, not just open access scholarly communications outputs, and offers an important new perspective of open content activities within the library community.

The Global Council wanted to learn more about libraries' priorities and goals in supporting access to open content, the maturity and successfulness of their efforts, and their funding sources. There was also significant interest in learning how much of their budget libraries were investing in open content activities, insofar as investments were quantifiable and distinguishable from investments in paid content.

Survey Scope and Methodology

The open content survey was conducted by the OCLC Global Council in conjunction with staff from OCLC Research ("the surveyors"). The survey was designed to engage libraries around the world in a joint effort to:

- · Map and align their open content efforts and activities
- Explore current levels of funding and staffing in these activities
- · Identify areas of cooperation with OCLC to leverage their efforts

BROAD DEFINITION OF OPEN CONTENT

For the purposes of the survey, open content was broadly defined as "the full range of freely available, unrestricted, online content of any kind," acknowledging that "open" is a continuous construct. Respondents were advised to use this definition pragmatically, with tolerance for existing variations of openness and access. The content itself could encompass the widest possible range of resources, including scientific OA journal articles, monographs, and preprints as well as other types of open materials extending well beyond OA: open educational courses, government documents, gray literature, datasets, digitized special collections and other heritage collections, freely accessible videos, software, tools, or other types of born-digital resources.

Open content is relevant to all libraries and their users, and the survey team sought responses from a variety of library types: national, public, special, and academic. The survey methodology was chosen because it allows engagement with a large group in a short time span on a pre-defined set of issues and to receive input at scale.

Answering the 23 questions was a difficult and time-consuming exercise for many respondents because it required respondents to dig into success metrics, staff allocation planning and budget expenditures, and to parse out which parts of the figures relate to open content and which ones to paid content. The surveyors hoped that respondents would find it a useful exercise and that it would prompt them to involve their colleagues, thereby broadening and deepening the conversation to an even more diverse representation of library professionals. (See section on "Survey respondents serve in a variety of roles.")

To explore patterns that are emerging in different library settings, the surveyors identified a set of 14 categories of potential library open content activities in the areas of producing, making discoverable, and managing open content, in order to capture the full range of library policies, activities, and services devoted to open content.

CATEGORIZING LIBRARY OPEN CONTENT ACTIVITIES

The following open content activity categories were used in the survey⁷:

Producing open content

- 1. Advocacy and policies enabling access to open content (includes data standardization efforts and staff training)
- 2. **Publishing open content** (i.e., the library as publisher)
- 3. **Digitizing collections** (includes efforts to clear rights and make the collections available in the public domain)
- 4. Data services (i.e., research data management activities)
- 5. Supporting authors/researchers/teachers in creating open content
- 6. Bibliometrics (includes measurement of research impact for the campus)

Making open content discoverable and usable

- 7. Supporting users/instructing/digital literacy programs
- 8. Selecting open content not managed by the library (includes a broad array of back-office efforts to make externally produced open content available locally, such as linking to open content in catalogs or LibGuides and e-resource management licensing)
- 9. **Promoting the discovery of open content** (includes efforts to make open content easier to find and use, such as OA buttons)
- 10. **Deep interactions with open content** (includes the provision of services and platforms to help users interact with open content, such as APIs for text mining or data visualization tools)
- 11. Assessment (i.e., evaluation of the library open content activities)

Collecting and managing open content

- 12. Institutional repository
- 13. Digital collections library
- 14. Born-digital (legal) deposit / Web archive

These activity categories are not specific to open content alone—they apply to digital content more generally. This approach reflects libraries' practices, which in many cases treat digital content uniformly, irrespective of whether the content is open or closed.

SURVEY QUESTIONS

For each of the categories, respondents were asked to indicate their library's:

- · Current and planned investment
- · Length of activity and investment
- · Self-rated successfulness at these activities

And to provide input on:

- The optimal scale of activity (both below and above the institutional level)
- The optimal role of OCLC in supporting their library's open content activities.

SURVEY RESPONSES

The online survey was conducted between 12 November 2018 and 31 January 2019. The invitation to participate was distributed to library directors/assistant directors at all types of libraries. The link to the online survey was circulated as widely as possible through the networks of the OCLC Global Council Delegates, the OCLC Research Library Partnership,* other relevant networks,* and through social media. A total of 705 respondents from 82 different countries completed, or partially completed, the survey.*

The survey dataset is published and is shareable with attribution under the Creative Commons Attribution 4.0 International License as a companion to this report, along with formatted banner tables by total respondents, regions, and aggregated data for research and university segments; and the final survey instrument.

About the Respondents

BROAD GEOGRAPHICAL DISTRIBUTION OF RESPONDENTS

Half (49%) of the respondents are from the Americas region; just over a third (36%) from EMEA (Europe, Middle East, and Africa), and 15% from Asia Pacific (figure 1). The tables in figure 1 show that—within these regions—not all countries are equally well represented. The respondents from the Americas come overwhelmingly from the US; nearly three-quarters (71%) of the respondents from the EMEA region come from European countries; more than half of the respondents from Asia Pacific come from only two countries: Australia and the Philippines

Total Respondents by Region (N=705)

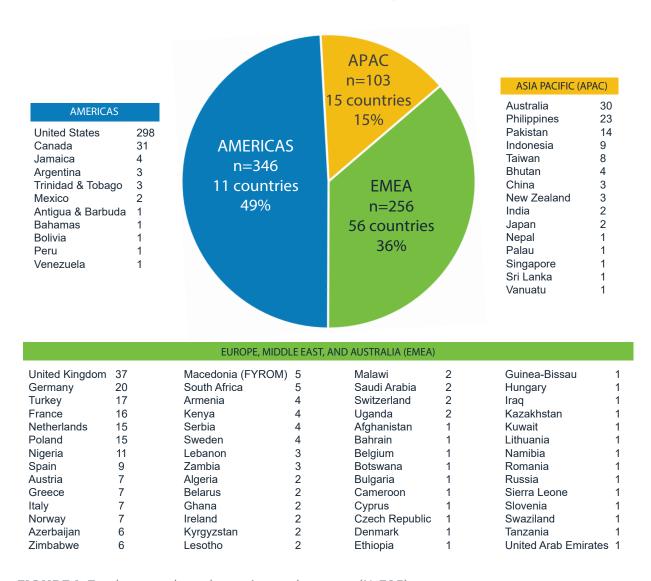


FIGURE 1. Total respondents by region and country (N=705)

RESEARCH AND UNIVERSITY LIBRARIES DOMINATE RESULTS

The majority of the respondents (66%) are libraries from higher education institutions, including universities and undergraduate colleges. Just under one-tenth of respondents are from public libraries (9%) and 6% are research libraries. Each of the remaining nine library types represent 5% or less of the total respondents (table 1).

