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# Evaluating the Consortia Purchase: Journal Usage in a Multi-Institution Setting

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## Abstract

When two or more institutions share a license, how do they measure use and value? For over a decade, the Levy Library at the Icahn School of Medicine at Mount Sinai, the Sid and Ruth Lapidus Library at the New York University School of Medicine, and New York University Libraries at New York University have shared several publisher packages and journal title subscriptions. In this paper, we present our analysis of usage data to assess the value of some of these consortial arrangements in their totality and to each library. Based on this analysis, we were able to adjust how each institution contributes to consortial arrangements. The paper will discuss challenges in analyzing consortial arrangements based on usage data and offer suggestions for how consortia-based acquisitions can be an effective allocation of library funds and strengthen support for the library in its institution.

Keywords: journal usage, statistics, assessment, big deal, journal package, consortia

## Introduction

New York University (NYU) has degree-granting campuses in New York, Abu Dhabi, and Shanghai and operates eleven global academic centers and research programs in more than twenty-five countries. Founded in 1831, NYU is one of the largest private non-profit institutions of American higher education and is a top fifty university according to *U.S. News and World Report*. New York University Libraries is a global organization dedicated to the open exchange of information by building, preserving, interpreting, and providing access to rich and diverse collections. At the time of this study, NYU reported a student body of over 45,000 students in undergraduate and graduate programs.<sup>1</sup>

The NYU School of Medicine is located on the campus of the NYU Langone Medical Center in midtown Manhattan and is part of the NYU

Langone Health Network (NYU Langone). In addition to the medical school, NYU Langone is comprised of five inpatient facilities: Tisch Hospital, Hospital of Joint Diseases, Rusk Rehabilitation, Hassenfeld Children's Hospital of New York, and the NYU Lutheran Medical Center. Established in 1841, the School of Medicine is a top twenty-five medical school according to *U.S. News and World Report*. NYU Langone has been recognized as one of the nation's premier academic medical centers.

Although the NYU School of Medicine is part of the greater New York University, the two academic institutions have separate governance structures for their operations including finance, human resources, information technology, sponsored programs, and libraries. Despite these separate structures both institutions promote transparency, communication, and collaboration.



The Sid and Ruth Lapidus Health Sciences Library (NYU HSL) supports the clinical, educational, and research mission of NYU Langone by managing knowledge-based resources, providing client-centered information services and education, and extending access through new initiatives in information technology. Like New York University Libraries, NYU HSL accomplishes its mission through a mix of electronic, virtual, and in person services.

The Icahn School of Medicine at Mount Sinai was founded as the school affiliated with the Mount Sinai Hospital of New York. This historically Jewish institution is, like NYU School of Medicine, a top twenty-five medical school according to the *U.S. News and World Report*. Mount Sinai is internationally acclaimed for its excellence in research, patient care, and education across a range of specialties. The Levy Library serves the Icahn School of Medicine and has traditionally supported the greater Mount Sinai community.

In 2013, Mount Sinai underwent substantial expansion, combining with the Continuum Hospital System – a network of five hospitals in Manhattan, Queens and Brooklyn. This merger added five hospitals and four hospital libraries to the Levy Library's area of responsibility. These libraries were primarily print journal focused and had very limited joint collection development. The result of this combination forced the Levy Library, NYU HSL, and New York University Libraries to address the complex factors determining how best to incorporate five additional sites into the joint “Big Deal” licenses going back many years and developed for a different set of institutions.

### Literature Review

Libraries have a long history of cooperation. From the Library of Congress' system of shared catalog cards in the early 1900s (which led to the publication of its Library of Congress Subject

Headings – the United States' first subject classification system) to formation of the Triangle Research Libraries in 1933, librarians have strongly believed in collaboration as a means to make more content available to their community of users.<sup>2</sup>

The rise of electronic content (eBooks, electronic journals, and databases) in the early 2000's led many scholarly publishers to offer libraries subscription models that included full collections of their titles. The “Big Deal”, a term coined by Kenneth Frazier, would have libraries sign multi-year contracts with a publisher in exchange for electronic access to all or most of that publisher's journals or books at a price based on a library's existing print subscription costs and a fixed annual price increase.<sup>3</sup> Since this time, the Big Deal has been a controversial topic for libraries with librarians juggling the benefits of additional content with the problem of commitments to expensive contracts. Criticism of the Big Deal started in Kenneth Frazier's 2001 article and continued.<sup>4</sup> A 2009 survey found that the main concern around library subscriptions to Big Deals was cost with loss of flexibility and professional discretion a close second.<sup>5</sup> A similar survey in 2009 of academic librarians in the United Kingdom on satisfaction with the Big Deal found that only fifty percent of librarians surveyed were still happy with their deals after three years had gone by.<sup>6</sup> A survey in 2012 of ARL member libraries found that the burden of negotiating Big Deal contracts was increasingly shifting to consortia partners and that many libraries still struggled with the cost of collections and inflexibility in package contents and pricing.<sup>7</sup> Over the last five years, the discourse around the Big Deal has shifted towards questions about the future, reflected in articles such as “Is the Big Deal Dying?”<sup>8</sup> “Smoking out the Big Deal: Getting What You Want Without Getting Stung,”<sup>9</sup> and “The Big Deal – Dead or Alive?”<sup>10</sup>



One issue with the Big Deal has always been assessment. Journal packages can contain hundreds of titles, and historically the pricing has often been based on print subscriptions that are then discounted in bulk. This pricing makes it difficult to calculate any simple metric such as cost per use (CPU). Bucknall and Bernhardt did a presentation in 2014 on the difficulties and advantages of applying CPU to Big Deal packages.<sup>11</sup> Other studies looked at the increase in usage before and after implementation of the Big Deal,<sup>12</sup> or divide journals into categories of no use, low use, mid use, high use and then evaluate costs for subscribing to only mid and high use titles versus the costs for the entire package.<sup>13</sup> Other libraries heavily factor the cost of interlibrary loan and document delivery when assessing Big Deals to be sure they have a sustainable budget balance between interlibrary loan and collections costs.<sup>14</sup> Because of the number of variables, the analysis quickly becomes difficult. These questions take on additional import when a library is faced with cancelling a Big Deal, as Mississippi State University found in 2012.<sup>15</sup>

