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Title of Column: ERM Ideas & Innovations

Operationalizing a Consortial E-Resources Assessment and Reporting Plan

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From the Column Editor, Randall Lowe:

This column examines the operationalization of the University System of Maryland and Affiliated Institutions (USMAI) Library Consortium's E-Resources Assessment and Reporting Plan, which was developed in 2018 as detailed in a previous ERM Ideas and Innovation column (Arleth et al., 2018). The USMAI is a consortium comprised of 17 participating libraries from institutions of higher education throughout the state of Maryland (USMAI Library Consortium, 2019). My colleagues Erica Owusu and Deborah Li join me in discussing the implementation of procedures to collect and analyze usage data for consortially funded e-resources for all USMAI member libraries and the development of an annual reporting template. We also describe the challenges we faced in acquiring usage data, as well as making adjustments to our plan, in order to complete our first two annual e-resource assessment reports and a third report focused on e-resource use during the first few months of the COVID-19 health pandemic. Finally, we examine lessons learned as we endeavor to more holistically assess the overall value of our consortium's shared e-resources.

Column:

Introduction: The State of E-Resources Assessment in the USMAI Library Consortium Through 2018

The University System of Maryland & Affiliated Institutions (USMAI) Library Consortium developed an E-Resources Assessment and Reporting Plan in 2018 to establish a formalized approach and guidelines for collecting and assessing cost, usage and other data pertaining to centrally funded, consortially-shared electronic resources to better inform group decision-

making, coordinate budget allocation and explain the value of subscriptions, as detailed in a previous ERM Ideas and Innovations Column (Arleth et al., 2018). Developing and operationalizing this plan was part of a comprehensive effort that began in 2015 to make improvements to the consortium's e-resources management (ERM) processes and procedures.

Prior to 2018, assessment was conducted primarily on an as-needed basis, typically when changes to e-resource offerings were desired. Other assessment activities were focused on monitoring the cost, use and content of a demand-driven acquisition (DDA) ebook program managed by the consortium from 2013 through 2019. Beginning in 2017, an Assessment Working Group of the USMAI Resource Acquisition and Licensing Subgroup (RALS), endeavored to create a process for formal and intentional evaluation of consortial e-resources by focusing on the following:

1. Defining the purpose and objectives of formalized data collection and assessment for consortial e-resources;
2. Identifying the e-resources for which data will be collected;
3. Determining what data will be collected;
4. Assigning data collection responsibility;
5. Assigning assessment and reporting responsibilities; and
6. Formalizing and standardizing reporting.

The initial Assessment and Reporting Plan finalized in 2018 largely addressed items one through five. In this column, we discuss how the plan was operationalized, including implementing

procedures to collect and archive data and developing a reporting template. We also share our experiences and the challenges we faced in collecting data and completing our first reports, as well as the lessons we learned and our future plans.

Existing Consortial Approaches – A Brief Literature Review

As an initial step in developing our Assessment and Reporting Plan, USMAI RALS Assessment Working Group members interviewed representatives from eight library consortia across the United States in late 2017 to learn about their approaches to collecting consortial level e-resources data as well as their assessment efforts. We found that the primary focus of these consortia was on collecting usage statistics to meet the relatively narrow – but important – objective of making subscription decisions and taking budgetary action (Arleth et al., 2018). None of the consortia interviewed had yet developed a formal assessment plan for evaluating e-resources; most struggled to get such efforts off the ground because of the lack of a reliable usage data collection tool that provided automated statistics harvesting scaled to include all of their member libraries. While individual member libraries were strongly engaged in assessing e-resources usage data for their institutions, the significant amount of labor required to collect data for multiple institutions combined with a lack of available human resources at the consortial level greatly restricted their ability to conduct statistical analysis and reporting.

We have not replicated this outreach to other consortia since our Assessment and Reporting Plan was finalized in 2018 and implemented in 2019; however, a brief review of the literature continues to reveal that consortial approaches to e-resources usage assessment remain elemental in nature, focused on the challenges of data collection. Osterman et al. (2018) and Ye et al.