TABLE 1. Total respondents by library type (N=705)

Library Type	Number of Responses	Percent of Responses
Education: university / higher education	468	66%
Public	60	9%
Research	43	6%
Education: community college / technical school	36	5%
Special (corporate, law, medical, other)	25	4%
Government (federal, state, local; all but national libraries)	23	3%
Education: school (K-12)	16	2%
National	13	2%
Museum/Archive/Cultural Heritage	7	1%
Education: other	7	1%
Consortia	4	1%
Other	3	<1%

Representativeness of the number of respondents per country and per library type differs greatly. For example, the 15 respondents from the Netherlands—research and university libraries—are quite representative for their category in a country with 13 government-funded universities, ¹¹ but that same number is much less representative for France, a country with over 60 public universities. ¹² Therefore, while some country samples are underrepresented for some library types, it is possible to compare the responses from research and university libraries from some countries and selected regions. Nearly three-quarters (72%, n=511) of the respondents belong to this combined group of research and university libraries (categories in bold, table 1) and they come from 69 countries. Although a convenience sample, it provides an insightful snapshot of the state of open content support in higher education and research, which we will be further examining in this report.

SURVEY RESPONDENTS SERVE IN A VARIETY OF ROLES

We asked those completing the survey about their level of responsibility at their institutions. For the population of research and university library respondents (n=317), half (51%) of the lead respondents to the survey were in leadership roles as administrator (director), assistant administrator (assistant director), or in a managerial role. (See figure 2.)

Lead Contributor Level of Responsibility— Research and University Libraries (n=317)

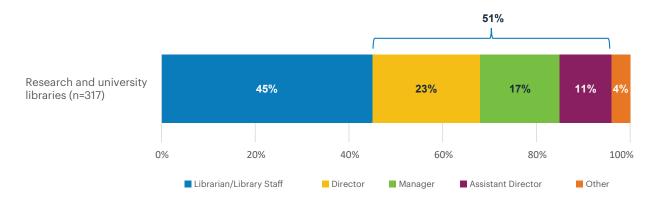


FIGURE 2. Lead contributor level of responsibility—Research and university libraries (n=317)

The lead respondents came from throughout the library, with the most significant representations in e-resources (37%), directorship/overall responsibility (33%), and cataloging/technical services (32%). (See table 2.)

TABLE 2. Lead contributor area(s) of responsibility—Research and university libraries (n=308)

Lead Contributor Areas of Responsibilty	Research and University Libraries (RUL) (n=308)
E-resources	37%
Overall responsible (director level)	33%
Cataloging/technical services	32%
Collection development/selection	30%
Acquisitions	26%
Information technology/systems	25%
Other	22%
Public/reference services	21%
Assessment	15%
Archives/special collections	15%
Interlibrary loan	15%

When asked if others contributed to the survey and what area of responsibility the other contributors came from, lead respondents indicated a broad spectrum of participating library departments, with the most significant representation in e-resources (43%) again, followed by acquisitions, collection development, and information technology (36% each). (See table 3.)

TABLE 3. Other contributors' area(s) of responsibility—Research and university libraries (n=61)

Other Areas of Responsibilty	RUL (n=61)
E-resources	43%
Acquisitions	36%
Collection development/selection	36%
Information technology/systems	36%
Cataloging/technical services	34%
Overall responsible (director level)	31%
Other	28%
Archives/special collections	25%
Public/reference services	23%
Assessment	20%
Interlibrary loan	15%

Survey Findings

INTEREST IN OPEN CONTENT IS GROWING

Respondents were provided the list of 14 open content activities and were asked which activities their library is currently carrying out and/or has plans to carry out.

Ninety-seven percent (97%) of the respondents from the research and university libraries sample are currently involved in open content activities. The *Institutional repository* scores highest of all activities, with 71% of respondents currently engaged in this activity and another 12% planning to become engaged. Seventy-four percent (74%) of respondents from research and university libraries plan to start new open content activities in addition to their current ones. For each of the listed activities, 10-18% of libraries plan future involvement, indicating an increase in involvement across all activities.

Two activities stand out in terms of planned library involvement: Data services and Deep interactions with open content. Both score highest among all planned activities (18%). For the latter category, the percentage of respondents planning involvement exceeds those currently involved in it (15%). These findings seem to suggest that these activity categories are future growth areas with likely new emerging services.

Assessment is still limited as an open content activity (20%), but 17% of respondents indicated their intention to begin open content evaluation efforts in the future.

Current and Planned Open Content Activities— Research and University Libraries (n=317)

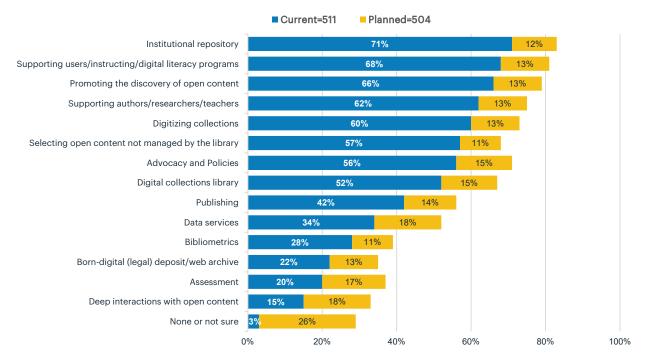


FIGURE 3. Current and planned open content activities—Research and university libraries

OPEN POLICIES DRIVE LIBRARIES' OPEN CONTENT ACTIVITIES

Looking at the research and university library sample by country reveals some interesting differences.

Most libraries in Australia, Canada, the Netherlands, and the UK are engaged in a broader than average range of open content activities. For instance, in Australia there is exceptionally strong engagement reported across numerous categories, demonstrating significant investment in and adoption of open access activities. Additionally, for *Institutional repositories*, adoption is nearly universal in locales like Australia, the Netherlands, and the UK. In contrast, only 59% percent of US institutions indicated they were involved in *Institutional repository* activities, significantly less than in the other countries in table 4, and also less than the average percentage of the sample (71%). US engagement is also lower for *Data services*, with 27% of respondents currently offering research data management support, far behind the 68% and 73% for Australia and the Netherlands, respectively.

The uptake of open content activities by country shows the most significant differences for the following activities:

- · Bibliometrics (Australia=74% Mean=28%)
- Advocacy and policies (UK=91% Mean=56%)
- Data services (Netherlands=73% Mean=34%)

Assessment as an open content activity is strongest in the UK, with 30% of respondents indicating current involvement, compared to 20% on average.

These national differences are likely influenced by national research evaluation and open science policies. For instance, national research assessment exercises in the UK (Research Excellence Framework, or REF) and Australia (Excellence in Research for Australia, or ERA) strongly shape institutions' focus on collecting the outputs and measuring the impact of sponsored research, which may in part explain the higher than average numbers for Assessment in the UK and Bibliometrics in Australia.¹³

National funders such as the Research Councils UK (now UKRI), Australian National Health and Medical Research Council (NHMRC), and Australian Research Council require publications (and, to a lesser degree, research datasets), resulting from funded research projects to be made available in open access form. The European Commission's Horizon 2020 rules mandate open access to scientific peer-reviewed publications and to research data (with opt-out possibilities). Luropean countries are responding with their own individual roadmaps to meet national targets. In the Netherlands, for example, the national open science plan aims to achieve full open access to publications in 2020, hill university libraries are working with the Association of Dutch Universities to negotiate with publishers and manage the transition to OA. Research and university libraries' levels of engagement in Advocacy and policies seem in particular to reflect their respective country's level of adoption of open policies.