### Historical Perspective on Consortium and the Big Deal

In 2000, NYU School of Medicine and the Icahn School of Medicine at Mount Sinai entered a partnership whereby students at Mount Sinai received their medical degrees from NYU. This affiliation continued until 2011 when the Icahn School of Medicine at Mount Sinai received independent accreditation. While the operations of the two medical centers remained separate during this period, the libraries (New York University Libraries, NYU HSL, and the Levy Library) used this affiliation to collaborate with one another to develop their collections of electronic content.

New York University Libraries actively pursued Big Deal contracts with many publishers across all content areas. For contracts with publishers

of Science, Technology, Engineering, and Medical (STEM) related content, New York University Libraries included NYU HSL and the Levy Library in the negotiations. These Big Deals would provide access to library users at all three institutions. Some contracts allowed each library the autonomy to add journal and book titles, responding to the needs of their specific user community. As a consortium, adding these Big Deals provided benefits for all three institutions as well as our publishing partners. For New York University Libraries, sharing costs on expensive STEM journals allowed them to support a much larger and more specialized collection than would otherwise have been possible. For the Levy Library and NYU HSL, cost sharing allowed each library to offer its community a wider array of essential medical content while also providing journals and books in related subject areas including engineering, computer science, business and the humanities. This also benefited the publishers, who were able to offer much larger deals and simplify invoicing and account management by combining the three institutions into one.

Managing a large collection is necessarily complicated, and our three libraries have intentionally chosen to continue to work together in a spirit of collaboration and cooperation. The libraries have held joint collection development meetings monthly for over fifteen years – an impressive feat given the diversity and complexities of these institutions – providing an opportunity to discuss new titles, clarify past purchases or subscriptions, and resolve any issues in technical services processes and coordination across the libraries and institutions. Cost sharing allocation and payment methods are mutually agreed upon, and they vary depending on the content considered. Handling of billing and payment varies from publisher to publisher, and by partners such as Westchester Academic Library Directors Organization (WALDO), and the



Center for Research Libraries' Northeast Research Libraries consortium (NERL).

The biggest challenge this group faced for consortia licensing over the past fifteen years is the continually changing makeup of the participating institutions. Besides the 2011 formal disaffiliation between NYU School of Medicine and the Icahn School of Medicine at Mount Sinai, NYU had added multiple sites and schools, including NYU Abu Dhabi, NYU Shanghai, and the acquisition of Polytechnic University (now the NYU Tandon School of Engineering). Although many of our major publishing partners were happy to continue the previous Big Deal contracts under a different framework, some were not, and required negotiating new, separate agreements. This led to price increases for all libraries.

### Measuring Value

The changes to each library require increased accountability. The current healthcare landscape placed the Levy Library and NYU HSL under increased scrutiny, with flat budgets and more responsibility for proving return on investment. Adding new hospital libraries, particularly those coming in with a substantial number of users but relatively lower budgets, created a significant issue for licensing: how to fairly apportion increasing collection costs across this growing pool of users, while working from existing cost share responsibilities. Faced with adding an additional thousand faculty members and five sites, our libraries started to ask if there was a way to get a good baseline of use by each library to facilitate productive decision making.

A baseline would make it possible to track the impact of adding new users and sites, allowing us to logically allocate increased costs based on increased use. Just as important from a library budget management perspective, it would allow the library a view of exactly what impact addi-

tional sites and patrons were having on use, putting us on a firm footing for vendor negotiations. This is a risky set of questions to ask without a strong collaborative base, however, as an analysis of usage by library might reveal that the decade-old cost shares were incorrect or unfair. This analysis could have shown that one library needed to pay significantly more, and could only have been attempted with a long history of trust and collaboration between libraries to ensure that any needed adjustments could be made gradually and without harming another participating library.

Publishers handle our joint accounts in different ways. Some have one single account, with all IP addresses and statistics combined. This makes management of the account very easy, but creates problems for assessment. Other publishers are able to break the account down into group or parent/child accounts, where IP ranges are associated with each library, thus statistics can be collected individually. This gives us significant advantages for statistics collection and allows for multiple link resolvers and individual branding, but makes it difficult to manage changing IPs and to troubleshoot access issues. We have found the third option, having separate administrative accounts under one license, too often prompts publishers to try to separate the license as well as the administrative account.

In many ways, for assessment purposes the three libraries act as a small consortium. Accounts and statistics are sometimes considered together and sometimes separately; the three institutions negotiate licenses together; some publishers bill each library directly while others send one large invoice to NYU for internal payment division. NYU, NYU HSL and Mount Sinai also participate in larger consortia including WALDO and NERL. When we approached this statistics analysis, we found that some of our assessment challenges were similar to those of small consortia or for other large, multi-library institutions.



Assessment for consortia journal Big Deals adds an additional wrinkle. As early as 2003, libraries were appreciative of the role consortia play in negotiating and managing Big Deals, but apprehensive about yet another level of commitment to journal packages.<sup>16</sup> The Carolina Consortium was actually founded specifically to negotiate and lower pricing for the participating libraries in 2005 after journal prices increased with access to electronic content.<sup>17</sup> Most of the literature on consortia and journal pricing, however, deals with the impact on pricing across the industry<sup>18</sup> or focuses on consortia at the regional or national level.<sup>19</sup> Beth Ashmore and Jill E. Grogg wrote an excellent summary of the advantages and issues of working with consortia for libraries, but the question of assessment of resources still falls to the individual library.<sup>20</sup> Of the large consortia who do provide journal package assessment, many are designed for a very large scale process and analysis, much larger than we found necessary at this time.<sup>21</sup> The California Digital Library developed a process for assigning a score for journal assessment, but again, this tool seemed too complex for the question at hand.<sup>22</sup>

### Hypothesis

Given that only a few publishers have the technical ability to provide statistics by library or separate accounts into parent/child, we determined to find a way to extrapolate usage for similar publishers. We hypothesized that each library's usage is consistent across similar title lists. If this hypothesis holds true, we would be able to estimate the percentage of usage for packages at each institution even for publishers not able to break out usage. This would also give some basic numbers to assess whether the payment shares established years ago are still valid when tracking overall use, and provide information to use when determining new payment shares or information.

