

Ellen Dubinsky

Does open access make cents?

Return on investment in the institutional repository

Access to information resources is a traditional library service. Public libraries were the first to provide unfettered access to print information resources to a general population. It is not a stretch to recognize those institutions as the earliest providers of open access (OA).¹ Now the term *open access* is generally defined as the free and immediate online availability of research and scholarship, adapting to the widespread change in delivery format from print to digital. OA as a library service—most commonly in support of the scholarly communication process—has become a priority for most academic libraries. Academic libraries and librarians are increasingly engaged in both providing and promoting OA, primarily through institutional repository (IR) services with roles as creators, disseminators, publishers, and preservers of scholarly content.

Institutional repositories serve many purposes, of which OA is often first among equals. OA provides access to research articles on a global level, serving the needs of researchers and scholars in all parts of the world. However, IRs also showcase and promote the host institution itself, possibly improving its prestige and justifying its costs to the public it serves or that funds it. IRs increase the visibility and discoverability of the host institution's faculty and their intellectual output. Likewise, IRs often showcase the scholarly output of students and staff. IRs commonly store, preserve, and disseminate institutional digital assets, such as learning objects, datasets, administrative documents, working papers, and reports. As a publication platform, IRs also host peer-reviewed journals

featuring articles authored by researchers from both within and outside the host institution.

Before I left my prior position at a public university in the Northeast, I was asked to consider how to measure the return on investment (ROI) of the IR that I managed. My immediate response was that the IR obviously provided great value to our library and university. We had high download counts. Users from across the globe accessed our content. When I stepped back to ponder this query in depth, I began questioning what exactly the ROI had been, and whether there were monetary returns to consider in addition to the nonmonetary returns.

The classic definition of ROI comes from the financial world, where ROI measures the amount of return on a monetary investment relative to its cost.² Many academic library services can be assessed using ROI as a measurement instrument. Open Educational Resources (OER) spring immediately to mind. The number of dollars invested in promoting and developing OER (staffing resources, programming costs, faculty incentives, etc.) result in direct monetary savings for students enrolled in courses using OER.

A broader definition of ROI goes beyond just monetary measures to include less tangible returns. For higher education institutions, and academic libraries in particular, those returns include better faculty and student retention,

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higher visibility for the university, and student satisfaction.³ ACRL's 2010 *Value of Academic Libraries* report and subsequent Assessment in Action program identify many more non-monetary measures, such as student achievement (e.g., GPA), graduation rates, learning assessments, graduate/professional school acceptance, and faculty research productivity.⁴

With more traditional library services, library administrators have some idea of how to assess investment and return. Investment includes time and resources devoted to specific service points, such as library and information literacy instruction, collection development, and access to electronic resources. Improvement in student outcomes is the aspirational return: better retention rates, lower time to graduation, higher GPAs, and fewer withdrawals, incompletes, and failing grades.

How do we measure ROI in IRs and OA? Determining the investment cost is not too difficult: libraries invest budget dollars in staff time, server and storage space, subscriptions to IR vendor platforms, programming and training expenses, marketing services, and much more. Nonmonetary returns include the ambitious and inspirational goals of the OA movement as a whole—to advance human knowledge and improve lives. That return is somewhat challenging to measure, however.

Somewhat easier to count is the dissemination of scholarship (demonstrated by download counts), incorporation of published scholarship and research into new inquiry (citation counts), improved access to scholarship for new or underserved populations (analysis of readership by country or region), and better institutional reputation (improvement in college/university rankings).

Can we calculate a monetary return, as well? Maybe so. One option is to look at the scholarly journals that are published through our IRs. Unlike journals supported by commercial publishers, these journals typically do not assess article processing charges (APCs) to cover the costs of publishing Gold Open Access. IR-hosted journals potentially save authors (or the institutions that may be funding the APCs) thousands of dollars. That money never enters

the scholarly publishing ecosystem at all. A humanities journal published in my former university's repository published 66 articles in 2017. There is no doubt that APCs vary widely by discipline and publisher, which makes estimating a dollar value difficult. Using a mean APC charge of \$964⁵—the amount determined by a 2014 study of just DOAJ journals—results in more than \$63,000 in savings. The University of California Libraries' Pay it Forward project analysis⁶ incorporated many more information inputs to determine APCs, resulting in an estimate in the \$1,800 to \$2,000 range. That quickly doubles the savings calculation.

