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Collaborating Across Campus to Advance Open Access Policy Compliance

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Abstract

In 2018, the Data and Scholarly Communication Services Unit (DSCS) at the University of Colorado Boulder began implementing two open access (OA) policy workflows with the aim of increasing content in the institutional repository CU Scholar, expanding awareness of the campus OA policy that was passed in 2015, and decreasing the burden on researchers for participation in the policy. DSCS leveraged collaborative relationships with other library departments and campus units in order to mobilize the data, infrastructure, procedures, and documentation to execute these workflows. The Directory of Open Access Journals (DOAJ) workflow identifies existing open access publications by CU Boulder faculty and mediates deposit in order to make them available in CU Scholar. The liaison outreach workflow partners with liaison librarians to request from faculty preprints and author's final manuscripts of publications in which the publisher version may have copyright restrictions. At present, the DOAJ workflow has resulted in 754 articles deposited in CU Scholar, and the liaison outreach workflow has resulted in 91 articles deposited. Each of these workflows pose challenges that have required flexibility, experimentation, and clear communication between stakeholders. This case study, which includes detailed descriptions of both open access policy workflows, initial results, and plans for future implementation, may serve as a guide for other institutions wishing to adopt and/or adapt institutional repository workflows and forge collaborative relationships to further open access initiatives in their local context.

Keywords

open access policy, institutional repositories, open access, mediated deposit, scholarly communication, current research information systems, Symplectic Elements, Research information management system

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Abstract

In 2018, the Data and Scholarly Communication Services Unit (DSCS) at the University of Colorado Boulder began implementing two open access (OA) policy workflows with the aim of increasing content in the institutional repository CU Scholar, expanding awareness of the campus OA policy that was passed in 2015, and decreasing the burden on researchers for participation in the policy. DSCS leveraged collaborative relationships with other library departments and campus units in order to mobilize the data, infrastructure, procedures, and documentation to execute these workflows. The Directory of Open Access Journals (DOAJ) workflow identifies existing open access publications by CU Boulder faculty and mediates deposit in order to make them available in CU Scholar. The liaison outreach workflow partners with liaison librarians to request from faculty preprints and author's final manuscripts of publications in which the publisher version may have copyright restrictions. At present, the DOAJ workflow has resulted in 754 articles deposited in CU Scholar, and the liaison outreach workflow has resulted in 91 articles deposited. Each of these workflows pose challenges that have required flexibility, experimentation, and clear communication between stakeholders. This case study, which includes detailed descriptions of both open access policy workflows, initial results, and plans for future implementation, may serve as a guide for other institutions wishing to adopt and/or adapt institutional repository workflows and forge collaborative relationships to further open access initiatives in their local context.

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Introduction and Background

The University of Colorado Boulder (CU Boulder) adopted a campus-wide [open access \(OA\) policy](#) for all faculty on April 22, 2015 after years of grassroots efforts to build support for the policy led primarily by the CU Boulder Libraries and the United Government of Graduate Students at CU Boulder.¹ The OA policy grants the university an irrevocable, nonexclusive, worldwide license to journal articles and conference proceedings authored by its faculty. This allows for the author's final manuscript, the version after peer review and revisions but before the final published version, for all articles authored by CU Boulder faculty to be made publicly available via the CU Scholar institutional repository.² In the years following adoption of the OA policy, the CU Boulder Libraries (Libraries) established a unit called Data and Scholarly Communication Services (DSCS) in part to lead implementation of the policy across campus, and more generally to serve as support for research data and open access efforts and initiatives, including management of CU Scholar. The authors of this paper all currently reside within this unit.