We further hypothesized that individual journal usage for major medical journals would not be split evenly between the three libraries, but would be concentrated at the medical schools with less use at the NYU main campus. Payment for some major medical journals, including the *Journal of the American Medical Association* and the *New England Journal of Medicine*, has traditionally included access for New York University but the cost has been split evenly between the two medical schools. We hypothesized that this cost share remained fair, with only mild impact from the addition of the Mount Sinai Health System additional users and sites. Another way to test this was to break out a few major medical and scientific titles included in Big Deal packages and analyze the use for these titles individually.

### Analysis

Our cross-institutional cost-sharing practices rely on rather gross division—for the most part we share in even percentages and often in quarters, halves, and thirds. Because of this, we realized that we (at least initially) were not aiming for a detailed mathematical analysis of our payments versus usage across packages but rather for a heuristic to check if our sharing was essentially fair. Because some publishers offered our usage statistics broken out by library—Elsevier was our model publisher here—and others were either not technically capable of such a breakout or were unaware of the utility of such a breakout—Wiley being the model here—we sought to develop individual usage profiles from the former and see if they could be applied against the latter. We could then compare this usage (or extrapolated usage) to our cost-sharing schemes and look for indications that our shares should be recalculated. It's crucial to note that no single library had called for this analysis or suspected our payments weren't equitable. This reinforced our thinking that a crude analysis would meet our needs.



## Anderson, Maher, &amp; Maltarich: Evaluating the Consortia Purchase

Because Elsevier's package represents one of our largest journal commitments in terms of cost, title count, and usage, and because their usage statistics could be broken out by library, we began with their reports from the previous year to establish individual use profiles. We exported all journal usage and all journals by subject category and combined these lists using Tableau.<sup>23</sup> We analyzed these results in the aggregate, looking at subjects by total consortial usage. We also looked at library usage by subject. Our goal was to understand each of our share of usage overall in order to compare that ratio with our payment ratios. But we also wanted to look at each share of subject usage in order to develop the use profiles mentioned above. These profiles are a combination of a narrative about each library's usage and the actual share of usage by library and subject. We were especially interested in results that did not fit our preconceived notions of our users' information needs or behavior. Unsurprisingly, much of what we found confirmed existing models – medical schools do indeed use medical journals heavily! But we also found some surprises. Other results were more surprising, especially when we looked at subject clusters based on our cost-sharing categories.

Our libraries often base shares on a division between Humanities and Social Sciences – carried by New York University Libraries – and STM titles – shared among NYU HSL, the Levy Library, and New York University Libraries). When we looked at Elsevier usage for subjects we consider for sharing at the medical libraries<sup>24</sup> we found NYU HSL usage to be highest at 36%, the Levy Library surprisingly ranked third at a lower than expected 28%, and New York University Libraries usage to be at 35% (Fig 1). The highest usage subject in this category was Medicine and Dentistry, where by institution NYU HSL represented 39% of usage, the Levy Library 34%, and New York University Libraries 27%. (See Figure 1.)

Looking at the content not in this shared STM category, we found New York University Libraries usage at 71%, NYU HSL usage at 26%, and the Levy Library usage at 3%. (See Figure 2.) The four most heavily used subjects within this category were Chemical Engineering, Earth and Planetary Science, Energy, and (unfortunately) No Subject. Looking only at those subjects, we found New York University Libraries usage at 60%, NYU HSL usage at 35%, and the Levy Library usage at 4%. There was only one subject area where NYU HSL did not account for at least 10% of usage – Business, Management, and Accounting – and they accounted for 13% of our Arts and Humanities usage and a confusing 47% of our usage in the field of Energy.<sup>25</sup> The Levy Library usage in these fields hovered around 1% of total usage except in the fields of Computer Science (4%), Arts and Humanities and Psychology (3% each), and Engineering and Materials Science (2% each). We took this information into our process of evaluating our cost sharing model.

Our Elsevier cost sharing has been stable at 50% for New York University Libraries and 25% for the Levy Library and NYU HSL for many years.<sup>26</sup> If we look at overall usage, New York University Libraries accounts for 46% of usage, NYU HSL for 33%, and the Levy Library for 21% in 2015. It would appear that this discrepancy is accounted for by NYU HSL usage of non-STM content. In addition to being based on traditional spend on print journals, our shares are based on the assumption that STM content should be shared in even thirds and non-STM content paid for by New York University Libraries alone. The analysis above showed the first assumption to be roughly true but the second to be incorrect. Although we had not adjusted payment shares of this package based on this information, we have used it to create the institutional use profiles we employed to analyze cost sharing at another publisher.



## Anderson, Maher, &amp; Maltarich: Evaluating the Consortia Purchase

Our shared Wiley journal package is similar to the Elsevier package in that it's among our largest and most expensive packages. Unlike Elsevier, however, our Wiley usage is not broken out by IP, at least not by default. We originally looked at our Wiley statistics in the aggregate, paying particular attention to usage by subject. In general, we found that 60% of the usage was in non-STM subjects and 40% was in STM subjects. Medicine and Health Sciences accounted for 20% of our usage.