Faculty researchers typically obtain access to research articles published behind paywalls through the journal subscriptions provided by their institution's library. When a desired article is published in a journal to which the institution does not subscribe, the faculty member may opt to purchase immediate access to the article. (Scholars and readers unaffiliated with a university or research institution face this barrier all the time and lack the fallback option of interlibrary loan.) Again, these access purchase fees range widely and vary by publisher and journal.

I found a range from \$11.95 to \$44.00 per article from a sampling of journals from commercial publishers, including Wiley, Oxford Academic, Sage, Cambridge University Press, Taylor & Francis, JSTOR, and APA PsycNet. The journal published in the repository referenced above recorded 186,352 downloads in 2017. At even \$10 per article, publishing OA resulted in more than \$1.8 million of potential revenue for traditional commercial publishers that never entered the scholarly publishing ecosystem. Granted, that figure may seem artificially inflated. Had these articles been published behind a paywall, many readers would not have chosen to purchase access based upon reading the abstract alone. A more accurate estimate would be possible if publishers shared metrics, such as an industry or disciplinary average of the number of individual articles for which access is paid.

In the examples above, the monetary returns do not accrue to the host institution. The savings in APCs and single-article paid access are shared widely across institutions and individuals. Con-

sider what these savings—even for just one journal—represent: the huge financial impact that OA is making in the traditional commercial journal publication system. Even though my former university did not reap the monetary reward, the global audience for the scholarship and research articles published received a significant financial benefit.

If we look at faculty publications hosted in our IRs, the monetary ROI may be harder to assess. We can track downloads for the Green OA articles (pre- and post-prints) hosted in our repositories. Surely some of those downloads are in lieu of researchers buying access to a publisher's paywalled version of record. Maybe browser plugin tools such as Unpaywall and Open Access Button⁷ even facilitated the discovery of the Green OA versions. However, determining exactly which and how many downloads could or would have generated income for a commercial publisher would be an elusive goal.

Complicating matters is the cost of library staff resources devoted to harvesting content for IRs. Studies still show that most repository content is not ingested through faculty self-deposit but rather through deposit mediated by library staff.⁸ A calculation of just the direct costs of library staff salary and benefits would be relatively easy to make: the number of Green OA articles added to the repository per year divided by the total FTE salary/benefits dedicated to Green OA content ingest would equal the cost per article.

A fuller picture of the cost per article would include not just the personnel costs but also some percentage of technical and administrative costs. Repositories typically contain significant amounts of open scholarly content that does not fall under the category of Green OA. Were we to calculate the total ingest cost of all items in our IRs, the cost per item would be significantly lower. Some institutions might question their commitment to OA after examining the results of such a calculation, though I choose to remain optimistic. Direct and indirect costs have not and do not drive every decision made by library administrators. Academic libraries

have consciously chosen the path of OA by supporting institutional repositories.

Can we determine the ROI for other IR content that doesn't have a clear market value? This would certainly be of interest to institutions that do not publish or host OA journal content. The monetary ROI for publishing nonjournal content may be more elusive, but ROI still exists in the intangible benefits of all OA materials. Equitable access across the globe, wider dissemination of scholarship from our students and faculty, reuse and dissemination of digital cultural assets, and facilitating new discoveries all apply. Publishing student work helps them to build their online professional and scholarly identities. Rather than monetary impact, we can consider the impact revealed by altmetrics. Download counts, citations, social media interactions, adoption into course syllabi, patents, and web traffic analytics all reveal patterns of social and cultural impact.

I think we can make an argument that there is a measurable monetary value to our OA publications, which when considered in conjunction with the nonmonetary measurements of ROI adds weight to the argument in favor of OA publication. Is that added weight necessary when making the case for OA? I'm not so sure, since the usual rationales for supporting OA remain compelling on their own. It is difficult to argue against working toward just and equitable global access to research and knowledge. Research shared widely is more likely to have greater and more immediate impact. Discovery and innovation accelerate when paywalls and other barriers to access are eliminated. Nevertheless, if an administrator ever asks for an ROI—with a dollar sign attached—for the IR, at least I have a couple of ideas on which to base a monetary amount.