TABLE 4. Current open content activities by country—Research and university libraries (n=511)

CURRENT Open Content Activities by Country for RUL	All RUL (n=511)	AU (n=19)	NL (n=15)	UK (n=33)	CA (n=21)	US (n=204)
Institutional repository	71%	95%	93%	91%	86%	59%
Supporting users/instructing/digital literact programs	68%	84%	67%	88%	71%	66%
Promoting the discovery of open content	66%	89%	80%	64%	81%	72%
Supporting authors/researchers/teachers	62%	84%	87%	82%	76%	59%
Digitizing collections	60%	79%	47%	52%	67%	63%
Selecting OC not managed by the library	57%	74%	53%	73%	62%	67%
Advocacy and policies	56%	84%	80%	91%	76%	52%
Digital collections library	52%	63%	47%	42%	43%	52%
Publishing	42%	68%	60%	39%	52%	42%
Data services	34%	68%	73%	55%	52%	27%
Bibliometrics	28%	74%	53%	55%	38%	18%
Born-digital (legal) deposit/web archive	22%	32%	33%	21%	33%	23%
Assessment	20%	21%	13%	30%	19%	20%
Deep interactions with open content	15%	26%	20%	18%	14%	14%
None or Not Sure	3%	0%	7%	0%	10%	7%

Country abbreviations: Australia (AU), Netherlands (NL), United Kingdon (UK) Canada (CA), United States (US).

MORE OPEN CONTENT ACTIVITIES TO FOLLOW

Across the sample of 504 research and university libraries responding to the question about future planned activities, there is interest in additional open content activities across many categories, with some significant variations by country. Of the 19 German respondents, 26% are planning to start *Promoting the discovery of open content*, versus 0% of the Dutch respondents. There is also significant interest in future support for *Data services*, which is particularly notable in the UK (30%), Canada (29%), and Germany (37%), certainly when contrasted to the US (12%) and Australia (11%). (See table 5.) The German sample from this survey is quite small, and we have generally not included German data in the country analyses in this report; even with this small sample, however, this difference seems potentially significant.

TABLE 5. Planned open content activities by country—Research and university libraries (n=504)

PLANNED Open Content Activities by Country for RUL	All RUL (n=504)	Germany (n=19)	UK (n=33)	CA (n=21)	NL (n=14)	US (n=203)	AU (n=19)
Data services	18%	37%	30%	29%	14%	12%	11%
Deep interactions with open content	18%	16%	15%	19%	21%	12%	11%
Assessment	17%	0%	21%	33%	7%	33%	21%
Digital collections library	15%	16%	18%	10%	14%	12%	26%
Publishing	14%	21%	21%	19%	21%	8%	16%
Promoting the discovery of open content	13%	26%	12%	5%	0%	13%	5%
Digitizing collections	13%	5%	15%	14%	0%	9%	11%
Supporting users/instructing/digital literacy	13%	0%	3%	14%	14%	15%	11%
Supporting authors/researchers/teachers	13%	0%	0%	14%	0%	11%	16%
Born-digital (legal) deposit/web archive	13%	5%	6%	0%	7%	9%	21%
Institutional repository	12%	0%	3%	5%	0%	16%	0%
Selecting open content not managed by the library	11%	16%	6%	14%	14%	7%	16%
Bibliometrics	11%	21%	15%	5%	14%	7%	16%
Advocacy and policies	10%	21%	0%	10%	0%	9%	11%
None or not sure	26%	26%	30%	29%	36%	31%	26%

Although a large majority of research and university libraries (69%, n=493) indicated that they have not stopped any open content activities, a significant percentage (22%) reported being unsure (table 6). In the rare cases where libraries reported that they stopped activities, institutions indicated that their motivations were a mix of financial factors (no more funding or staffing constraints) or uncertainty about the activity's value to the institution (relevance, successfulness).

TABLE 6. Open content activities that have been stopped—Research and university libraries (n=493)

STOPPED Open Content Activities	RUL (n=493)
None, we have not stopped any open content activities	69%
Not sure	22%
None or not sure	91%
Publishing	2%
Advocacy and policies	2%
Selecting open content not managed by the library	2%
Born-digital (legal) deposit/web archive	2%
Assessment	1%
Digitizing collections	1%
Data services	1%
Bibliometrics	1%
Digital collections library	1%
Promoting the discovery of open content	1%
Deep interactions with open content	1%
Institutional repository	0%
Supporting users/instructing/digital literacy programs	0%
Supporting authors/researchers/teachers	0%

Selecting open content not managed by the library, for example, was mostly stopped due to limited staff resources and because "It does not make sense anymore because of the growth of open content" (Research and university library, Netherlands). This was echoed by other respondents, such as this one from Denmark, "We used to include selected, high-quality open content in our library catalogue, but we no longer have the staff resources to do that" (Research and university library, Denmark).

LIBRARIES HAVE BEEN ENGAGED IN OPEN CONTENT ACTIVITIES FOR SEVERAL YEARS

Respondents were asked to indicate for how many years they have been involved in each of their current open content activities.

There is significant maturity among research and university libraries in open content activities. For 12 out of the 14 open activity categories, more than 50% of respondents from the research and university libraries sample indicate being involved in these activities for more than three years. Over 70% of respondents have had more than three years of experience with:

- Institutional repositories (75%)
- Digital collections library (74%)
- Digitizing collections (72%)
- Supporting authors (71%)

Number of Years involved in Current Open Content Activities—Research and University Libraries (n=317)

Base: Respondents with current open content activities

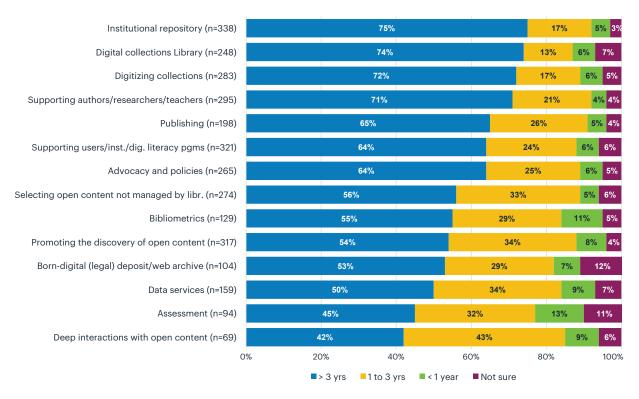


FIGURE 4. Number of years involved in current open content activities—Research and university libraries

Five categories have seen significant growth within the most recent three years (between 2016 and 2018):

- Deep interactions with open content (52%)
- Assessment (45%)
- Data services (43%)
- Promoting the discovery of open content (42%)
- Bibliometrics (40%)

In the year immediately prior to the survey (2017), involvement in Assessment and Bibliometrics has grown more relative to the other categories, with 13% and 11% respectively. These findings suggest increasing interest, in recent years, in collecting data about open content activities.