Our traditional cost sharing formula for Wiley titles is a bit more complicated than for Elsevier, for the most part because when Wiley acquired Blackwell the makeup of this package changed fundamentally. Where we had shared the Wiley content with 60% paid at New York University Libraries, 20% paid at NYU HSL, 20% paid at the Levy Library, we recalculated ratios after the Blackwell merger. Our current share is 50% paid at New York University Libraries, 22% at the Levy Library, and 22% at NYU HSL, with the remainder paid by some other NYU libraries. We noted that given the evidence from our Elsevier package things looked approximately on target. Each libraries' usage of the STM content would be estimated as follows: NYU HSL, 36% of 40% or 14%, New York University Libraries at approximately the same number and the Levy Library at 12%. Of the non-STM content our model predicted New York University Libraries usage at 43%, NYU HSL usage at 16%, and the Levy Library at about 1%. Totaled this would make the share 30% NYU HSL, 13% the Levy Library, and New York University Libraries at 57%. We noted the biggest discrepancy was with the Levy Library payment as compared to usage. New York University Libraries and NYU HSL determined they were satisfied with the current arrangement.

Interestingly, after our analysis we received a usage breakout from the publisher based on IP and hence could look at usage by library exactly. (See Figure 4.) Those statistics showed that New

York University Libraries accounted for 49% of our usage, NYU HSL for 28%, and the Levy Library for 23%, coming much closer to our current payment share. (See Figure 3.) In light of this new evidence, we again determined not to change our present arrangement.

In part these two analyses showed some usage of surprising content at the medical libraries in our consortium and made all parties realize that New York University Libraries' policy of licensing e-resources, initially made in part for workflow reasons, might have larger benefits to our other libraries and professional schools than we had thought. We also had reason now to wonder about NYU's usage of medical content.

During our initial cost sharing activities, we had hypothesized that medical titles, even major ones, would be used primarily at the two medical libraries and not under the New York University Libraries—now we weren't so certain. To test this hypothesis, we chose three major STEM journals included in the Elsevier package for particular analysis. *Lancet*, *Neuron*, and *Cell* are all very important journals, in high demand across all institutions, but publishing some very specialized content. We pulled the usage for these three titles by library from 2013-2015 to examine the data. We found that over the three-year period, New York University Libraries and NYU HSL accounted for about two-thirds of usage and the Levy Library accounted for the other third. These titles are presently shared in even thirds so, once again, our cost sharing scheme is roughly appropriate. The question remains, however, what of the medical journals to which only NYU HSL not New York University Libraries contributes and which are shared evenly between NYU HSL and the Levy Library.

Although further and more in depth analysis was clearly possible, we realized that in our case and for our libraries a cursory sampling of publisher journal packages showed that traditional





shares based primarily on historical print subscriptions and secondarily on use profiles by institution roughly justified cost sharing that was comfortable and perceived as fair. If either of these factors changes, we have at our disposal a model for further analysis and changing cost sharing, but only if one important assumption in the above analysis is made explicit and agreed to. It is not a given that usage is the measure of value for these packages – or for any resources – and employing usage as a measure of value is perhaps the grossest tool used in our quick checking process.<sup>27</sup>

### Issues and Problems

Our approach to licensing via consortia has changed over time. What was once accepted as an intrinsic good has come under increased scrutiny for its financial benefit. For the Levy Library, questions about budget and cost/benefit became extremely important while attempting to expand licenses to cover all of Mount Sinai. For New York University Libraries, licensing remains the benefit of sharing resources but as the university and NYU Langone expands licensing becomes more complex. Each library has a different perspective, and different budget and documentation requirements. In turn, our analysis of usage statistics has different outcomes; could the usage statistics demonstrate the benefits of licensing as a consortium and demonstrate financial benefit to each institution?

In analyzing the usage statistics as a consortium, each library also needs to present its own use cases to library leadership and the institution's administration. These use cases must show the value added in maintaining consortia licenses during budget discussions. The use cases may be applied to negotiations with publishers to demonstrate the value for continuing these licenses in the absence of a formal institutional connection. They may also support negotiations with publishers should they no longer recognize the consortia and each library must have its own

license. Closer scrutiny both internally from the libraries and externally from the publishers makes demonstrating and defending the benefit of consortia licensing more complex. This scrutiny also challenges the effectiveness of usage statistics to answer the questions from these disparate entities. Our analysis and discussions kept bringing us back to a fundamental question: What is use? We are looking at an extremely limited subsection of use in this paper. All analysis is based only on COUNTER JR1 statistics. Leaving aside issues of the accuracy of COUNTER statistics, we looked only at downloads. This analysis makes no provision for use or sharing after downloads, no incorporation of other metrics of use such as citations, and no attempt to incorporate altmetrics. It is an extremely narrow perspective on large questions of utility and use within libraries.

An analysis that would be extremely useful would be to look at publishers with more humanities and a broader selection of subjects. Given the unexpectedly high levels of humanities usage from the medical schools and the high levels of medical content used by NYU, it would be useful to have a sense of how much usage humanities content gets from publishers who are not primarily STEM. Some possible publishers would include Oxford and Sage. However, because of the account setup and overlapping subscriptions the data would be extremely difficult to obtain and validate. This potential analysis has significant implications for the percentage of subscription costs medical schools within an institution should bear when discussing non-medical content.

Another issue we faced is the difficulty of getting statistics. It's unclear as yet whether the benefit of consortia statistics outweighs the difficulty of setting up and managing three accounts for each library. Even if individual accounts and statistics are more desirable, many major publishers do not have the technical ability to set up



linked accounts or even to generate usage reports by IP range. It took months of requests to get a report of usage by IP, and the publisher warned us specifically that this report was far too labor intensive to be generated for multiple libraries or on any sort of regular basis. This data is important and valuable, and it is useful to request and push publishers to be able to provide it, but even the IP access report was difficult to work with and required compiling lists of IP ranges going back several years.