(2018) both describe the need for effective and sustainable tools to harvest and deliver e-resources usage statistics at both the consortial and member library level. The former article focuses on the Consortia Collaborating on a Platform for Library Usage Statistics (CC-PLUS) Project that is developing an open source software tool for usage statistics harvesting and management scaled to support consortia, while the latter focuses on the development of a usage statistics portal for member libraries of the Digital Resource Acquisition Alliance of Chinese Academic Libraries.

While Conyers et al. (2017) discuss the challenges related to providing libraries and library consortia with usage data for ebooks and Robbeloth et al. (2017) provide an example of a consortium practically applying usage data to manage an evidenced-based acquisition ebook program, these articles again represent examples of persistent challenges in (1) obtaining and collecting e-resources usage data scaled to the consortial level, resulting in (2) available data being narrowly applied to make specific procurement actions rather than being more fully assessed to ascertain overall resource value. The lack of examples illustrating holistic approaches to e-resource assessment by library consortia demonstrates that as long as we continue to face challenges in obtaining usage data in an automated fashion, it will remain difficult to pair our approaches to e-resources licensing and procurement with strong and convincing evidence demonstrating their value to various stakeholders (users, member institutions, funding bodies, etc.).

Implementing the USMAI E-Resources Assessment & Reporting Plan

Year One (2019) – Strategy

The USMAI E-Resources Assessment and Reporting Plan completed in 2018 established the following basic guidelines for collecting data and assessing the use and value of consortially shared e-resources:

- USMAI collects and provides usage statistics for centrally funded, consortially-shared e-resources only. Member libraries are responsible for independently collecting usage data for all other e-resources they license.
- The USMAI Shared Electronic Information Resources Manager is responsible for collecting and posting usage statistics and cost data.
- Usage data is collected from database vendors, summarized and posted annually to the USMAI member portal.
- Usage statistics will include an aggregate total for all USMAI as well as a breakdown by each member library, when possible.
- Project COUNTER reports, when available, will be the primary sources used to measure common e-resource usage metrics. Specific reporting metrics will be defined and detailed on the USMAI Assessment and Reporting Plan webpage and updated as needed.
- Data analysis will be performed by the RALS Assessment Working Group and the USMAI Shared Electronic Information Resources Manager and will be used to generate an annual report.
- In addition to quantitative measures, qualitative data from focus groups, interviews and similar events may complement usage data in various assessments of the consortium's shared e-resources.

In early 2019, we began to (1) operationalize usage data collection as well as archiving and access for member libraries, and (2) establish an annual report template. We established a timeline of collecting usage data in July with an objective of completing and delivering our first consortial e-resources annual report to the USMAI Council of Library Directors in September.

Year One (2019) – Data Collection

We contacted vendors EBSCO, OCLC and ProQuest in July 2019 to obtain usage statistics for USMAI centrally funded databases for fiscal years 2017 through 2019 so we could establish a three-year baseline trend. We asked for the number of full text retrievals, searches and citations/abstract/record views to be provided in COUNTER-compliant statistical reports.

Reports were requested directly because consortial data needed to be customized and could not yet be harvested automatically.

Challenges to statistics gathering still exist due to data anomalies and the long turnaround times experienced in receiving completed report requests. For instance, despite the existence of the COUNTER Code of Practice, vendors tend to apply its standards differently and may not have adopted the latest release; therefore, the anomalies in the data can make it difficult to compare statistics between vendors. For example, the change from the COUNTER 4 to COUNTER 5 Code of Practice, created and published in 2019 (COUNTER, 2020), established new metrics that represented a larger change from updates included in past releases. This has caused slower adoption of COUNTER 5 as vendors adapt their statistical practices and tools to be in compliance. Though we requested the reports in July 2019, it took until late September to receive the data we needed due to the customization required. We also had to navigate the difference in

standards applied by the vendors. For example, EBSCO provided COUNTER 5 reports, ProQuest provided COUNTER 4 reports and OCLC provided custom reports; however, the data was still able to be qualified and allowed us to establish general baseline usage trends for each e-resource.