CU Boulder uses a Symplectic Elements instance branded as CU Boulder Elements (CUBE) to track faculty research activity. All faculty are required to use CUBE to add articles to their annual reports of professional activities, which are used as the basis for annual merit raises. According to data from CUBE, CU Boulder faculty members author approximately 5,000 articles per year that are potentially covered by the OA policy.³ This large number of articles published each year presents a significant barrier to OA policy implementation since the DSCS unit must acquire final manuscripts directly from authors. Other challenges include identifying all articles authored by CU Boulder faculty, determining which articles are already available as OA, and ingesting those OA articles into the CU Scholar repository. In order to address these issues, the DSCS unit developed highly collaborative,

multi-pronged workflows for OA policy implementation and piloted them in late 2017 through early 2018. The unit rolled out the full-scale workflows in the summer of 2018.

The OA policy workflows rely on collaborations between the Faculty Information System (FIS) team in the Office of Faculty Affairs as well as the liaison librarians in the Libraries. The FIS team oversees the CUBE system, which provides a central location for all data related to CU Boulder faculty publications and other scholarly activities. Public CUBE data is used to populate faculty profiles on the CU Experts platform that the FIS team also supports.⁴ The DSCS unit relies on CUBE data for several purposes in the OA policy workflows, and there are plans to further integrate CUBE with the CU Scholar repository. The liaison librarians are also deeply involved in the OA policy workflows as the primary conduit for communication with faculty authors in order to obtain final manuscripts for deposit into CU Scholar. This article describes these collaborative workflows in detail, provides preliminary results from the implementation of these workflows, and discusses lessons learned and future directions for OA policy work at CU Boulder. While we recognize that attitudes toward OA among faculty as well as resources in libraries and other units for supporting OA initiatives vary significantly across institutions, we hope that this article provides models for leveraging collaborative relationships to begin, enhance, or expand services related to OA.

Literature Review

Challenges with OA Policies and IR Deposits

Difficulties with OA policy compliance as well as with general depositing of faculty work in institutional repositories are well documented in the literature. Common reasons faculty give for not participating in institutional repository (IR) efforts include lack of awareness, confusion over



their rights regarding self-archiving, and perceived time-intensive or complex processes for depositing.⁵ In addition to lack of faculty engagement, there are a number of other challenges with regard to OA policy implementation, including outreach and communication strategies, appropriate staffing levels, technical infrastructure development/acquisition, and simplification of submission processes.⁶ The need to track and manage data related to faculty publications from numerous sources also poses significant barriers to OA policy implementation.⁷ All of these challenges have resulted in relatively low rates of deposit in IRs even at institutions with OA policies in place. According to a study of 67 institutions with OA mandates, the majority of institutions included in the sample had deposit rates of less than 20%, and no institution had a deposit rate higher than 60%.⁸

Approaches to OA Policy Implementation

The literature reveals a variety of approaches libraries have taken in order to address challenges related to OA policies and to increase faculty submissions to IRs; however, there are few detailed descriptions of OA policy implementation workflows. Simply instituting an OA policy and expecting faculty to self-deposit articles has proven to be an ineffective strategy.^{9,10} As a result, many libraries involve liaison/subject and reference librarians in conducting outreach and soliciting content from faculty in the departments they support. According to data from a survey of over 1,800 subject librarians conducted in 2015 by Nero and Langley, over 50% of subject librarians were responsible for supporting scholarly communication and/or open access in their job.¹¹ These numbers are no surprise given earlier research identifying reference librarians with subject specialist duties as critical and under-utilized participants in IR efforts.^{12,13,14} When liaison librarians are involved in IR efforts, they can play a key role in increasing the number of deposits and improving the usefulness of the IR.¹⁵ In addition, communication

from liaisons to faculty can outperform more generic communication when soliciting content for OA policy compliance.¹⁶

While liaison/subject librarian involvement in IR and OA policy implementation efforts helps to address challenges related to staffing, outreach and communication, and increasing faculty engagement, libraries have looked to other approaches to overcome challenges with tracking and managing faculty publication data.^{17,18,19} Some libraries identify faculty publications eligible for deposit under OA policies by searching databases like Google Scholar, PubMed, and Web of Science.^{20,21,22} Other libraries are now turning to current research information systems (CRIS) or research information management systems (RIMS), which are services that collect and curate metadata on campus research activity, to provide more complete coverage of faculty publications and more automated tracking of OA policy compliance.²³ Our article provides a model that incorporates both the use of an RIMS as well as extensive liaison involvement, and it adds a detailed description of a novel approach to OA policy implementation to the literature.