The open content activities with which most of the total research and university library respondents (70% and more) have had the longest experience differ per country. In Australia, for example, 91% of respondents engaged in *Publishing* (open content) have been active for longer than three years. Longer-term experience with *Advocacy and policies* is greater in the UK (83%) and the Netherlands (92%).

TABLE 7. Open content activities with more than three years of involvement—Research and university libraries

Open Content Activities with More than Three Years of Involvement	All RU	JL	NL		AU		UK		CA		US	
	(#)	(%)	(#)	(%)	(#)	(%)	(#)	(%)	(#)	(%)	(#)	(%)
Institutional repository	338	75%	14	100%	16	94%	30	90%	17	71%	113	73%
Digital collections library	248	74%	7	86%	11	91%	14	93%	8	88%	101	79%
Digitizing collections	283	72%	7	100%	13	77%	16	63%	13	77%	122	81%
Supporting authors/ researchers/teachers	295	71%	13	92%	14	64%	27	81%	15	80%	114	66%
Publishing	198	65%	9	44%	11	91%	14	57%	10	70%	81	65%
Advocacy and policies	265	64%	12	92%	14	64%	29	83%	15	73%	99	57%

In summary, when looking at the current and planned activities, and the longevity of practice, the findings demonstrate widespread and growing library engagement across the full range of open content activities as well as some country-specific dynamics regarding level and maturity of engagement with specific open content activities. These variations point to divergences in interests, priorities, and choices over time between countries.

QUANTIFYING LIBRARY INVESTMENTS IN OPEN CONTENT ACTIVITIES IS DIFFICULT

Respondents were asked to indicate the source of investment for each of their current open access activities: a budget line item, full-time equivalent (FTE) allocation, and/or project-specific funding.

Activities for which 70% or more of the respondents from research and university libraries could indicate a funding source are:

- Institutional repository (79%)
- Digitizing collections (76%)
- Digital collections library (74%)
- Data services (74%)
- Publishing (72%)

The first three of these activities—Institutional repository, Digitizing collections, and Digital collections library—are also those with the greatest involvement and maturity of practice within research and university libraries, as described in the sections above.

Institutional repository and Digital collections library are the categories for which the highest number of respondents (54% and 47%, respectively) indicate having a budget line item. Data services stands out as the open content activity for which the highest number of respondents (50%) report having an FTE allocation, followed by Bibliometrics (45%). These differences are not

surprising when one acknowledges that *Data services* and *Bibliometrics* are more dependent on expertise and staff support, whilst institutional repositories and digital libraries are systems that incur recurring annual operational costs (software, hardware, hosting costs, consortial costs, etc.).¹⁷ Unsurprisingly, *Digitizing collections* has a relative high percentage for project-specific funding.

Most respondents did indicate funding sources for each open content activity. However, beyond specifying the funding sources, respondents were unable to quantify their library's investments and expenditures spent on open content activities or give an approximate percentage of the total budget expenditure spent on open content. This is not surprising, as most libraries do not usually make a distinction between open and paid content in their budgeting and planning practices. As one respondent from the UK observed, "It has brought home that this is not something we're able to quantify at the moment." (Research university library, UK)

TABLE 8. Funding sources for open content activities—Research and university libraries

TABLE 6. I driding sources for open con					1	
Funding Sources for Open Content Activities—RUL*	Budget Line Item	FTE	Project Money	Other	No Source	Not Sure
Institutional repository (n=294)	54%	41%	12%	4%	11%	10%
Digitizing collections (n=245)	38%	33%	36%	8%	12%	12%
Data services (n=139)	34%	50%	11%	8%	9%	17%
Digital collections library (n=219)	47%	41%	19%	7%	11%	15%
Publishing (n=170)	40%	38%	16%	9%	13%	15%
Born-digital (legal) deposit/web archive (n=86)	41%	34%	15%	10%	16%	15%
Bibliometrics (n=110)	28%	45%	6%	5%	16%	15%
Deep interactions with open content (n=61)	26%	26%	13%	10%	20%	18%
Supporting of authors/researchers/teachers (n=259)	19%	41%	7%	7%	23%	15%
Supporting users/instructing/digital literacy programs (n=282)	19%	37%	6%	5%	29%	13%
Assessment (n=83)	16%	33%	7%	10%	25%	19%
Advocacy and policies (n=237)	19%	37%	7%	6%	32%	12%
Promoting the discovery of open content (n=282)	17%	30%	4%	6%	36%	12%
Selecting open content not managed by the library (n=243)	16%	28%	5%	7%	36%	17%

^{*}Activities are listed in descending order by percentage of respondents able to indicate a funding source or in ascending order of the sum of 1) those who could not indicate a funding source, and 2) not sure.

Percentage figures are based on the share of respondents per activity.

"Other" funding sources include existing staff resources (not necessarily FTE); grants; institutional/other department budgets; included in general/broader budget line items; partnerships, volunteers/students; publishing fees; and donations.

RESEARCH AND UNIVERSITY LIBRARIES SEE THEIR OPEN CONTENT ACTIVITIES AS SUCCESSFUL

Respondents were asked, "How successful are your current open content activities (based on your measurements)?" Here, respondents were prompted to assess the success of their activities based on their own measurements.¹⁸

For every open content activity listed, more than half of the research and university library respondents indicate this activity has been successful (very successful and at least somewhat successful); one-tenth or fewer feel they have been unsuccessful. For each of the open content activities, 10-20% of respondents indicate the success of their open content activity is not measured. The *Institutional repository* is the activity measured most often and *Deep interactions* with open content is the activity measured least often.

Respondents across all regions rate their activities around *Institutional repository, Digital collections library,* and *Digitizing collections* as very successful.

Successfulness of Open Content Activities— Research and University Libraries

Base: Respondents with current open content activities

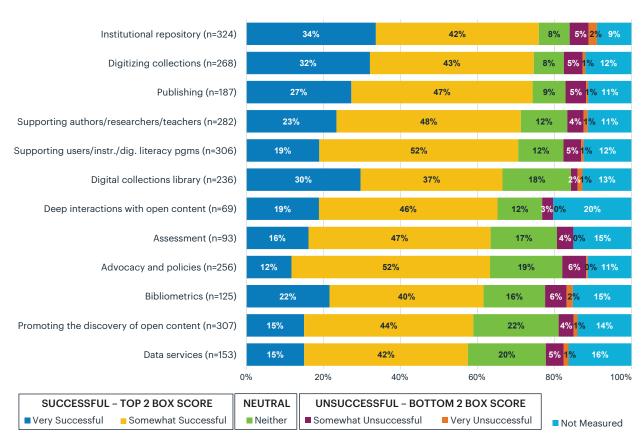


FIGURE 5. Successfulness of open content activities—Research and university libraries

There are some cross-country similarities and differences. The percentages of respondents rating their open content activities as successful differ per country. In the US, about 75% of the research and university library respondents rate their *Publishing*, *Digitizing collections*, and *Institutional repository* activities as successful. In the UK and the Netherlands, around 85% and more of the respondents rank the same three of the following activities as most successful: *Institutional repository*, *Advocacy and policies*, and *Supporting authors/researchers/teachers*.