In order to assess the fiscal value of consortially-shared e-resources, cost data was cross-referenced with the use metrics gathered. We applied the total cost of each journal and ebook database, as well as individual library contributions to that total, to full text retrievals, searches and citation/abstract/record views. We then created tables that provided the aggregated, consolidated use and cost per use of centrally funded e-resources by all member libraries.

In order to effectively make usage report requests of vendors, and to help with interpretation of the different COUNTER standards, we needed to update the data definitions in our Assessment and Reporting Plan to include both Code of Practice releases 4 and 5, with the intention of using the latter as soon as it was implemented by each vendor. Table 1 details the data definitions we assigned for full text retrievals and searches. We also developed definitions for citation/abstract/record views, database sessions, non-textual e-resources, costs and resource sharing metrics.

Table 1. Sample definitions for data collected for USMAI e-resources assessment (full text and searches).

Sample Usage Statistics Reporting Metrics	
Full Text Retrievals for Database Subscriptions: Count of the number of times full text (or equivalent) is retrieved by users for a specific e-resource.	
COUNTER 4	COUNTER 5

Data Sources for Article Databases	
<p>Primary: COUNTER Journal Report 1 (JR1): Number of Successful Full Text Article Requests by Month and Journal (total use is summed/aggregated by database).</p> <p>Secondary: Vendor-supplied full text retrieval report when JR1 report is not available or is not available by database.</p>	<p>Primary: Database Master Report (DR):</p> <p>Collect and report BOTH Total_Item_Requests (the total number of times full text of a content item was downloaded or viewed) and Unique_Item_Requests (the number of unique content items requested in a user session). Analyze cost per use by Total_Item_Requests (<u>initially</u>, to compare with COUNTER 4 data). Consider Unique_Item_Requests data if the figure is much lower than Total_Item_Requests over time, thus potentially affecting overall database content value.</p> <p>Secondary: Vendor-supplied full text retrieval report when DR report is not available or is not available by database.</p>
Data Sources for Ebooks	
<p>Primary (for individual book titles): COUNTER Book Report 1 (BR1): Number of successful title requests by month and title.</p> <p>Primary (for reference works and for book chapters): COUNTER Book Report 2 (BR2): Number of successful section requests by month and title.</p> <p>Secondary: Vendor-supplied full text request report when BR1 and/or BR2 reports are not available.</p>	<p>Primary (for individual book titles): Book Requests (Excluding OA_Gold) (TR_BR1): Collect Unique_Title_Requests (the number of unique titles requested by a user) to analyze cost per use for each individual book title.</p> <p>Primary (for reference works and for book chapters): Book Requests (Excluding OA_Gold) (TR_BR1): Collect Total_Item_Requests (the total number of times full text of a content item was downloaded or viewed) to analyze cost per use for individual chapters, reference entries, etc. for all books used.</p> <p>Secondary: Vendor-supplied full text request report when TR_BR1 report is not available.</p>
Searches: Count of the number of searches or queries submitted for a specific e-resource.	
COUNTER 4	COUNTER 5
<p>Primary: Database Report 1 (DR1): Total searches, result clicks and record views by month and database ("regular searches" and "searches - federated and automated" are the metrics used from this report).</p> <p>Secondary: Vendor-supplied number of searches submitted report when DR1 report is not available.</p>	<p>Primary: Database Master Report (DR): Collect BOTH Searches_Regular (the number of times a database is searched when actively chosen or the only database available on a platform) and Searches_Automated (the number of times a database is searched when a database is <i>not</i> actively chosen – e.g. via discovery service). Sum both metrics for total database searches on a platform. Analyze cost per search of each metric separately and in sum.</p> <p>Secondary: Vendor-supplied number of searches submitted report when DR report is not available.</p>

Since most USMAI centrally funded e-resources include full text content, this is the primary quantitative metric that is used to determine the return on investment for a subscription. We chose to analyze cost per use for articles by the COUNTER Release 5 Total_Item_Requests metric, at least for initial annual reporting, as it more closely resembles COUNTER Release 4 full text article requests by period data. We found this metric to be more useful in establishing initial trends since data supplied using both releases would need to be compared. We will reassess this as we collect more data over the years from Release 5 reports, likely relying more on Unique_Item_Requests to figure cost per use in order to avoid counting repeated article downloads from single user sessions.