Description of Workflows

The OA policy implementation workflow consists of two main sub-workflows: the Directory of Open Access Journals (DOAJ) workflow and the liaison outreach workflow. The DOAJ workflow is aimed at identifying fully OA published articles while the liaison outreach workflow attempts to acquire author's final manuscripts for articles published in non-OA journals. Both workflows rely on data from CUBE as a starting point. We describe these workflows in detail below.

DOAJ Workflow

A previous assessment of open access publishing at CU Boulder between 2012 and 2017 revealed that on average 10.19% of articles published by university faculty appear in fully open



access journals each year.²⁴ Despite faculty publishing hundreds of open access articles annually there is a low rate of self-deposit into the institutional repository for this content. By 2018, only 3.8% of these open access articles were submitted to the institutional repository, most of which were written by faculty from the Libraries.

To address the low rate of deposit for open access articles into CU Scholar, the DSCS unit developed a mediated workflow leveraging data from CUBE that identifies articles published in journals indexed in the Directory of Open Access Journals (DOAJ). DOAJ is a database that includes over 13,000 listings of open access journals. The inclusion criteria for DOAJ states that all content in journals included in the index must be immediately and fully OA.²⁵ Excluding non-DOAJ articles results in a list of articles unburdened by copyright restrictions. Leveraging this data gives the DSCS unit the opportunity to populate the repository with hundreds of articles a year furthering CU Scholar's mission of preserving the research activities of members of the CU Boulder community and promoting that research to the general public.

The DOAJ workflow consists of three phases:

Phase 1 - In this phase of the workflow, the Institutional Repository Manager (a member of the DSCS unit) uses CUBE to generate a report of all articles published through DOAJ indexed journals. Exporting the data to spreadsheets enables the identification and deletion of duplicate results that occur when multiple CU Boulder faculty co-author a paper. To avoid adding duplicate materials already in the CU Scholar repository, a content inventory of the repository is generated and cross-referenced with the report from CUBE. Articles already present in the repository are then removed from the CUBE report.

Phase 2 - Utilizing the email addresses provided in the CUBE report, the Institutional Repository Manager contacts faculty who published in DOAJ indexed journals with the opportunity to opt out of the workflow and not have their articles added to the repository. This is done as a courtesy to authors, and no author has opted out to date. Faculty are given two weeks to respond to the email and opt out of the workflow. Contacting authors also serves to increase awareness of open access initiatives on campus and the role the library plays in promoting their research.

Phase 3 - After the two-week opt out period ends the Institutional Repository Manager downloads the published versions of articles found in the CUBE report and deposits those to the institutional repository. Articles added to the repository are recorded for future reference.

Liaison Outreach Workflow

The liaison outreach workflow was adapted from a workflow in place at Indiana University - Purdue University Indianapolis (IUPUI), which was altered to better reflect roles and responsibilities in place at CU Boulder.²⁶ The purpose of this workflow is to address the articles and conference proceedings excluded by the DOAJ workflow, in other words, those publications that are not published in full open access journals. Because deposit of these publications into the institutional repository requires obtaining pre-prints, the version of an article before peer review, or post-prints, the final manuscript after peer review but before publisher formatting, directly from faculty members, this workflow calls for intensive collaboration and communication between DSCS, liaison librarians, and departmental faculty.

The liaison outreach workflow began with a trial phase that included three liaison librarians from

different subject areas representing a wide disciplinary scope (Physics, Art & Architecture, and Education), and was coordinated by the Scholarly Communication Librarian (a member of the DSCS unit). These four librarians worked together to draft an email template to be sent to any faculty member and filled in with basic fields such as “name,” “department,” and publication “citation” (see Figure 2). In the template provided below, highlighted fields represent those that need to be changed by individual liaisons. For the trial phase each liaison selected 1-2 faculty members to contact who are either prolific publishers or have self-archived manuscripts in CU Scholar institutional repository previously. Concurrently, the Scholarly Communication Librarian drafted procedures for three basic phases of the workflow:

Phase 1 - The liaison librarian sends an email to the selected faculty using the template and copies the Institutional Repository Manager and Scholarly Communication Li-

brarian. The Scholarly Communication Librarian also inputs details of this initial contact in a tracking spreadsheet.