The quickly changing environment presents another problem. Lots of local context is required to know, for example, that in 2015 we were able to separate out usage from the

Levy Library for the AMA journals but that was the year our package deal ended for the *New England Journal of Medicine* subscription. In order to incorporate this type of analysis into the process for ongoing subscription renewals and license shares, we would need to be more systematic about collecting and analyzing data and convinced that our analysis is not showing simple statistical flukes. The more analysis the stronger the conclusions we could draw, and the more useful that would be for license negotiations and determining payment shares.

## Conclusions

Cost sharing arrangements for journal packages show clear financial benefits and expand by their very nature the breadth of journal holdings at each of our libraries. Because we approached an analysis of financial contributions and journal usage by institution as a way to confirm the validity of a cost sharing arrangement we all found satisfactory, we had a good deal of leeway in our evaluation of the results. We found no evidence that any of our institutions OUGHT to be dissatisfied and were therefore able to maintain the status quo while gaining a richer understanding of how exactly our local usage of electronic journals differs, overlaps, and relates.

Our satisfaction was based for the most part on a rough correlation of cost contributions to shares of usage. Importantly, though, the long-standing practice at New York University Libraries of licensing electronic resources NYU-wide (including NYU HSL), even for resources with limited relevance to some of our sites, means that NYU HSL and the Levy Library are free riders for a large number of resources that may be of some interest to some of their researchers sometimes. The awareness of this extra coverage provides a rationale for the Levy Library and NYU HSL to approach small discrepancies between shares and usage tolerantly, especially now in light of our findings regarding surprising pockets of usage outside the medical subjects at both libraries.

In approaching this project, however, we were prepared to adjust our cost sharing and had a few possible models in mind. We rejected the simplest models of reassigning costs. First, although we could adjust on a per package basis based on the percentage of usage per institution, we quickly dismissed this option; adjusting percentages for a single package affects the available budget for other packages so a large discrepancy in a large package would still call for a closer analysis of our shared subscriptions as a whole, including subscriptions paid solely by New York University Libraries but likely to be used by the medical partners. A second thought was that the discovery that we should readjust our payment models should take into account the importance in the current payment scheme of historical subscriptions. Most of our package costs are, as we stated above, based on print subscriptions held across New York University Libraries at the time we began our e-journal subscriptions. Recognition of this pricing factor would mean that it would make sense to study the change in each package on a title level taking into consideration the subscriptions we held in the past. This model, too, seems untenable, how-



ever, given both the consolidation in the publishing industry and the resulting changes in publisher title lists but also given that we used our licensed right to swap duplicate subscriptions for new subscriptions and expand our content.

In the end, a rethinking of our cost sharing would require much more than reshuffling current expenses. Because savings at one partner represents new burdens at the others, a true redistribution of payments would likely need to be coupled with cancellations and re-shaping packages – moving toward smaller collections to save money or looking for decreased cost per title by expanding package coverage. Doubtless, though, the analysis of current packages will inform our sharing arrangements going forward. Libraries will likely contribute to packages that might otherwise have been considered outside of their scope. It is also possible that minor discrepancies in current cost sharing could be rectified by adjusting new shares.<sup>28</sup>

Our future analyses will also seek to:

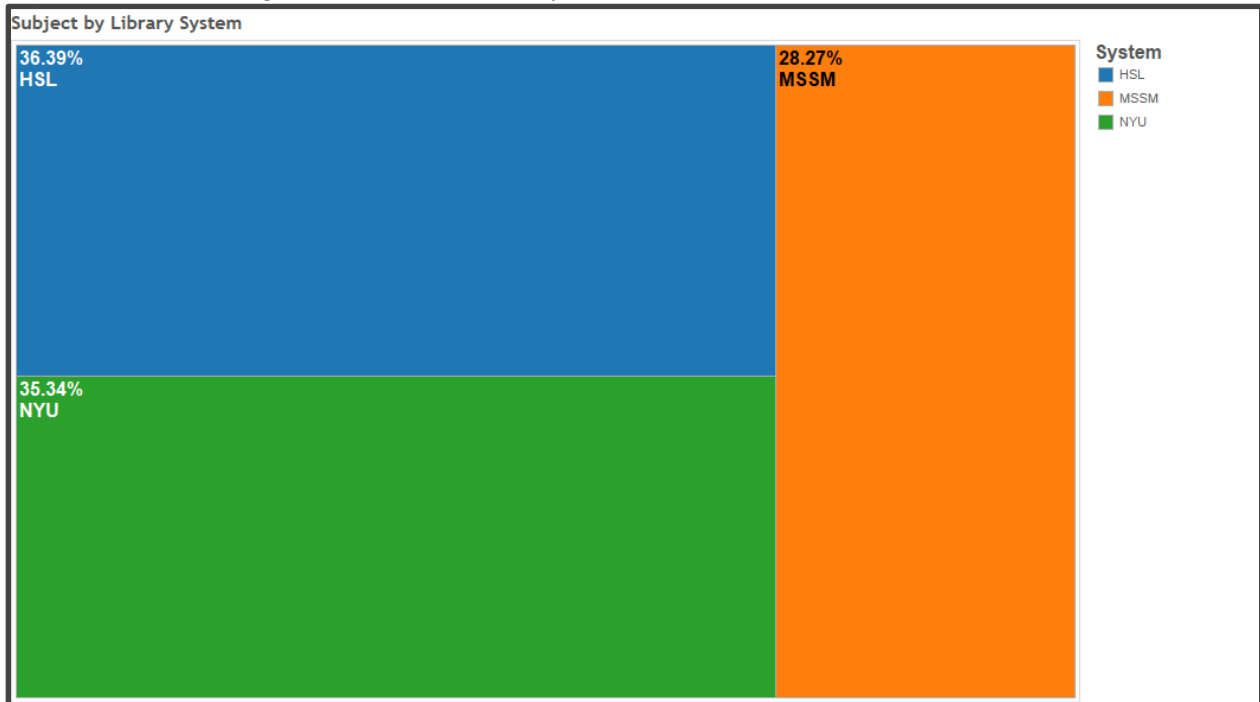
- *Identify content unique to particular libraries or to the medical libraries.* Sharing packages is most effective when the overlap in usage is low. Being able to predict or identify content

with low overlap will help each library maximize value.