As described above, we gathered all individual member library and summary consortial data received from the vendors into tables and published them on the USMAI member portal for e-resources practitioners and administrators to consult.

Year One (2019) – Annual Assessment Report

We sought to develop an annual report to effectively present basic usage data and analysis in order to inform and support evidence-based decision-making. In order for the annual report process to be sustainable, we needed to settle on a reasonable number of data points that would minimally be evaluated and reported upon each year, while allowing for additional analysis to be conducted as circumstances permitted; our first annual report would serve as a foundational template.

Our first important decision in regard to annual report sustainability was to focus on analyzing data at the aggregate level for the consortium while providing links to the data tables detailing use and cost per use for individual member libraries. In addition to focusing the scope of our analysis primarily to consortium-wide data aggregation, our basic annual report template included the following:

- A list of USMAI shared e-resources and their costs for the most recent fiscal year, including estimated group cost avoidance for each subscription;
- Links to the description, subject coverage and title list for each e-resource;
- The total number of full text retrievals and cost per retrieval for all applicable e-resources (table format);
- The total number of searches and cost per search for all e-resources (table format);
- A chart visualizing both the total number of full text content retrievals for all e-resources aggregated for all USMAI libraries, and the aggregated cost per retrieval for the consortium;
- Basic narrative analysis of the above reported data;
- Links to use and cost data for individual member libraries archived on the USMAI member portal; and
- Future plans for annual USMAI e-resources assessment reports.

Usage and cost data for nine e-resource subscriptions for three fiscal years (2017 through 2019) were assessed and included in our first annual report. It was completed in January 2020, four months behind schedule, as the aforementioned delays in obtaining usage reports from vendors,

combined with the effort required to establish our tables presenting individual member library and aggregated use and cost data, lengthened our completion timeline; however, we were confident that with our data and report templates in place and a year of experience in obtaining usage reports from vendors, we would be much better positioned to meet our September deadline for completing our second (2020) annual report.

Year Two (2020) – Data Collection

We reached out to vendors in July 2020 to collect the same usage statistics as in 2019. We contacted vendors directly again as customizable consortial reports were still not able to be automatically harvested; however, the turnaround time was considerably less because we only needed data for one fiscal year as opposed to the three years requested in 2019.

As the goal is to establish workflows to harvest and gather our own consortial statistics, USMAI has been a part of an international effort to develop a tool for such a purpose. The tool being developed is called CC-PLUS, which stands for Consortia Collaborating on a Platform for Library Usage Statistics. It is a grant-funded, collaborative project created to provide production-ready software to harvest e-resource usage statistics in a way that is useful, flexible and shareable to meet the needs of library consortia and their member institutions (CC-PLUS, 2020). The prototype is currently in beta and being pilot tested by consortial participants with a planned deployment within the next year or so.

In the interim, our strategy has been to reach out directly to vendors to request usage reports. While it was faster to obtain them this second time around because we had examples of the

reports we collected the year prior, they still contained some errors that required follow-up. Once these issues were resolved and we had the final reports, our method for data collection and interpretation that was established in 2019 allowed us to collate and analyze the data quickly and efficiently. The turnaround time for gathering such data should be further shortened once we have a statistics harvesting tool. All Fiscal Year 2020 data was added to the existing tables published in 2019 on the USMAI member portal to allow us to continue analyzing usage trends and have member libraries access the data easily.

Year Two (2020) – Annual Assessment Report

Upon completion of data collection, we analyzed the statistics and reported them using the same format from the first annual report written in 2019. This report template ensured consistency of data presentation and ease of reporting. We focused on reporting use (total number of full text retrievals and total searches) and cost per use data at the consortial level for fiscal years 2017 through 2020, with statistics for individual member libraries linked to the USMAI member portal.

Since data collection proceeded more smoothly and we had completed the initial work of setting up the assessment reporting template the previous year, we were able to deliver the report in September as outlined in our original plan objectives.