Phase 2 - If the faculty member responds by sending a version of the paper that can be self-archived according to the OA policy, the Institutional Repository Manager will upload it to the CU Scholar repository and send a link of the record to the Scholarly Communication Librarian. The Scholarly Communication Librarian will complete the tracking spreadsheet by adding the repository link. Any questions from the faculty member will also be answered during this phase.

Phase 3 - The Scholarly Communication Librarian sends the repository link directly to the faculty member, copying the Institutional Repository Manager and the liaison.

Figure 1 provides a flowchart representing this workflow.

Figure 1: Liaison Outreach Workflow Flowchart:

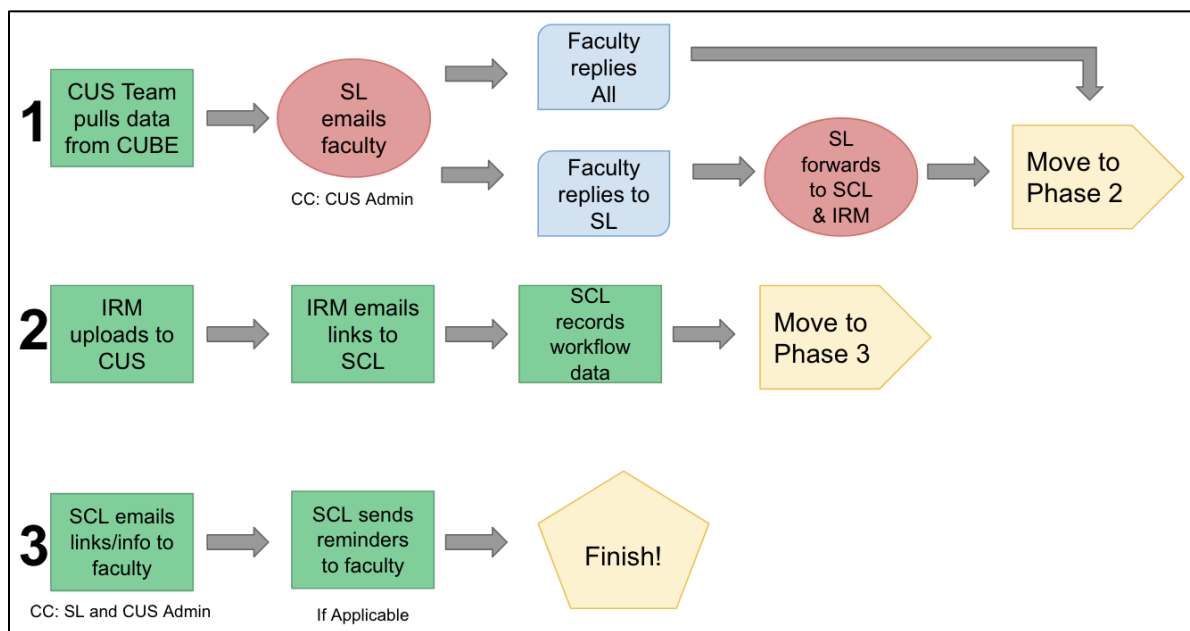


Figure 2: Email Template for Contacting Faculty

Subject: Increase Research Impact! – CU Boulder Open Access Policy

Dear [Name],

I hope you are doing well! You might be aware that the CU Boulder Faculty Council adopted an [open access policy](#) on April 22nd, 2015, which allows you to post a version of your publication openly, thus increasing its reach. This policy shows CU Boulder's commitment to increasing the visibility and access to our scholars' works. We would love for you to participate in this commitment by sharing your work in our repository [CU Scholar](#).

