Chapter 2

Standards, Tools, and Other Products

Abstract

Standards, tools, and other products have emerged to assist librarians and researchers in their efforts to measure electronic resource use. This section briefly outlines vendor products available on the market as well as standards and projects that seek to improve protocols for the transfer and management of usage statistics.

With the explosion of digital resources over the past two decades, standards, tools, and other products have emerged to normalize statistics and improve protocols for transfer and management of such data. Some of these initiatives and products emerged as librarians and content providers alike worked together to paint a more accurate picture of use and usage, even if only at the most basic level. It was not so long ago that reasonably common definitions for actions such as a "session" or a "download" did not exist. Inconsistencies such as these made comparing the usage statistics available from one vendor against the statistics available from another akin to comparing apples and oranges—meaningful cross-comparison was not possible. Item elements, such as session, search, and download, were inconsistent from vendor to vendor and delivered to the librarian in any number of ways in any number of formats.

In addition to the inconsistencies in definition, delivery method, and format, at issue is the amount of time it takes for librarians to collect, collate, and archive usage statistics, particularly for libraries with large digital collections. Initially, some libraries chose to create homegrown solutions to address this issue, and later, commercial vendors emerged with products such as Scholarly Stats, Serials Solutions' 360 Counter, and modules within integrated library systems (ILS). The addition of a module to an ILS a third-party product that is interoperable with an ILS with an ILS is particularly appealing because the librarian can then merge the ILS cost data with the use data to produce another valuable metric: cost-per-use.

This chapter will be a broad introduction to the types of available standards, tools, and products. It is impossible to delve too deeply into the specifics of the standards and protocols as well as compare and contrast the effectiveness of each commercial or homegrown product. For greater analysis and technical information, visit the sites and articles in the end of chapter notes.

Project COUNTER

In 2002, in response to the messy situation usage statistics had created, there arose an international, nonprofit organization dedicated to facilitating "consistent, credible, and comparable" usage data:[1] Counting Online Usage of Networked Electronic Resources, or Project COUNTER (figure 4). COUNTER released the first code of practice in 2003. It counts among its members many major consortia, libraries, and most major publishers and content providers. This first code of practice focused on journals and databases and included definitions for variables such as full-text article, turnaways, searches, and sessions. It also specified the acceptable formats and delivery methods for usage statistics. The code blazed the trail for the inclusion of language to insist on COUNTER-compliant data in electronic resource licenses and codified what it meant to be "COUNTER-compliant."

By no means has COUNTER rested on its laurels since the first code of practice, however. Release 2 of the COUNTER code of Practice for Journals and Databases was published April 2005. These first two releases have

been superseded by the Release 3 of the COUNTER Code of Practice for Journals and Databases published in August 2008. COUNTER is not exclusive to journals and databases. The board of directors, executive committee, project director, and international advisory board continually explore ways to facilitate the collection of "consistent, credible, and comparable" usage statistics. Moving beyond journal and database content, COUNTER responded with the Release 1 of the COUNTER Code of Practice for Books and Reference Works, published in March 2006. As of 2007, a vendor must pass a COUNTER audit in order to claim COUNTER compliancy, and in January 2008, COUNTER also released reports for library consortia. The COUNTER website has the complete codes of practice as well as detailed information about what a vendor must do to pass a COUNTER audit. Finally, COUNTER was involved in a joint study with the United Kingdom Serials Group (UKSG) about how usage statistics could contribute to the constitution of a new way of measuring journal quality, the Journal Usage Factor. The final report was released in 2007.[2]