Special Assessment Report – Spring 2020 COVID-19 Impact

The USMAI Executive Director requested that the RALS Assessment Working Group complete a special assignment in the fall of 2020 to gather usage statistics to evaluate the impact of the

COVID-19 health pandemic on centrally funded e-resources. We were asked to compare aggregate usage data for consortially funded e-resources from January through June for both 2019 and 2020. We used existing data and requested some new reports from vendors as we did not have a monthly breakdown for certain metrics. We then deployed our Assessment and Reporting Plan to assist us with completing this special report.

Our hypothesis was that usage would have increased during this period in 2020 as all classes were shifted to a remote, online format. However, after collating the data, the trends reflected that usage statistics decreased over 25 percent from 2019 to 2020. Though it is difficult to assess the direct cause, a number of factors could have been in play to result in such a decrease, including library e-resources already historically being used in courses independent of instruction modality, the interruption of class assignments and projects due the transition to online learning, the reaction to resettling for students and faculty taking precedence over accessing information resources, and issues in some communities where students did not have access to digital resources outside of campus. It could be useful to repeat the same assessment comparison for 2021 to see if the trend continues or changes due to students and faculty being more prepared for online course delivery as the pandemic continues.

Overall, our Assessment and Reporting Plan procedures proved to be flexible, useful and efficient in a context different than originally intended, validating our confidence in it for future analysis and reporting on the use and value of consortially funded e-resources.

Reception, Impacts to Date

After the data and assessment reports were posted on the USMAI member portal and publicized to the USMAI community via email listserv, a few library directors expressed their appreciation. They were particularly interested in their individual libraries' data. In order to get an indication if the assessment reports were useful to other library staff, a short survey was distributed via the USMAI e-resources email listserv. Responses from five schools were recorded. Two survey questions were of primary interest, the first being, *If you visited the Usage Data and Assessment Reports for Consortium-Licensed E-Resources webpage, what did you use it for?* Results indicated:

- 83% of respondents accessed usage/cost data for their individual libraries.
- 67% of respondents accessed assessment reports (including annual reports and the COVID-19 impact report).
- 33% of respondents accessed usage/cost data for USMAI as a whole.

E-resources practitioners were clearly drawn to individual library data, and to a lesser extent the assessment reports; aggregated data for the consortium was of less interest to them.

The second question of interest was, *How can the Usage Data and Assessment Reports for Consortium-Licensed E-Resources webpage and/or its contents be improved?* Most respondents indicated the page and its contents were fine or excellent. There was one suggestion to include a monthly breakdown for usage data, but overall, cumulative statistics reporting was satisfactory.

Going forward it may be advantageous to ask member library e-resources contacts to inform their staff of data and assessment report updates, as some of the respondents reported learning about them through colleagues rather than via the listserv. A more detailed future survey could

help ascertain the usefulness and value of the data and assessment reports in relation to library workflow (e.g., for decision making) as well as provide recommendations for improvement.

Lessons Learned & Future Plans

From the start, the USMAI Resource Acquisition and Licensing Subgroup viewed both the development and implementation of our E-Resources Assessment and Reporting Plan as a process that would require flexibility, persistence and patience, an approach that has served us well as we endeavor to accurately report the use and related costs of centrally funded, consortially-shared e-resources provided to our member libraries, with an eye toward better assessing their overall value to users.

Our experiences over the past three years have proven to us that implementing a practical e-resources assessment plan for a consortium is possible even with limited available human resources; however, fundamental challenges related to data collection remain firmly in place as of this writing, although hope appears to be on the horizon. Meeting the need for automated harvesting of usage reports, as well as providing the tools to tabulate and present various metrics for both the consortium and its member libraries, remains critical in order for more meaningful analysis and other assessment to occur; librarians and consortium staff are still devoting a significant portion of their time and effort on data collection activities. This is why USMAI remains an active participant in the CC-PLUS initiative to develop open source software to harvest usage statistics at the consortial level (CC-PLUS, 2020). We also continue to monitor progress of the development of related tools, such as CELUS by CzechELib in the Czech Republic (CzechELib, 2020), as well as the emergence of initiatives like the Pilot Data Trust for

Open Access Ebook Usage, funded by the Andrew W. Mellon Foundation (Educopia Institute, 2020).