Don't worry – it's easy and we do all of the leg work for you! Plus, sharing your work in this way is shown to increase readership and citation rates.

To participate, all you have to do is send the final accepted manuscript (post-print) PDF (the version after all peer review changes have been made, but before the publisher adds the formatting, look, and feel of the article) of the papers listed below:

[Citations]

Please send the manuscript(s) directly back to cuscholaradmin@colorado.edu, rather than replying directly to this email.

Then your part is done! We will post the work and provide you with a link.

We are excited to help you participate, so please let us know if you have any concerns or questions. We appreciate your help in increasing access to scholarship by **[Department]** faculty members.

Best regards,
Your Name

The trial phase concluded with mixed results from the faculty members. A faculty member in Physics responded promptly with the appropriate manuscripts but was unsure about the advantage of CU Scholar because their manuscripts are already self-archived in subject repositories such as arXiv. A faculty member in Environmental Design had several questions about the process and the OA policy, and while one publication preceded the policy and another was not covered by the publication types included in the policy, four publications were ultimately uploaded. In addition, this faculty member was so impressed with the ease of the process that they emailed all of the faculty in their department to describe the program and recommend it to others. Faculty in Education were the

least responsive in the trial phase of the workflow. While one faculty member did respond to the email request from the liaison librarian, time was cited as an issue in participating in this process and no publications were ultimately uploaded. While the liaison workflow is meant to increase the efficiency of deposit and reduce the amount of time dedicated by each participant, time constraints will likely continue to be a primary impediment to faculty compliance with the OA policy.

Based on experiences from the trial phase and feedback from the liaison librarians, the Scholarly Communication Librarian adjusted the procedures and documentation in preparation for all liaison librarians to be incorporated into the workflow during the summer of 2018. The Scholarly Communication Librarian created a

shared Google folder to house documentation for liaisons related to the workflow (see Table 1).

Table 1: Description of workflow documentation for liaisons

Documentation	Purpose/Use
Workflow procedures	Liaisons follow procedures (detailed directions for 3 phases described above) to communicate with faculty.
Publications spreadsheet	Includes all faculty articles and conference proceedings from the previous reporting year downloaded from CUBE. DOAJ publications are removed. Duplicate entries are highlighted.
Email template	Template email with variable fields highlighted (to be filled by information found in publications spreadsheet): name, department, citation. Liaisons can use and/or alter this template for each email sent to individual faculty members.
Sign-up spreadsheet	Liaisons select one month of the year during which to complete the workflow.
FAQ	A working document where liaisons can input questions about CU Scholar, the open access policy, or the workflow. Questions will be answered by DSCS to be later referenced by all liaisons.

Results

We currently have two years' worth of results from the DOAJ workflow and approximately one year of results from the liaison outreach workflow. We present these results for both workflows below.

DOAJ Workflow

At present, DSCS has completed the DOAJ workflow for articles published in 2016 and

2017. For 2016, 396 articles authored by 299 faculty members were added to the repository. Uploaded work for 2017 included 358 articles authored by 287 faculty members. All full open access journal articles by current CU faculty were successfully deposited or linked to in the repository, for both years. This marks a significant increase in deposits compared to the 3.8% self-deposit rate before the workflow implementation.



CUBE reports reveal that science and engineering units on campus publish far more open access articles compared to the humanities and social sciences.²⁷ This disparity between academic disciplines is noted by Xia²⁸ and is considered to be widespread among institutional repositories by Callicott, Scherer, and Wesolek.²⁹ Fewer open access publications coupled with low rates of self-deposit have left many humanities and social science units on campus with sparsely populated or empty collections in the repository. The DOAJ workflow allowed DSCS to populate numerous collections with content which may help foster a self-archiving culture among faculty in disciplines that have traditionally lacked pre-print services.