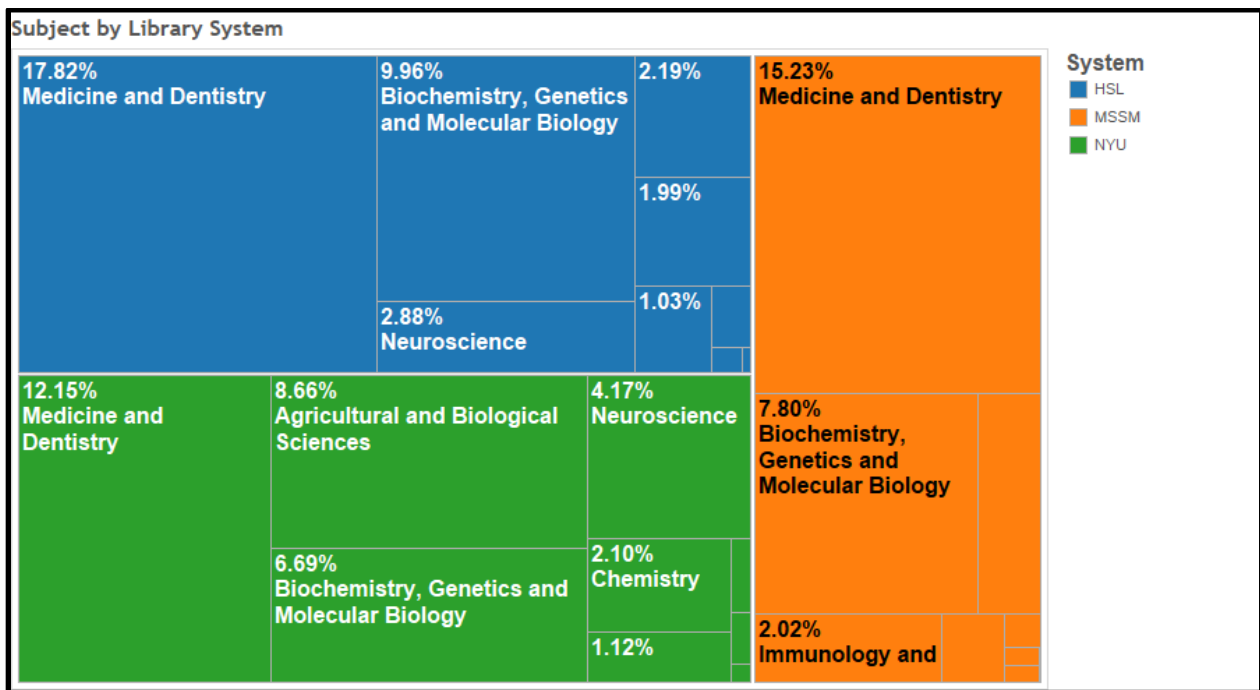
- *Analyze usage data as it relates to each respective institution's data about its users.* Understanding journal usage in the context of an academic department's scholarly output invites a discussion on the difference between what is usage and what is useful. Through this discussion we intend to learn more about how our user communities seek information and the motivations behind those decisions. A part of this process will be to look not at usage data but at the choice of publishing venue. Those statistics, too, help to set the value of a subscription.

Nonetheless, as an initial analysis, we found this project to be very useful in providing knowledge about our consortia arrangement and collection sharing we had long suspected, but not been able to confirm. Now that we have a baseline to work from, we will expand the analysis to other publishers, confirm and adjust the model, see what information we can bring to future negotiations, justify our budgets within each library, and demonstrate the value of cooperation.

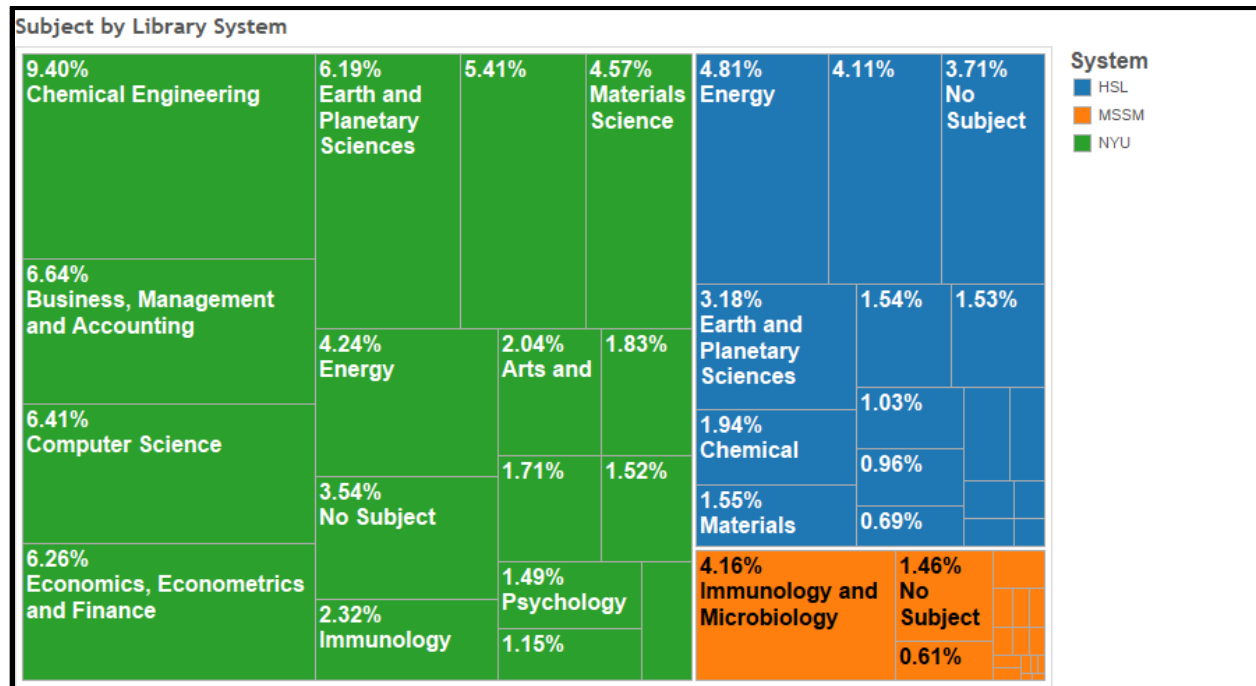
**Figure 1.** Elsevier usage of shared STM titles by NYU Libraries.