Project COUNTER
www.projectcounter.org

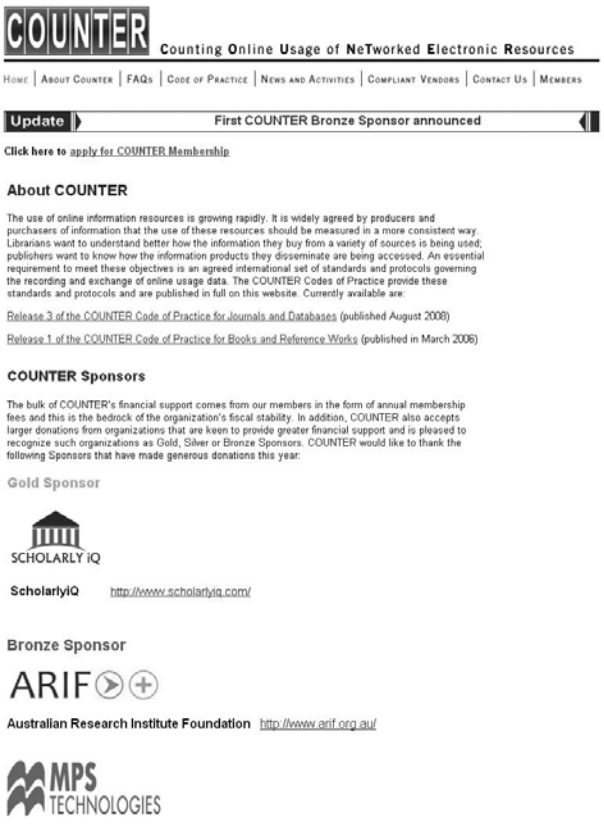

Figure 4
Screenshot of Project COUNTER, www.projectcounter.org.

PIRUS 2

Just as COUNTER moved beyond the database and journal levels to books, it is now involved in initiatives such as PIRUS 2 (figure 5) that seek to facilitate the sharing and collection of usage statistics at a more granular level. As the press release announcing the project explains, "PIRUS 2 builds on the standards already established by COUNTER and on the results of the original PIRUS (Publisher and Institutional Repository Usage Statistics) project, which demonstrated that it is *technically* feasible to create record and consolidate usage statistics for individual articles using data from repositories and publishers, despite the diversity of organizational and technical environments in which they operate."[3] PIRUS 1 and 2 are sponsored by the United Kingdom Joint Information Systems Committee (JISC). PIRUS 2 has as its objectives to "develop a set of standards, protocols and processes to enable publishers, repositories and other organizations to generate and share authoritative, trustworthy usage statistics for the individual articles and other items that they host."[4] The digitization of scholarship has fundamentally changed the way in which scholars interact with the research they produce and read—the designation of a "journal" or a "book" may eventually be less meaningful than the article or the chapter. Thus, as increased interest is focused on smaller portions of more traditional containers, it behooves the library and publisher community to develop consistent ways to capture and share usage statistics at more and more granular levels.

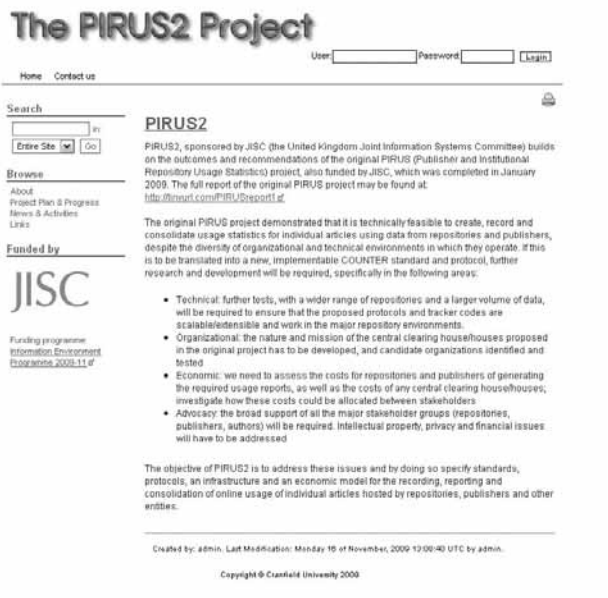

Figure 5
Screenshot of the PIRUS2 Project, www.cranfieldlibrary.cranfield.ac.uk/pirus2/tiki-index.php.