Institutional repository is among the overlapping top three most successful open content activities in several countries (the UK, the Netherlands, and the US), as is *Digital collections library* (Australia, the UK, and Canada). Other activities tend to score success with varying percentages per country, for example *Data services* scores only 9% on "very successful" in Australia as opposed to 27% in the Netherlands.

Successfulness of Open Content Activities, by Country (Top three or more)—Research and University Libraries

Base: Respondents with current open content activities

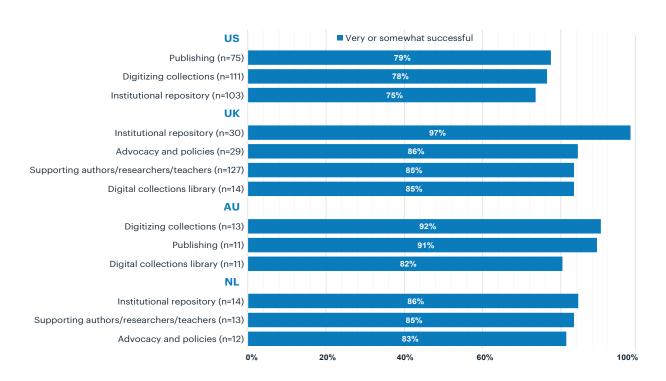


FIGURE 6. Successful open content activities (top three or more), by country—Research and university libraries

As discussed above, only 20% of all respondents (and 30% in the UK) report to be currently assessing their open content activities. At the same time, all open content activities are ranked very or somewhat successful by at least half of the respondents, and some by more than two-thirds of them. For each open content activity, only 10-20% of respondents indicate not measuring it at all.

RESEARCH DATA MANAGEMENT ACTIVITIES ARE EXPECTED TO ACCELERATE

Respondents were asked, "For which of your current and planned open content activities would you like to accelerate the impact?" More than half of research and university library respondents want to accelerate the impact of most of their current and/or planned open content activities.

The most significant outliers are *Data services*, for which 77% of respondents want to accelerate the impact, and *Selecting open content not managed by the library*, which only 39% want to accelerate.

Comfort level with Impact—Research and University Libraries

Base: Respondents with current or planned open content activities

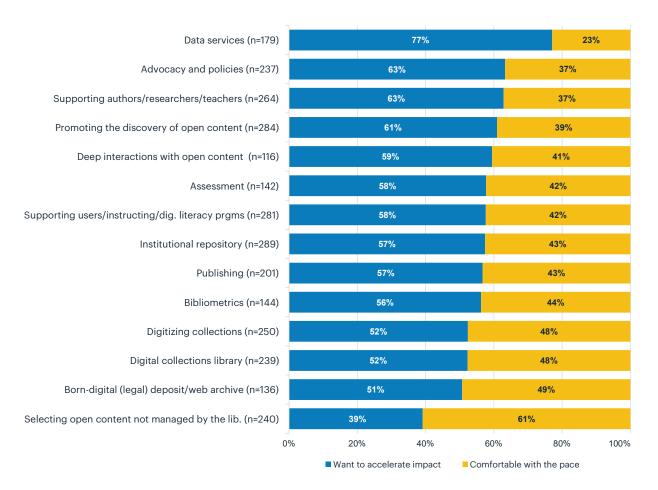


FIGURE 7. Comfort level with impact—Research and university libraries

There is significant consensus across regions on this response. For both the US and the UK, Data services and Selecting open content not managed by the library rank highest and lowest, respectively, as activities respondents want to accelerate, and the general tendency of ranking them very high and very low, respectively, is also shared by Australia, Canada, and the Netherlands.

This corresponds to the observation made above that *Data services* rank comparatively low among current open content activities, but highest among planned activities, while *Selecting open content not managed by the library* ranks much lower among planned activities. Given that both activities are rated comparatively low on successfulness, we are seeing a strong prioritization on *Data services* and expected growth in the future.

INSTITUTIONAL IS THE PREFERRED SCALE FOR IMPACT

Open content activities may occur at the institutional, local, consortial, national, regional, and global scales. To learn more about library perspectives on open content activities, respondents were asked what the "right scale to achieve impact" is for each of the open content activities studied.¹⁹

In every case, "institutional" was the most preferred scale, with "local" usually being second. At least twice as many respondents reported that the preferred scale is institutional rather than local across all activity categories.

For research and university libraries, the scale preference of "institutional + local" accounted for between 45% and 79% of respondents. For approximately three-quarters of respondents, institutional/campus (local) scale is the right scale to achieve impact for Supporting users/instructing/digital literacy programs (79%) and Supporting authors/researchers/teachers (74%). Other open content activities listed as best suited for achieving impact at institutional and local scales are:

- Bibliometrics (63%)
- Selecting open content not managed by the library (57%)
- Digitizing collections (52%)

Right Scale to Achieve Impact— Research and University Libraries

Base: Respondents with current and/or planned open content activities

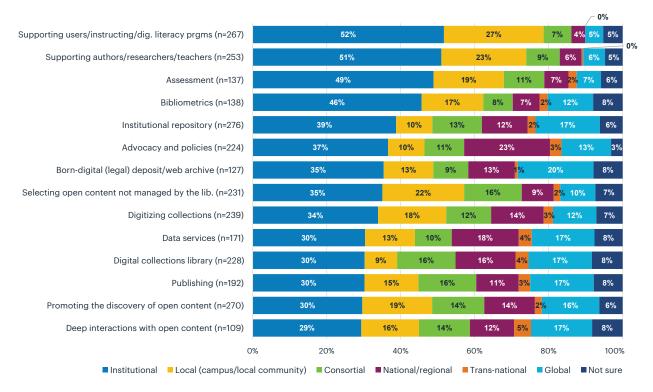


FIGURE 8. Right scale to achieve impact—Research and university libraries

The top four activities that score highest for achieving impact above institutional and local scales are:

- Digital collections library: global (17%), national/regional (16%), consortial (16%)
- Data services: national/regional (18%), global (17%), consortial (10%)
- Publishing: global (17%), consortial (16%), national/regional (11%)
- Deep interactions with open content: global (17%), consortial (14%), national/regional (12%)

One notable standout, though, is that nearly a quarter feel national/regional would be the right scale to achieve impact for *Advocacy and policies* (23%). This could point to incentives coming from other sources, such as collaboration with national policymakers or with peers in regional library associations. Differences in "right-scale" perceptions can also indicate different stages of "open access" countries are in. Responses from the UK, for example, stand out when compared to answers from countries with similarly high levels of current involvement, such as Australia or the Netherlands. They indicate a significantly stronger orientation toward institutional/campus (72%) scale and less inclination to achieve impact at national scale (10%). This could be explained by the fact that with the enactment of open access policies in the UK, libraries have transitioned from advocacy work at the national level to local implementations of national mandates—a stage not yet attained in most other countries.