Another benefit of the workflow includes heightened faculty awareness of repository and author rights. Communicating the existence and purpose of the repository to the over 3,800 faculty at CU Boulder has always been difficult. For each year completed, approximately 6% of faculty on campus were contacted through the DOAJ Workflow. In this way the DOAJ Workflow acts as an extension of the Libraries' outreach efforts.

Liaison Outreach Workflow

Since implementing the full liaison outreach workflow in July 2018, 12 liaison librarians have completed the workflow procedures. Liaisons are asked to sign up for a single month of the year in which to complete the workflow by requesting publications from faculty in their subject areas. No more than three liaisons may sign up for a single month to complete the workflow, ensuring that the labor is spread out across the year and that collaboration on the workflow is continuously in process by at least one liaison librarian in concert with DSCS members.

The first three liaison librarians to complete the workflow represented faculty in Humanities departments, which at CU Boulder are typically smaller departments with fewer articles covered under the OA policy. In the first four months of the workflow implementation, 44 emails were sent by 4 liaison librarians to 6 different departments/schools asking for final manuscripts of 90 different publications. These liaisons reported that it took them 1-2 hours to complete the workflow when entering data and citations manually into email templates.

As of April 2019, the liaison outreach workflow resulted in 582 emails sent to faculty members requesting publications, and it led to the addition of 91 papers to the institutional repository that would not be there otherwise. Some of these papers were already OA because, as we discovered through this process, there is no way to identify or remove hybrid OA publications from the CUBE data set as they are not indexed in DOAJ; however, a large proportion are pre-prints or final manuscripts that would not otherwise be available without a subscription to the journal. Table 2 shows the number of publications, by department, received and successfully uploaded to CU Scholar as a result of this workflow.



Table 2: Liaison Outreach Workflow - Publications uploaded to CU Scholar by Department

Department	Publications Uploaded	Publications Requested
Geological Sciences	19	155
Applied Mathematics	11	69
Education	8	65
Geography	8	82
Aerospace Engineering Sciences	7	340
Political Science	4	29
Ecology & Evolutionary Biology	4	148
College of Media, Communication, and Information (CMCI)	4	44
Portuguese & Spanish	3	4
Philosophy	3	8
Civil, Environmental, and Architectural Engineering	3	421
Mathematics	3	47
ATLAS Institute	3	3
College of Music	2	15
Electrical, Computer, and Energy Engineering	2	327

Mechanical Engineering	2	302
Colorado Center for Astrodynamics Research (CCAR)	2	12
History	1	6
Environmental Studies	1	46
Computer Science	1	306
Departments with None Uploaded ³⁰	0	366
Total	91	2795

Discussion

The results described above reveal several significant challenges with both the DOAJ and liaison outreach workflows. While the DOAJ workflow was successful in adding a large amount of content to the repository, the workflow proved labor intensive and consumed considerable staff time. CUBE provides data that is rich but still requires manual cleaning and organization, and the time needed to download and deposit an article in the repository varied considerably. Articles with PubMed article identifiers were considerably faster to deposit to the repository due to the current software's ability to import metadata records from PubMed. The time to deposit articles without PubMed identifiers averaged around 7 minutes per article. Another obstacle we encountered with the DOAJ workflow was the inability to identify hybrid OA articles in the CUBE reports. While some of these articles were identified through the liaison outreach

workflow, we currently lack a way of identifying all hybrid OA articles published by CU Boulder authors.

With regard to the liaison outreach workflow, one major issue arose during the initial rollout. Several liaison librarians to science and engineering departments were signed up to complete the workflow in late 2018 and early 2019. These departments are quite large and their faculty tend to be highly prolific in terms of publishing articles and conference proceedings. For example, after reviewing the dataset of 2017 publications from the CUBE report, one liaison had 350 faculty to contact across 12 departments/institutes, each of which had anywhere from one to 44 citations for that year. It quickly became apparent that manually copying citations into email templates and sending them individually was not a viable option for these participants. A liaison librarian who is familiar with

the Python programming language agreed to assist and created a script that imported citation data into a separate spreadsheet that was in a format that would be compatible with the Mail Merge function of Microsoft Word. Mail Merge allows for the creation of bulk emails by importing the revised database of names and citations into a template email that indicates the correct fields to be inserted from the database. In Figure 2 above showing the email template, fields in brackets are those that are compatible with Mail Merge for importing data from the database. While it does take some additional time to set up the new database of citations and Mail Merge process, this initial effort only needs to be completed once per year by the Scholarly Communication Librarian. The result is the ability for liaison librarians to send hundreds of emails to faculty with little more than the click of a button.