As Peter Shepherd, project director of Project COUNTER, detailed in a presentation given at the International Coalition of Library Consortia 2009 fall meeting, PIRUS 1 was led by COUNTER and was completed in January 2009. PIRUS 2 is slated to run from October 2009 to December 2010 and is led by Mimas and Cranfield University with project team members also including COUNTER, CrossRef, and Oxford University Press.[5] CrossRef is an important member of the team as it represents a large portion of the publisher community. It is the largest registration agency for Digital Object Identifiers (DOIs) and continues to be a leader in the maintenance and development of technology that allows interlinking of all types of scholarship via the DOI and OpenURL.

Shepherd also explained in his presentation two reasons why the collection and sharing of article-level usage data is now more practical. First, "Implementation by COUNTER of XML-based usage reports makes more granular reporting of usage a practical proposition." And second, "Implementation by COUNTER of the SUSHI protocol facilitates the automated consolidation of usage data from different sources."[6] SUSHI will be explained further in the next section. Also of note is the use of the OpenURL in the original PIRUS 1 report; the OpenURL is an elegant framework that is extensible enough to be used in a variety of ways, not just an answer to the appropriate copy problem. For more information about the OpenURL, visit the National Information Standards Organization standard, ANSI/NISO Z39.88 (see gray box). Overall, PIRUS 2 promises to deliver an exciting new chapter in usage statistic technology. Both PIRUS and the Journal Usage Factor represent an evolution from the purely local or consortial use of usage statistics to more global applications. Products described later, such as the Ex Libris bX Recommender Service, also represent this evolution of the global application of usage data for broader uses.

PIRUS 1 final report
www.jisc.ac.uk/media/documents/programmes/pals3/pirus_finalreport.pdf

PIRUS 2
www.cranfieldlibrary.cranfield.ac.uk/pirus2/tiki-index.php

ANSI/NISO Z39.88: The OpenURL Framework for Context-Sensitive Services
www.niso.org/kst/reports/standards?step=2&project_key=d5320409c5160be4697dc046613f71b9a773cd9e

SUSHI

The Standardized Usage Statistics Harvesting Initiative (SUSHI) was created in response to the amount of time and effort librarians were expending in collecting usage statistics from literally hundreds of vendors (figure 6). As Oliver Pesch outlined in a presentation to the NFAIS Forum in 2006, SUSHI's objectives are:

- "Solve the problem of harvesting and managing usage data from a growing number of providers"
- "Promote consistency in usage formatting (XML)"
- "Automate the process"[7]

As of 2010, the initiative has proved at least partially successful, and it is now an ANSI/NISO standard, Z39.93.[8] In another example of collaboration among various members from across the information and publishing community, libraries, subscription agents, content providers, and integrated library system vendors came together to create a simple yet extensible standard that has the potential to drastically reduce the amount of manual effort required to collect usage statistics from various sources.

Pesch goes on to explain in his 2006 presentation that SUSHI *is* a "web-services model for requesting data" and *is not* "a model for counting usage statistics."[9] It is also important to note that SUSHI *is not* a usage consolidation application. At the 2009 American Library Association Midwinter Meeting, Chan Li explained in a presentation: "SUSHI is not a stand-alone application, it works with another system to retrieve COUNTER usage reports." Li went on to explain that there is a SUSHI client on the library's server that usually integrates with an ERM (electronic resource management) system and there is a SUSHI server on content provider's system. Additionally, Li notes that "COUNTER reports need to be loaded into another system for processing and reporting. For SUSHI to be effective, a Usage Management system must be in place."[10] At this point, there are a number of libraries, publishers, and ERM systems and ILS vendors using SUSHI, but the numbers of supporting librarians, publishers, and content providers has not grown as quickly as the industry would like. In essence, the reason that the SUSHI initiative has enjoyed only partial success is "owing to a lack of critical mass of SUSHI-compliant vendors."[11] Several of the librarians who responded to the survey described in chapter 4 and who were interviewed mentioned that they would like to explore and implement SUSHI, but they do not currently have the time. As any practicing librarian involved with electronic resources can attest, the daily management and acquisition of e-resources could easily fill 24 hours a day, 365 days a year. However, for librarians who are charged with the tedious task of collecting usage statistics, SUSHI has great potential. As the Frequently

Figure 6
Screenshot of the SUSHI webpage, www.niso.org/workrooms/sushi.