Notes

1. Stuart Lawson, "Public Libraries and Knowledge Politics." *Constellations of Knowledge: The Past, Present, and Future of Open Scholarly Communication*, edited by M. Eve & J. Gray, (forthcoming), <http://eprints.rclis.org/32361/>, accessed October 16, 2018.

2. "Return on Investment," Investopedia, accessed May 23, 2018, <https://www.>

investopedia.com/terms/t/returnoninvestment.asp.

3. Carol Tenopir, "Beyond Usage: Measuring Library Outcomes and Value," *Library Management*, 33, no. 1/2, 2011, pp. 5-13, <https://doi.org/10.1108/01435121211203275>.

4. "Value of Academic Libraries: A Comprehensive Research Review and Report," researched by Megan Oakleaf (Chicago: Association of College and Research Libraries, 2010).

5. Heather Morrison, Jihane Salhab, Alexis Calvé-Genest, and Tony Horava, "Open Access Article Processing Charges: DOAJ Survey May 2014," *Publications* 3, no. 1, 2015, pp. 1-16, <https://doi.org/10.3390/publications3010001>. The calculation of the mean figure of \$964 included the DOAJ journals that do not charge an APC. Morrison, et al. determined a mean dollar amount of \$1,221 when analyzing the DOAJ journals exclusive of the zero-charge DOAJ publications.

6. University of California Libraries, "Pay it Forward: Investigating a Sustainable Model of Open Access Article Processing Charges for Large North American Research Institutions (Final Report)" 2016, http://icis.ucdavis.edu/wp-content/uploads/2016/07/UC-Pay-It-Forward-Final-Report.rev_.7.18.16.pdf.

7. Unpaywall (<https://unpaywall.org/>) and Open Access Button (<https://openaccessbutton.org/>) both harvest content for their databases from multiple sources, including IRs. If your repository is not currently included in the Unpaywall data sources list, you can request indexing (<https://unpaywall.org/sources>).

8. Ruth Kitchin Tillman, "Where Are We Now? Survey on Rates of Faculty Self-Deposit in Institutional Repositories," *Journal of Librarianship and Scholarly Communication*, vol. 5, no. General Issue, 2017, doi:10.7710/2162-3309.2203. *??*

("We virtually brought our colleague to a library conference," continues from page 276)

table took turns talking to her on the tablet—even the server wanted to say hi. We went to visit vendors, and some even recognized her from a previous conference. She was also able to pick out items to fill up a tote of library swag. She helped sell raffle tickets at the conference scholarship auction, and she spoke with a graduate student about a possible internship at Mercer University.

With the exception of a few raised eyebrows, most of the attendees at the conference enjoyed what we were doing, loved engaging with our virtual friend, and thought it was a very creative way to bring along our colleague who had been left behind at the reference desk. Our Georgia librarians were supportive, enthusiastic, and inclusive—Open to All.

Attending conferences can be challenging when you still need to provide student services, and we see the need to offer more technological choices for prospective participants. While we were able to bring Bailey using our own resources, there were still limitations. If more options were made available for virtual conference attendance, we could have brought more

of our colleagues with us. Providing more choices, we believe, would expand the benefits of conference attendance to more librarians and create supportive network opportunities for those who are unable to physically take part in them.

Notes

1. "Making Your Case to Attend," ALA Annual Conference and Exhibition 2018, accessed October 29, 2018, <https://2018.alaannual.org/youll-be-more-valuable>.

2. Robert D. Vega and Ruth S. Connell, "Librarians' Attitudes Towards Conferences: A Study," *College & Research Libraries* 68, no. 6 (2007): 513, doi: 10.5860/crl.68.6.503.

3. "Open to All," Georgia Libraries Conference 2018, accessed October 8, 2018, <http://www.galibcon.org/>.

4. Michelle Deardorff, "Reconsidering the Scholarly Conference for the Contemporary Academic," *PS: Political Science & Politics* 48, no. 2 (2015): 316, doi: 10.1017/S1049096514002248.

5. Ibid. *??*