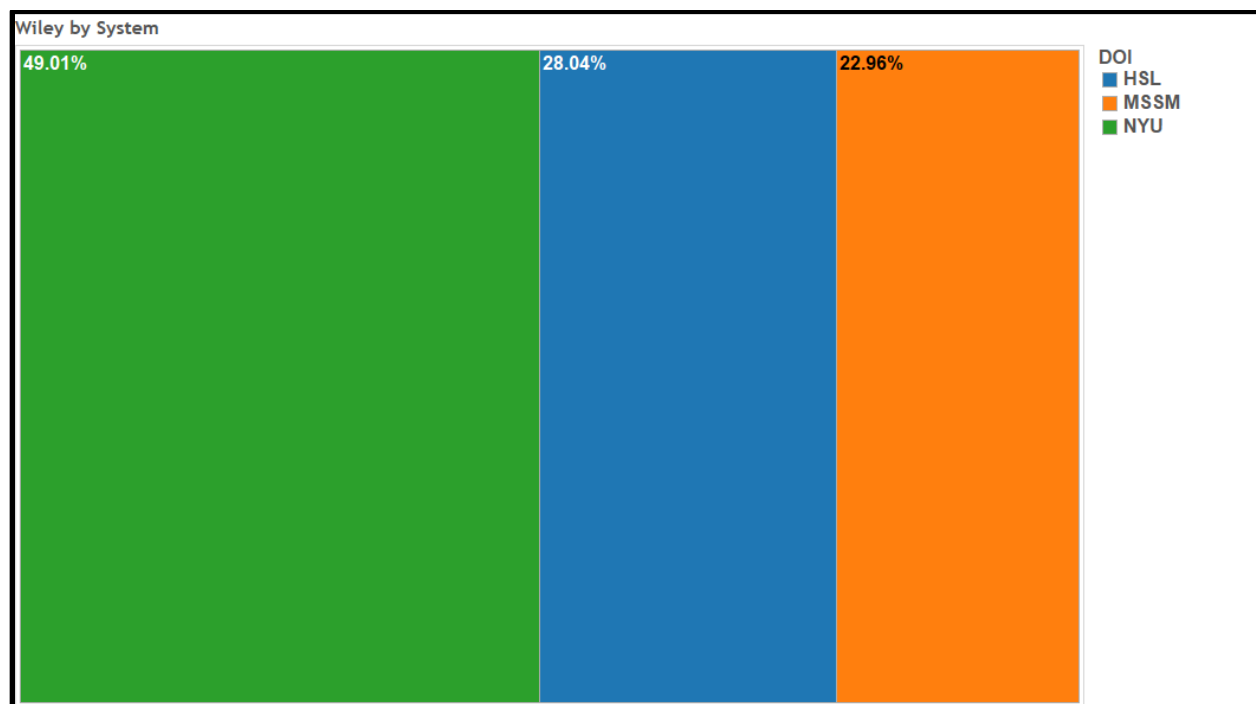
**Figure 2.** Usage by system for Agricultural and Biological Sciences; Biochemistry; Genetics and Microbiology; Chemistry; Immunology and Microbiology; Medicine and Dentistry; Neuroscience; Nursing and Health Professions; Pharmacology, Toxicology and Pharmaceutical Science; and Veterinary Science and Veterinary Medicine.



**Figure 3.** Usage by system for Arts and Humanities; Business and Management; Chemical Engineering; Computer Science; Decision Sciences; Earth and Planetary Sciences; Economics; Energy; Engineering; Environmental Science; Materials Science; Mathematics; No Subject; Physics and Astronomy; Psychology and Social Sciences.



**Figure 4.** Usage breakout from Wiley, by library, based on IP addresses.



<sup>1</sup> "Licensing Electronic Resources in the Global Environment" with Angela Carreno. in *The Future of U.S. Libraries Abroad: Creating Vision and Strategy for Building International Campus Libraries*. Editors, Raymond Pun and Scott Collard. Chicago: ACRL, 2016.

<sup>2</sup> Sharon L. Bostick, Managing technology, edited by Robert E. Dugan: The history and development of academic library consortia in the United States: an overview, *The Journal of Academic Librarianship* 27, Issue 2 (March 2001): 128-130, ISSN 0099-1333, [http://dx.doi.org/10.1016/S0099-1333\(00\)00185-3](http://dx.doi.org/10.1016/S0099-1333(00)00185-3).

<sup>3</sup> Kenneth Frazier, "The Librarian's Dilemma: Contemplating the Costs of the 'Big Deal'," *DLibMagazine* 7, no. 3 (March 2001), [www.dlib.org/dlib/march01/frazier/03frazier.html](http://www.dlib.org/dlib/march01/frazier/03frazier.html).

<sup>4</sup> Ibid; David Ball, "What's the 'big deal,' and why is it a bad deal for universities?" *Interlending & Document Supply* 32, no. 2 (2004): 117-125. doi:10.1108/02641610410538586.