Asked Questions webpage about SUSHI on the NISO website states: "The SUSHI protocol automates the process; but also, by default, encourages the publishers to put usage data into a standard format (COUNTER XML). Therefore the retrieval is not only automatic but far easier to use."[12] Moreover, Release 3 of the COUNTER Codes of Practice requires support of SUSHI in order for a vendor to claim COUNTER-compliancy. Perhaps such a requirement will be further incentive to reach a critical mass of SUSHI-compliant vendors.

In an interview in May 2010, Oliver Pesch, chief strategist, E-Resource Access & Management Services, EBSCO Information Services, noted that one of the current issues facing SUSHI was the slow implementation by content providers.[13] However, the involvement of the Scholarly IQ company (discussed in more detail in the next chapter) has added momentum. For those who would like to explore SUSHI further, the SUSHI webpages on the NISO website are a veritable treasure trove of FAQs, getting started guides, and implementation examples.

SUSHI
www.niso.org/workrooms/sushi

Commercial Products and Services

A number of commercial products and services have emerged in the wake of standards such as COUNTER and SUSHI. These products and services may be integrated with a library's current ERM system or ILS, or may be standalone services that are interoperable with an ERM or ILS from another vendor. The following section briefly outlines a sampling of the products currently available on the market; this is *not* an exhaustive list or an evaluation of the efficacy of any of these products or services. For further information about each, it is wise to visit with the vendors and then interview other librarians currently using the product or service in order to determine if it does what is promised.

Electronic Resource Management Systems

ERM systems have emerged to fill the gap that traditional ILS products failed to achieve. Grogg noted in a 2008 article: "The volume of e-resource materials collected in libraries has reached critical mass that prohibits traditional resource management with traditional tools such as the ILS."[14] To fill this gap, metamediaries such as Serials Solutions, subscription agents such as EBSCO and Swets, and ILS vendors such as Innovative Interfaces and Ex Libris created ERM systems that adhered to the specifications set forth in the Digital Library Federation's Electronic Resource Management Initiative report.[15] With the increased number of COUNTER-compliant vendors and the creation of SUSHI, these ERM systems evolved to help librarians collect and consolidate usage statistics. Oliver Pesch, in a presentation at *Ressources Électroniques dans les Bibliothèques Électroniques: Mesure et Usage* explains the relationship between SUSHI and ERM systems. SUSHI is *not* a "stand-alone application; it works with another system to retrieve COUNTER usage reports." Moreover, "for SUSHI to be effective, a Usage Management system must be in place."[16] Therefore, it makes sense that the ERM systems could be modified to ingest usage statistics via SUSHI and thus become the required usage management system in the SUSHI framework. Companies such as Innovative Interfaces and Serials Solutions have integrated the ingestion and consolidation of usage statistics in their current ERMs or created separate products and services that interact with an ERM, like Serials Solutions 360 Counter.

Innovative Interfaces
http://www.iii.com/products/electronic_resource.shtml

Serials Solutions
www.serialssolutions.com/360-counter

Other Products and Services

Because there is not yet a critical mass of SUSHI-compliant

vendors, some of those companies mentioned above, such as Serials Solutions, as well as other companies solely devoted to usage statistic ingestion and consolidation, such as Scholarly Stats, have created services wherein the library outsources the manual collection of the non-SUSHI-compliant vendor usage data. Such outsourcing relieves internal library staff of the responsibility of going vendor to vendor, downloading reports, uploading them into the ERM or other local system, and consolidating them for meaningful analysis. It is important that the librarian investigating such outsourcing determine the time schedule for gathering such data as well as the dedication to accuracy on the vendor's part. Several of the librarians who responded to the survey described in chapter 4 and who were interviewed discussed their libraries' use of either 360 Counter or Scholarly Stats.