Even as we continue to navigate the challenges to collecting accurate usage data in a timely manner, we are pleased that the annual report template we developed not only meets our basic needs, but is built on a foundation that is also flexible enough to be applied to ad-hoc information requests, as evidenced by its successful use in presenting the effect the COVID-19 health pandemic had on the use of USMAI shared e-resources during the spring of 2020. Knowing that we have established both a data collection process and workable report template to annually assess the use and cost of consortially-shared e-resources that can be completed in a timely manner by a small working group, has assuaged some of our fears related to the sustainability of our assessment plan due to limited human resources. A further review of individual member library use of consortially-shared e-resources during spring 2020 has revealed to us that inclusion of trends by institution type would help strengthen our annual reports and provide better evidence to inform decision making.

Moving forward, we will continue to monitor how vendors and publishers implement COUNTER Release 5 usage reports and tweak the data definitions included in our plan as we increasingly apply this standard in our assessment work. In order for our assessment efforts to remain sustainable, we must continue to provide assistance to the USMAI Shared Electronic Information Resources Manager by supplying volunteers from member libraries to serve on the RALS Assessment Working Group; this may be a challenge as ERM practitioners' time continues to be spread thin as they work to meet the needs of their libraries. We will also

continue to reach out to our administrators and colleagues on a regular basis to obtain their feedback related to the usefulness of the data that is collected and the value of our assessment reports.

While we have been successful in operationalizing our plan and establishing a template for sustainable basic annual reporting, we realize that our assessment efforts are still in a nascent phase. As we look forward to implementing automated harvesting of usage data, we will continue to strengthen our assessment work, whether through incorporating more visualizations in reports, integrating other quantitative metrics such as data from proxy logs, link resolver reports and resource sharing statistics, or utilizing qualitative methods such as focus groups to contribute user insight in a more complete, holistic way to assess the overall value of our consortium's shared e-resources.

References

- Arleth, K., Bowe, S., & Lowe, R.A. (2018). Developing a consortial e-resources assessment and reporting plan: USMAI's work in progress. *Journal of Electronic Resources Librarianship*, 30(4), 219–227. <https://doi.org/10.1080/1941126X.2018.1521110>
- CC-PLUS. (2020). *Consortia Collaborating on a Platform for Library Usage Statistics*. Retrieved from <https://www.cc-plus.org/>

Conyers, A., Lambert, J., Wong, L., Jones, H., Bamkin, M., & Dalton, P. (2017). E-book usage: counting the challenges and opportunities. *Insights: The UKSG Journal*, 30(2), 23–30.

<https://doi.org/10.1629/uksg.370>

COUNTER (2020). *The COUNTER Code of Practice for Release 5*. Retrieved from

<https://www.projectcounter.org/code-of-practice-five-sections/abstract/>

CzechELib (2020). *Statistical system CELUS*. Retrieved from <https://www.czechelib.cz/en/347->

[statistical-system-celus](https://www.czechelib.cz/en/347-statistical-system-celus)

Educopia Institute (2020). *Developing a pilot data trust for open access ebook usage*. Retrieved

from https://educopia.org/data_trust/

Osterman, A. C., Morris, J., Price, J., McDonald, J., & McEvoy, K. (2018). Library analytics: Shaping the future - consortial usage statistics, analytics, and the CC- PLUS Project. *Against the Grain*, 30(4), 60–61. <https://doi.org/10.7771/2380-176X.8310>

Robbeloth, H., Ragucci, M., & DeShazo, K. (2017). Evidence-based acquisition: A real life account of managing the program within the Orbis Cascade Alliance. *The Serials Librarian*, 73(3/4), 240–247. <https://doi.org/10.1080/0361526X.2017.1388331>

USMAI Library Consortium. (2019). *USMAI Library Consortium*. Retrieved from

<https://usmai.org/>

Ye, L., Yang, W., & Lin, W. (2018). DRAA e-resources usage statistics services in China:

Research and practice. *The Electronic Library*, 36(6), 1043–1061.

<https://doi.org/10.1108/EL-01-2018-0002>