<sup>5</sup> Amy Carlson and Barbara M. Pope, "The 'Big Deal': A Survey of How Libraries Are Responding and What the Alternatives Are," *The Serials Librarian* 57, no. 4 (2009):380-398, <http://www.tandfonline.com/doi/abs/10.1080/03615260903206861>.

<sup>6</sup>Jill Taylor-Roe, "To every thing there is a season': reflections on the sustainability of the 'big deal' in the current economic climate." *Serials* 22, no. 2 (July 2009): 113-121.

<sup>7</sup> Karla Strieb and Julia C. Blixrud, "Unwrapping the Bundle: An Examination of Research Libraries and the 'Big Deal'." *Portal: Libraries & the Academy* 14, no. 4 (October 2014): 587-615.

<sup>8</sup> Robert W. Boissy, et al., "Is the 'Big Deal' Dying?" *Serials Review* 38, (2012): 36-45, <http://www.tandfonline.com/doi/abs/10.1080/00987913.2012.10765417>.

<sup>9</sup> Donna Wolfe, Narda Tafuri, Noella Owen, Rebecca Day, and Marcella Leshner, "Smoking Out the Big Deal: Getting What You Want Without Getting Stung." *Part of the Special Issue, NASIG 2008: Taking the Sting out of Serials!* 56, no. 1-4 (June 1, 2009): 116-21.

<sup>10</sup>"The Big Deal—Dead or Alive?" *Technicalities* 34, no. 2 (April 3, 2014): 1-10.

<sup>11</sup> Tim Bucknall and Beth Bernhardt, "Using Cost Per Use to Assess Big Deals," *Serials Review* 40, no. 3 (September 2014): 194-96.

<sup>12</sup> Cecilia Botero, Steven Carrico, and Michele R. Tennant, "Using Comparative Online Journal Usage Studies to Assess the Big Deal." *Library Resources & Technical Services* 52, no. 2 (April 2008): 61-68.

<sup>13</sup> Sarah Glasser, "Judging Big Deals: Challenges, Outcomes, and Advice," *Journal of Electronic Resources Librarianship* 25, no. 4 (October 2013): 263-76.

<sup>14</sup> Wayne Pedersen, Janet Arcand, and Mark Forbis, "The Big Deal, Interlibrary Loan, and Building the User-Centered Journal Collection: A Case Study," *Serials Review* 40, no. 4 (December 2014): 242-50.

<sup>15</sup> Mary Ann Jones, Derek Marshall, and Sharon A. Purtee, "'Big Deal' Deconstruction," *Serials Librarian* 64, no. 1-4 (January 2013): 137-40.

<sup>16</sup> Mark Rowse, "The Consortium Site License: Is It a Sustainable Model?" *Health Information and Libraries Journal* 20, no. 2 (June 2003): 104-7.

<sup>17</sup> Tim Bucknall, "Are Consortium 'Big Deals' Cost Effective? A Comparison and Analysis of E-Journal Access Mechanisms—Workshop Report," *Serials Librarian* 55, no. 3 (October 2008): 469-77.

<sup>18</sup> George Machovec, "Consortia and the Future of the Big Deal Journal Packages," *Journal of Library Administration* 54, no. 7 (October 2014): 629-36.

<sup>19</sup> Chunrong Luo, Jingfen Wang, and Zhou Zhinong, "Regional Consortia for E-Resources: A Case Study of Deals in the South China Region," *Program* 44, no. 4 (2010): 328-41. doi:10.1108/00330331011083220.

<sup>20</sup> Beth Ashmore, and Jill E. Grogg, "The Art of the Deal," *Searcher* 17, no. 3 (March 2009): 40-47, 54.

<sup>21</sup> Eva Jurczyk, and Pamela Jacobs, "What's the Big Deal? Collection Evaluation at the National Level," *Portal: Libraries and the Academy* 14, no. 4 (October 2014): 617-31.



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<sup>22</sup> Jacqueline Wilson, "Journal Value Metrics Assessment," California Digital Library, last modified March 30, 2010, [www.cdlib.org/cdlinfo/2010/03/30/journal-value-metricsassessment/](http://www.cdlib.org/cdlinfo/2010/03/30/journal-value-metricsassessment/).

Jacqueline Wilson and Chan Li, "Calculating Scholarly Journal Value Through Objective Metrics," California Digital Library, last modified February 13, 2012, <http://www.cdlib.org/cdlinfo/2012/02/13/calculating-scholarly-journal-value-through-objective-metrics/>.

<sup>23</sup> More on the utility of Tableau within libraries and specifically as applied to assessment can be found in Buhler, Lewellen, and Murphy's slides from their presentation Tableau Unleashed: Visualizing Library Data at the Library Assessment Conference in 2014, available at <http://libraryassessment.org/bm~doc/7murphypanelrev.pdf>

<sup>24</sup> Those subjects at Elsevier are Agricultural and Biological Sciences, Biochemistry, Genetics and Microbiology; Chemistry; Immunology and Mi-

crobiology; Medicine and Dentistry; Neuroscience; Nursing and Health Professions; Pharmacology, Toxicology and Pharmaceutical Science; and Veterinary Science and Veterinary Medicine.

<sup>25</sup> This, in fact, remains a mystery we continue to investigate.

<sup>26</sup> Technically this share takes place after payments by our Courant Institute – this may be relevant given the Levy Library usage of Computer Science. The subject areas Computer Science and Mathematics (only some of those titles are paid for by Courant) consist of 4% Levy Library usage and 21% HSL usage.

<sup>27</sup> See A. Rathemacher, "E-journal Usage Statistics in Collection Management Decisions: A Literature Review," in *Library Data: Empowering Practice and Persuasion*, Edited by: Orcutt, D. (2010): 71–90. Santa Barbara, CA: Libraries Unlimited.

<sup>28</sup> The authors caution that this would make it even more difficult to understand the cost sharing arrangements of each package individually.