Scholarly Stats
https://www.scholarlystats.com

Another more unique product has emerged from Ex Libris, the bX Recommender Service (figures 7 and 8). Marshall Breeding, in a June 2009 article in the *Smart Libraries Newsletter,* explains: "In the same way that search engines rely on social data to determine relevancy for Web-based resources, Ex Libris has devised a service that relies on the user data from link resolvers."[17] In other words, Ex Libris is leveraging the vast amount of data it has via its SFX link resolver service to offer recommendations about possibly relevant articles. Assuming that links among articles that travel using the OpenURL have a meaningful relationship, then the bX Recommender Service uses its technology to offer recommendations to users about possible relevant material—it is the digital equivalent of "see also." Another way of thinking about this service is to relate it to more traditional ways of finding additional relevant articles in the ocean of published material. Information professionals have long been aware of processes such as "pearl growing" or finding the one perfectly relevant article and mining its works cited for others. The bX Recommender Service simply takes this sort of scholar's behavior into the digital world by using its link resolver data. The Ex Libris site states, "What is really cool is that the link resolver usage data collected for the bX recommender can be mined to give insights into the information seeking behaviors of the scholarly community—both at a local and a global level."[18] This technology was developed by researchers at the Los Alamos National Laboratory, Johan Bollen and Herbert Van der Sompel. For more detailed information about the bX Recommender Service, including specific information about how it works, visit the Ex Libris website. Ex Libris is also working on its Unified

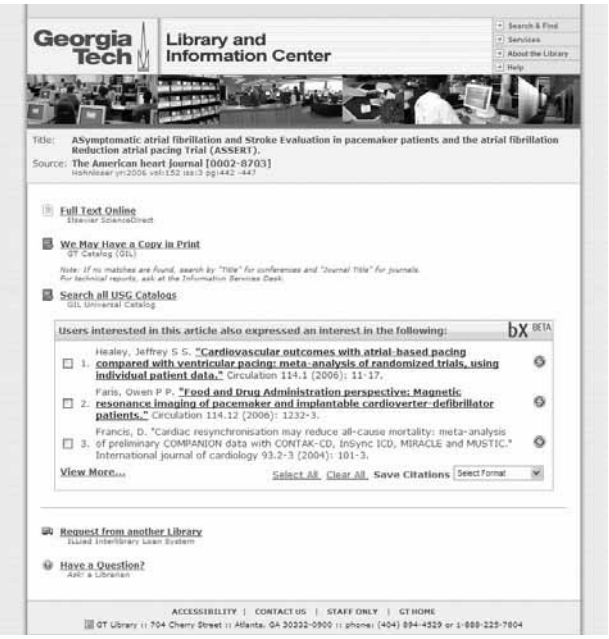

Figure 7
An example of the bX Recommender Service within the SFX link resolver.

Figure 8
An example of the bX Recommender Service within the PRIMO service.

Resource Management framework, which according to its FAQ, will be released in mid-2011 and will contain "reporting and analysis tools necessary to make data-driven decisions about library activities and collections."[19] According to Pesch, EBSCO also has a usage consolidation module in development and testing, and no doubt other vendors and open source creators do as well. All will be things to watch.

Ex Libris website
www.exlibrisgroup.com

bX Recommender Service Overview
www.exlibrisgroup.com/category/bXOverview

Figure 9
Other examples of statistical services.

Other products are also currently on the market (figure 9), such as Scholarly iQ, and LibPAS and LibSat from Counting Opinions. Scholarly IQ assists publishers and librarians with COUNTER and SUSHI compliancy as well as providing a variety of reporting, consolidating, and other services for usage statistics. The products from Counting Opinions are more comprehensive in that they assist with the consolidation and analysis of all types of library metrics, including usage statistics, but also collection sizes, gate counts, and more.

Scholarly iQ
www.scholarlyiq.com

LibPAS
www.countingopinions.com/products/libpas.php

LibSat
www.countingopinions.com/products/libsat.php

As evidenced by the thought cloud from the 2010 Electronic Resources in Libraries Conference, use, usability, and usage statistics are certainly on the minds of those in the trenches in the library world. Standards, products, and tools such as those discussed in this chapter have brought us much closer to a broader, deeper, and more efficient way of analyzing, sharing, collecting, and consolidating usage statistics. Furthermore, projects such as PIRUS and Journal Usage Factor promise to bring new and exciting innovations in the realm of usage statistics.