Transnational scores very low (5% or less) as the right scale to achieve impact for all open content activities.

However, some participants commented that, in some contexts at least, indicating a preferred scale may obscure the fact that all scales are relevant to achieve impact.

"Advocacy and policies . . . should be done at every level." (Research and university library, Canada)

"... we feel all scales will be relevant in different contexts from specific local services to large scale collaborations."

(Research and university library, UK)

OCLC CAN PLAY A ROLE IN SUPPORTING OPEN CONTENT

Respondents were asked, "For each of your current or planned open content activities, please indicate how you perceive OCLC's role in supporting your library's efforts."

In aggregate, more than half of respondents from research and university libraries indicated that OCLC currently supports their open content activities or that they see a role for OCLC in doing so. OCLC was seen as supporting them most with *Promoting the discovery of open content* (19%) as well as *Selecting open content not managed by the library* (17%). The majority of respondents saw a future role for OCLC to support them with *Deep interactions with open content* (63%), followed by *Promoting the discovery of open content* (59%), *Digital collections library* (56%), Assessment (53%), and *Selecting open content not managed by the library* (51%).

OCLC's Role in Support of Library's Efforts— Research and University Libraries

Base: Respondents with current or planned open content activities

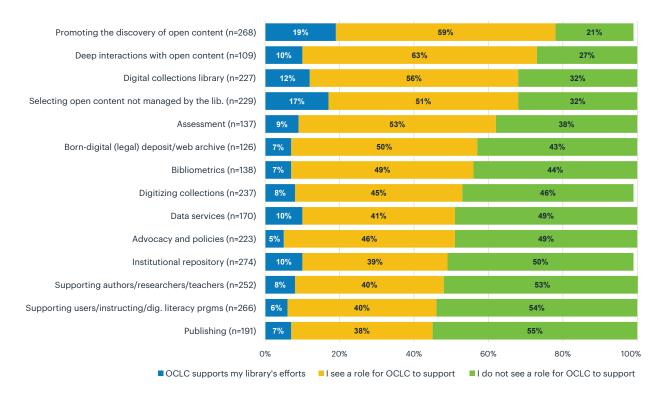


FIGURE 9. OCLC's role in support of libraries' efforts—Research and university libraries

Several respondents offered additional free-text final thoughts on this topic, including comments like:

"OCLC has a key role to play to support libraries in promoting and facilitating access to open content. For example, right now, I do not recommend our readers to first go to WorldCat to find open content. Ideally, WorldCat would be my first choice." (Research and university library, Italy)

"I am excited about some of the moves OCLC has made to promote open content, especially the UnPaywall tool. However, I do not see limiting to exclusively online content necessary in WorldCat Discovery. I am thankful for the open collections that are continually added into the Knowledge Base."

(Research and university library, US)

(Research and university library, 03)

"There seems to be many initiatives at the provincial level, but little communication between these initiatives. OCLC could play a role in connecting these existing projects." (Research and university library, Canada)

DISCOVERABILITY AND STANDARDIZATION OF METADATA ARE KEY RESEARCH AREAS

OCLC Research carries out research and makes technological advances that enhance the value of library services and improve the productivity of librarians and library users.²⁰ Respondents were asked, "Which of the following OCLC Research areas are most relevant to your open content activities?"

Among responding research and university libraries, *Discoverability of open content* and *Standardization of metadata* are the top two research areas most relevant to their open content efforts, according to respondents, and there is a strong consensus on this among most of them regardless of country.

TABLE 9. OCLC Research areas most relevant to library open content activities—Research and university libraries (n=301) and by selected countries

OCLC Research areas most relevant to library's open content activities by selected countries	All RUL n=301	US n=121	UK n=23	CA n=11	AU n=12	NL n=11
Discoverability of open content [First most mentioned for all RULs]	64%	79%	57%	6	8	8
Standardization of metadata (e.g., Designating Open Access Information in the MARC Formats; IIIF; etc.) [Second most mentioned for all RULs]	48%	53%	48%	6	1	5
Optimizing resource sharing [Third most mentioned for all RULs]	30%	30%	35%	3	5	3
Research data management (RDM)	29%	16%	48%	1	7	3
Research information management (RIM) / Current research information systems (CRIS)	28%	14%	39%	1	2	4
Special collections and archives	26%	33%	13%	2	4	0
Linked data	21%	23%	13%	5	2	4
Impact assessment	17%	15%	9%	3	5	2
User behavior studies	13%	8%	9%	2	1	2
Wikimedia and libraries	7%	8%	13%	1	0	2
Other	0%	1%	0%	0	0	0

Note: Respondents were asked to select their top three options. For all RULs, the top three in order of preference are 1) Discoverability of open content, 2) Standardization of metedata, and 3) Optimizing resource.

There were some interesting regional differences concerning the less prioritized areas (third-most mentioned). For instance, there is strong interest in the US in research on Special collections and archives, while in Canada there is high interest in research on Linked data. On the other hand, respondents from the UK are most interested in research on Research data management and Research information management topics.

Several respondents gave additional free-text final thoughts on their research and training needs, and professional development around open content and open access is top of mind in libraries in developing countries:

"Provide current literature, initiatives on the subject from OCLC. Create opportunities for learning and sharing more on OA."
(Research and university library, Bahamas)

"Would be important for the Librarians to have webinars or training, to share all about assessing Open Sources, state-of-the-art, publishing in Open Source Journals." (Research and university library, Jamaica)

"Offer short-online continued professional development course for librarians create a knowledge bank (platform) for enabling librarians to deposit their open content activities strengthen sharing of lesson-learnt feedback via social networks." (Research and university library, Namibia)

"Open content is still relatively new in Africa. Librarians need a lot of training in this area and this is where I believe OCLC can wade in."

(Research and university library, Nigeria)

CONCLUSION

The 2018 Open Content Survey initiated by the OCLC Global Council aimed at learning more about open content activities in libraries worldwide: their efforts, investments, and opinions. While limited in both reach and scope, this report synthesizes current and future planned open content activities and areas of investment for a large cohort of research and university libraries. By examining open content activities broadly—including, as well as looking beyond, open access scholarly content—this report offers a significant new view of open content activities within the library community.

SAME DIRECTION

The survey revealed widespread and growing library engagement across the full range of open content activities. Research and university libraries are generally more likely than other library types to currently be involved in most open content activities. They consider their open content activities as successful, and the overwhelming majority are stepping up their current activities and planning new ones.