There are a few limitations that will need to be addressed as the liaison outreach workflow continues. For example, the response rate to the emails sent by liaisons was quite a bit higher than the completion rate. This was due in large part to the fact that many faculty responded positively to the email but attached the publisher's version of the articles that were requested. The template email sent to faculty originally requested the "final accepted manuscript [...] in PDF format, but not the publisher's PDF, which publishers sometimes prohibit from posting." After receiving many publisher PDFs, the language was revised so that we now request "the final accepted manuscript (post-print) PDF (the version after all peer review changes have been made, but before the publisher adds the formatting, look, and feel of the article)." Another issue noted previously in the discussion of the DOAJ workflow is that some faculty inform us that their papers are already OA because they were published in a hybrid, or partially open access, journal. Since hybrid journals are not indexed in DOAJ it is difficult to identify which articles published in hybrid journals are actually

open access as opposed to only being available via subscription. We will explore ways that we might identify these papers beforehand and remove them from the initial dataset. A third and significant limitation results from another aspect of the CUBE data set. Because some citations provided through CUBE are self-reported by the faculty, there is the potential for reporting inaccuracies. While we do strip out all publication types other than "journal article" and "conference proceeding" from the data set prior to providing it to the liaison librarians, errors in the data set were discovered almost immediately upon implementing the workflow. For example, there are publications reported as journal articles that are in fact book chapters, which are not covered by the OA policy. This requires the liaison librarians (especially those that represent humanities and social science departments) to review publication types of the citations, which inconveniently adds time to the overall process.

The liaison outreach workflow also resulted in many questions from faculty (and sometimes liaison librarians) that we have been able to field, respond to, and document. While some questions are simple and only require short answers, others are more complex and require a detailed response. In order to enable liaison librarians to better engage with their faculty about the OA policy and to save time on the DSCS end, we created a shared document that records and provides standard responses to the most common questions raised by faculty and liaisons. Below is a sample of common questions that we documented and provided responses for in our FAQs:

1. How should I communicate with a faculty member who would like to deposit their work but has not communicated about the pre-existing license with their publisher?
2. Am I allowed to do this/to post this work?



3. I am no longer a faculty member at CU Boulder. Can I/should I still post my articles?
4. What benefit does CU Scholar offer compared to other repositories, other social posting sites, or traditional sharing methods?
5. How will my work be cited/citable if the manuscript in CU Scholar does not match the pagination of the published version?
6. A faculty member wants to provide me with publications from previous years to post in CU Scholar. Assuming it is not already open access, what are they able to post in the repository?

Results from both workflows demonstrate an overall increase in number of faculty publications in the repository; however, further assessment would be required to determine whether or not this increase is worth the time and effort invested in these workflows. The current completion rate for the liaison outreach workflow and the overall rate of deposit for all journal articles from 2017 both indicate that our results are about average when compared to other institutions studied by Vincent-Lamarre et al.³¹ As discussed above, we have already identified ways to decrease the time and effort involved with these workflows going forward, and there may be additional steps we can take as well.