Notes

1. "About COUNTER," COUNTER website, www.projectcounter.org/about.html (accessed March 19, 2010).
2. "Usage-Based Measurements of Journal Quality: Research Project Enters Its Second Stage," UKSG website, www.uksg.org/usagefactors (accessed March 20, 2010).
3. "Announcing PIRUS 2: A Project to Develop Practical Standards for Recording and Reporting Online Usage at the Individual Article Level," news release, Oct. 23, 2009, COUNTER website, www.projectcounter.org/documents/NewsRelease23October2009.doc (accessed March 20, 2010).
4. "PIRUS2: Publisher and Institutional Repository Usage Statistics," COUNTER website, News & Activities page, www.projectcounter.org/news.html (accessed June 3, 2010).
5. Peter Shepherd, "PIRUS: Publisher and Institutional Repository Usage Statistics" (presentation given during "Statistics and Metrics" session, ICOLC 11th Fall Meeting, Paris, France, Oct. 25–28, 2009), slide 2; slides available online at www.projectcounter.org/documents/ICOLCEuropeOct2009.ppt (accessed April 17, 2010).
6. Ibid., slide 4.
7. Oliver Pesch, "Project COUNTER and SUSHI: An Overview" (presentation, NFAIS Forum: Online Usage Statistics: Current Status and Future Directions, Philadelphia, PA, Oct. 27, 2006), slide 13; slides available online at www.niso.org/workrooms/sushi/info/NFAIS-COUNTER-SUSHI.ppt (accessed April 17, 2010).
8. "ANSI/NISO Z39.93: The Standardized Usage Statistics Harvesting Initiative (SUSHI) Protocol," Oct. 29, 2007, NISO website, www.niso.org/kst/reports/standards?step=2&gid=None&project_key=2de0e3e04f3a7e32d45db8ee87574c3c8206ddcb (accessed March 19, 2010).
9. Pesch, "Project COUNTER and SUSHI," slide 30.
10. Chan Li, "NISO Standardized Usage Statistics Harvesting Initiative (SUSHI): Z39.93" (presentation, ALA Midwinter Meeting, Denver, CO, Jan. 23–28, 2009), slide 7; slides available online at www.niso.org/apps/group_public/download.php/1473/SUSHIupdate_alamid09_cli.ppt (accessed April 17, 2010).
11. Douglas King, "What Is the Next Trend in Usage Statistics in Libraries?" *Journal of Electronic Resources Librarianship* 21, no. 1 (2009): 8.
12. "SUSHI FAQs: General Questions," question 7, upd. April 9, 2009, NISO website, www.niso.org/workrooms/sushi/faq/general (accessed June 18, 2010).
13. Oliver Pesch, interview by Jill Grogg, May 24, 2010.
14. Jill E. Grogg, "Theory & Practice: Electronic Resource Management Systems in Practice," *Journal of Electronic Resources Librarianship* 20, no. 2 (2008): 86.
15. Digital Library Federation, "DLF Electronic Resource Management Initiative," www.diglib.org/standards/dlf-erm02.htm (accessed April 17, 2010).
16. Oliver Pesch, "SUSHI, COUNTER and ERM Systems: An Update on Usage Standards" (presentation, Ressources Électroniques dans les Bibliothèques Électroniques: Mesure et Usage, Lille, France, Nov. 28, 2008), slide 30, slides available online at www.niso.org/workrooms/sushi/info/OPESCH_-_SUSHI-Lille.ppt (accessed April 17, 2010).
17. Marshall Breeding, "bX Recommender Service Now Available from Ex Libris," *Smart Libraries Newsletter* 29, no. 6 (June 2009): 3–4, www.librarytechnology.org/ltg-displaytext.pl?RC=14580 (accessed April 17, 2010).
18. "bX: How It Works," Ex Libris website, www.exlibrisgroup.com/default.asp?catid={2750CDFB-2345-442A-8BE7-6C9092681577} (accessed May 15, 2010).
19. Ex Libris, "URM and Its Benefits: FAQ," May 2009, 6, www.exlibrisgroup.com/files/Solutions/UnifiedResourceManagementFAQ.pdf (accessed May 15, 2010).