More than half of total respondents want to accelerate the impact of all their open content activities, with Selecting open content not managed by the library being a notable exception. We are seeing strong signals for prioritization of Data services, with comparatively high ratios for accelerating impact, future planning, and funding sources.

Recent growth of involvement in Assessment and Bibliometrics suggests increasing interest in collecting data about open content activities.

For most respondents, the right scale to achieve impact for their open content activities is institutional and/or local.

DIFFERENT TRAJECTORIES

Institutional repositories, Digital collections library, and Digitizing collections are the open content activities with the greatest involvement and maturity of practice, the best coverage of budget funds, and the highest rates for successfulness.

Practices in the other open content activities are relatively less mature, more recent, not yet very successful, and often less well guaranteed of funding. Among them, *Data services* stand out with strong prioritization, both in terms of funding and acceleration, and we can expect this to become a growth area in the future.

Beyond these generalizations, however, findings point to significant country-specific differences and dynamics regarding level and maturity of engagement with and successfulness of specific open content activities.

The *Institutional repository*, for example, plays a stronger and more mature role in Australia and European countries than in North America, demonstrating how open content activities—past, present, and planned—can vary considerably between countries. Compared to the US, libraries in other countries are also more likely to engage in a wider range of activities.

In some cases, for example in *Advocacy and policies*, *Data services*, or *Bibliometrics*, differences by country seem to reflect national differences in adoption of open science policies, open access mandates, and research evaluation practices. The different stages of "open access" that countries are in also seem to explain differences in "right-scale" perceptions for open content activities.

QUANTIFYING LIBRARY INVESTMENTS IN OPEN CONTENT IS DIFFICULT

Overall, quantifying investments in open content activities is difficult for most libraries. Funding sources can be indicated for many activities, in particular for those most strongly and firmly established in research and university libraries. Beyond that, however, libraries feel unable to quantify open content investments and expenditures, not even as an approximate percentage of the total. Making a distinction between open and paid content in their budgeting and planning practices is not something libraries usually do, and if nothing else, this is something participating in this survey has made them aware of.

OCLC PLAYS A ROLE

Survey responses demonstrate that libraries see OCLC as supporting and having a future role in supporting libraries' open content activities, particularly in making open content discoverable and usable. Likewise, more OCLC research on the discoverability of open content and standardization of metadata is considered most relevant.

From an OCLC perspective, these survey results strongly support current efforts and investments in strengthening libraries' open content infrastructure. OCLC is supporting open content by:

- Including millions of records of OA content from publishers and open content from library collections and third parties in WorldCat
- Supporting OA discovery filters and integration of Unpaywall in its Discovery products
- Proposing to designate OA access and license metadata in MARC-21
- Participating in the IIIF standardization effort, implementing IIIF in CONTENTdm and piloting the discovery of resources across open collections
- Developing versatile AI-tools that help explore entities and their contexts in very large metadata sets and text corpora²¹
- Helping subscription managers to track shifts in the proportion of open access resources
 within journal packages and to make comparisons of open access and licensed content
 usage, thereby assisting libraries' planning and decision-making²²
- Carrying out user behavior research focused on "thinking about the library in the life of the user"²³—in particular, users' evolving information seeking, access, and reuse behaviors²⁴

OCLC will continue its efforts to support libraries' open content workflows and to enhance the visibility and discovery of open content. The community can follow these activities on the OCLC open access web page.²⁵

COVID-19 AS A POTENTIAL GAME CHANGER

The survey data was collected at the end of 2018 through the beginning of 2019 and reflects a snapshot in time of a pre-COVID-19 landscape. We are seeing unprecedented initiatives to make scientific literature, findings, and datasets relating to COVID-19 available as open access to accelerate research and the development of effective medical practices and treatment.²⁶ This is a huge boost for the recent trend to open research data and scientific information at scale. The importance of online access to collections has never been demonstrated so compellingly as during the pandemic. It will be interesting to see the lasting impacts of these developments on libraries' support of open content.

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We would like to thank all library professionals who completed the survey or contributed to completing it.

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- Kuang-hua Chen, University Librarian and Full Professor, National Taiwan University (APRC)
- Tuba Akbaytürk, Library Director, Koç University (EMEA)
- Rupert Schaab, Deputy Director, University of Göttingen (EMEA)

We could not have carried out or analyzed the survey without the outstanding efforts of the market analysis team at OCLC, in particular Peggy Gallagher and Joanne Cantrell. They improved the survey questions, created the online survey instrument and necessary logic, supported the survey implementation, and delivered a robust analysis and dataset. They also provided us with valuable guidance to comply with the GDPR requirements.

Additional thanks go to staff members in OCLC Membership & Research: Lorcan Dempsey, Helene Blowers, and Rachel Frick fully facilitated and supported the whole initiative; Christina Rodriques and Julie Seuront successfully guided the Global Council engagement process; Lynn Silipigni-Connaway, Ixchel Faniel, Chris Cyr, and Brittany Brannon were important contributors as we designed and pre-tested the survey instrument.

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Finally, the report couldn't have been published without the significant efforts of the OCLC Research publishing team, including Erica Melko, Jeanette McNicol, and JD Shipengrover.

NOTES

- See for example the EU Open Science Monitor which tracks the development of OA publications in Europe: European Commission. "Trends for Open Access to Publications." Accessed 24 June 2020. https://ec.europa.eu/info/research-and-innovation/strategy/goals-research-and-innovation-policy/open-science/open-science-monitor/trends-open-access-publications_en.
 - See also country-specific monitors, such as the Dutch Monitor: Open Access.nl. updated 5 June 2020 "Monitor" https://www.openaccess.nl/en/in-the-netherlands/monitor;
 - and the French Open Science Monitor: https://www.ouvrirlascience.fr/the-open-science-monitor/.
- Plan S is the initiative of major public funders of research in Europe whereby they mandate that access to research publications that are generated through research grants that they allocate must be fully and immediately open and cannot be monetized in any way. See Plan S: Making Full and Immediate Open Access a Reality. "Why Plan S." Accessed 24 June 2020. https://www.coalition-s.org/why-plan-s/.
- 3 Mullen, Laura Bowering. 2010. Preface to *Open Access and its Practical Impact on the Work of Academic Librarians*,xiii. Chandos Information Professional Series. Oxford, UK: Chandos Publishing. https://doi.org/10.1016/B978-1-84334-593-0.50012-5.
- 4 Frick, Rachel. 2018. "An 'Open' Discussion." Next (blog), OCLC, 25 October 2011. http://www.oclc.org/blog/main/an-open-discussion/.
- 5 OCLC. 2020. "Global and Regional Councils." https://www.oclc.org/en/membership/councils.html.
- David Wiley provides a nuanced discussion of the term "open," emphasizing that it "is a continuous, not binary, construct." See Wiley, David. 2009 "Defining 'Open.'" Iterating Toward Openness: Pregnatism Before Zeal (blog), David Wiley, 6 November 2009. https://opencontent.org/blog/archives/1123.
- Detailed explanations of the open content activity categories was provided in the survey itself, and are available on page nine of the survey instrument. See OCLC. 2018. Open Access Survey Instrument. https://doi.org/10.25333/29ky-2k36.
- 8 The OCLC Research Library Partnership (RLP) is a transnational network of research libraries providing opportunities for collaboration and peer learning while leveraging the expertise of OCLC Research. See https://www.oclc.org/research/partnership.html.
- 9 For instance, the survey was promoted to numerous library community lists, such as AMICAL, COAR, euroCRIS, GreyNet, IFLA, LIBER, OAPEN, RLUK, UKB, SPARC, and others.
 - AMICAL (American International Consortium of Academic Libraries).
 https://www.amicalnet.org/about;
 - COAR (Center for Operational Analysis and Research). https://coar-global.org/;
 - euroCRIS (European Current Research Information Services). https://www.eurocris.org/;
 - GreyNet (Grey Literature Network Service). http://www.greynet.org/;