Conclusion and Next Steps

Both the DOAJ and liaison outreach workflows involve considerable collaboration and coordination among a variety of stakeholders across the CU Boulder campus. Communication with the FIS team in the Office of Faculty Affairs is essential to understanding what data is available to us, how we can leverage that data, and the current strengths and weaknesses of the CUBE system. The data from CUBE would be incredibly difficult and time-consuming to gather by

other means, so this collaboration is extremely valuable to our workflows. In addition, training, building documentation with, and getting feedback from liaison librarians is central to improving and streamlining the liaison outreach workflow. Liaison librarians act as an invaluable conduit for education and outreach about all of our open access initiatives, so collaboration with them is pivotal to the continuation and success of our efforts. Finally, these workflows demand efficient cooperation and transparency among the members of the DSCS unit. It is important that questions be answered, uploads completed, and results communicated in a timely and consistent manner so that both faculty and liaisons find this to be a worthwhile service with which to engage. In other words, there are many complex moving parts that have gone into the planning, documentation, and execution of these workflows; however, successful collaboration serves to grease the wheels of this elaborate machine so that we can achieve the greatest impact for the least amount of effort, especially on the part of the faculty.

Next steps for these workflows include assessing how successful the work has been to date, improving workflows based on liaison feedback and other barriers identified, and continuing to collect data on our completion/submission rates going forward. In addition, we are currently migrating the CU Scholar repository software to a platform that will allow for formal integration with the CUBE system. This will allow for more automated tracking of submission rates, and it will also give faculty the ability to deposit full OA articles and final manuscript versions of non-OA articles directly to CU Scholar from CUBE. Since all CU Boulder faculty interact with CUBE at least once each year, the CU Scholar integration would provide an additional valuable opportunity to acquire articles and manuscripts for the repository. Once this integration is in place, a communication and outreach strategy for rolling out the new process



to faculty will need to be developed by the DSCS unit and the FIS team thus deepening that collaboration even further.

We hope that other institutions will benefit from these detailed descriptions of our collaborative workflows, initial results, and plans for the future. Support and resources available for OA initiatives vary substantially across institutions, but our workflows offer potential models for librarians working in scholarly communication to look to when identifying collaborators on their campuses. In addition, some challenges, such as faculty engagement or participation, apply to many if not most OA initiatives. Collaborations with groups like our Office of Faculty Affairs and our liaison librarians who both have different relationships with faculty than those of DSCS can help with these issues of reaching faculty in the most effective ways. Finally, our workflows emphasize the need for flexibility and experimentation when undertaking an effort like implementing a campus-level OA policy. While we had some examples from which to draw when designing our workflows, we inevitably had to adapt those examples to meet our local needs, and we also found it necessary to adjust our original plan once we actually put it in place. This flexibility is key to any collaboration involving as many stakeholder groups as those of our OA policy workflows.

¹ Melissa Cantrell and Andrew Johnson, "Engaged Citizenship through Campus-Level Democratic Processes: A Librarian and Graduate Student Collaboration on Open Access Policy Adoption," *Journal of Librarianship and Scholarly Communication* 6: no. 2 (2018).
<https://doi.org/10.7710/2162-3309.2229>

² <https://scholar.colorado>

³ <https://www.colorado.edu/fis/CUBE>

⁴ <https://experts.colorado.edu/>

⁵ Alma Swan and Sheridan Brown, "Open access self-archiving: An author study," Technical Report, External Collaborators, JISC, HEFCE (2005) <http://eprints.ecs.soton.ac.uk/10999>, accessed 8 December 2005.

⁶ Ellen Finnie Duranceau and Sue Kriegsman, "Implementing Open Access Policies Using In-



stitutional Repositories." In *The Institutional Repository: Benefits and Challenges*, (2013) 75- 97. Chicago: ALA/ALCTS.

⁷ David Walters, Monique Ritchie, and Megan Kilb, "CRIS Power! Taming the Reporting Requirements of Open Access." *The Serials Librarian* 70, no. 1-4 (May 18, 2016): 229-35. <https://doi.org/10.1080/0361526X.2016.1160306>

⁸ Philippe Vincent-Lamarre, Jade Boivin, Yassine Gargouri, Vincent Larivière, and Stevan Harnad, "Estimating open access mandate effectiveness: The MELIBEA score," *Journal of the Association for Information Science and Technology*, 67: 2815-2828. (2016), doi:10.1002/asi.23601

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