- IFLA (International Federation of Libraries). https://www.ifla.org/;
- LIBER (Association of European Research Libraries). https://libereurope.eu/;
- OAPEN (Open Access Publishing in European Networks). https://www.oapen.org/;
- RLUK (Research Libraries UK). https://www.rluk.ac.uk/;
- SPARC (Scholarly Publishing and Academic Resources Coalition). https://sparcopen.org/;
- UKB (University Libraries and the Koninklijke Bibliotheek). https://www.ukb.nl/.
- The following supplemental survey items are available on the report publication web page, at https://doi.org/10.25333/29ky-2k36:
 - OCLC 2018 Open Access Survey Instrument;
 - OCLC 2018 Open Access Survey Banner Tables;
 - OCLC 2018 Open Access Survey Dataset.
- Wikipedia. "List of Universities in the Netherlands." Updated 20 March 2020, at 21:00 (UTC). https://en.wikipedia.org/wiki/List of universities in the Netherlands.
- Wikipedia. "List of Public Universities in France." Updated 25 March 2020, at 08:50 (UTC). https://en.wikipedia.org/wiki/List_of_public_universities_in_France.
- Previous OCLC Research reports provide additional context into national research evaluation efforts, for example, see Bryant, Rebecca, Anna Clements, Pablo de Castro, Joanne Cantrell, Annette Dortmund, Jan Fransen, Peggy Gallagher, and Michele Mennielli. 2018. *Practices and Patterns in Research Information Management: Findings from a Global Survey.* Dublin, OH: OCLC Research. https://doi.org/10.25333/BGFG-D241.
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- van Wezenbeek, W.J.S.M., H.J.J. Touwen, A.M.C. Versteeg, and Astrid van Wesenbeeck. 2017. *National Plan Open Science*. The Hague, Netherlands: Dutch Ministry of Education, Culture, and Science. https://doi.org/10.4233/uuid:9e9fa82e-06c1-4d0d-9e20-5620259a6c65.
- 16 See Open Access.nl. 2020. "Publisher Deals."

 https://www.openaccess.nl/en/in-the-netherlands/publisher-deals.

 See also the Dutch Association of Universities web page on Open Access: https://www.vsnu.nl/en_GB/openaccess-eng.html.
- Burns, C. Sean, Amy Lana, and John M. Budd. 2013. "Institutional Repositories: Exploration of Costs and Value." *D-Lib Magazine* 19(1–2). https://doi.org/10.1045/january2013-burns.
- 18 Although assessment and measurements have distinct meanings, respondents may have imposed their own understandings of these terms when determining their responses to these questions.

- 19 This survey question was limited to only one response. We realize that there may be more than one response for each of the categories. However, the intention was to identify the primary option for each category.
- OCLC's research publications and datasets are usually published under the Creative Commons Attribution 4.0 International License, and they are also available as a collection that OCLC member libraries can add to their WorldCat Discovery instance. All OCLC Research publications are available at https://www.oclc.org/research/publications.html.
- 21 See OCLC's Open Content web page with the most recent information about OCLC's new developments in this area: https://www.oclc.org/en/open-access.html;
 - the growing list of OCLC's "Open Access Collections in the Worldcat Knowledge Base." Updated 29 May 2020. https://www.oclc.org/content/dam/oclc/knowledge-base/openaccessknowledge-base.pdf;

the Library of Congress' MARC 21 MARC Standards. 2018. "MARC Proposal No. 2019-01: Designating Open Access and License Information for Remote Online Resources in the MARC 21 Formats." Source: OCLC and German National Library, for the Committee on Data Formats. https://www.loc.gov/marc/mac/2019/2019-01.html;

OCLC's contribution to the IIIF standardization effort for improving the interoperability of digital materials: https://www.oclc.org/research/themes/data-science/iiif.html;

OCLC Research's "CONTENTdm linked data pilot" https://www.oclc.org/research/themes/data-science/linkeddata/contentdm-linked-data-pilot.html;

OCLC Research's "Ariadne's Thread: Interactive Context Explorer." https://www.oclc.org/research/themes/data-science/ariadne.html.

- 22 See press release: "OCLC's New EZproxy Analytics Service Offers Libraries Greater Insights into Use of E-resources," OCLC, 14 January 2020. https://www.oclc.org/en/news/releases/2020/20200114-oclc-new-ezproxy-analytics-service.html.
- In his 2015 presentations, Lorcan Dempsey stressed the importance to think of the library in the life of the user and not of the user in the life of the library. This message was consolidated in: Connaway, Lynn Silipigni, comp. 2015. The Library in the Life of the User: Engaging with People Where They Live and Learn. Dublin, OH: OCLC Research. https://doi.org/10.25333/C3SP9X.
- 24 See OCLC Research's web page on user studies: https://www.oclc.org/research/themes/user-studies.html.
- See OCLC. 2020. "Enhancing the Visibility and Accessibility of Open Content." https://www.oclc.org/en/open-access.html.
- There have been many (temporary) initiatives from publishers, providing gratis access to articles, books, or databases in response to COVID-19. An example of listings of such free access resources is:
 - UC Merced Library. 2020. "Publishers Offer Free Scholarly Access in Response to COVID-19." http://library.ucmerced.edu/news/2020/publishers-offer-free-scholarly-access-response-covid-19.

Two major resources during the pandemic have been:

- HathiTrust. "Emergency Temporary Access Service" HathiTrust Digital Library. Updated 20 May 2020. https://www.hathitrust.org/ETAS-Description;
- The Internet Archive "National Emergency Library." Internet Archive Blogs, Updated 16 June 2020. http://blog.archive.org/.national-emergency-library/.

There are also the overviews from library repositories:

- Dimensions Resources. "Dimensions COVID-19 Publications, Datasets and Clinical Trials."
 Version 25. Figshare. https://dimensions.figshare.com/articles/Dimensions_COVID-19
 publications datasets and clinical trials/11961063;
- OCLC. "COVID-19 Resources." WorldCat. https://www.worldcat.org/search?qt=worldcat
 org all&q=COVID-19,

and much more.

