LYRASIS 2021 OPEN SOURCE SOFTWARE SURVEY REPORT

Understanding the Landscape of Open Source Software Support in American Libraries

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# Table of Contents

- Introduction .................................................. 04
- Executive Summary ....................................... 05
- Methodology ............................................... 07
- Analysis and Findings ...................................... 09
- Funding and Support OSS ............................... 12
- Justifying OSS .............................................. 15
- Evaluating OSS ............................................. 18
- Conclusion .................................................. 22
- Acknowledgements .......................................... 23
- Appendix A: Complete Survey Questions (available as separate document)
- Appendix B: Complete Survey Responses (available as separate document)
Introduction

Galleries, libraries, archives, and museum (GLAM institutions) face a multitude of options when deciding what types of software to implement to support their missions. There are a number of ways to categorize strategic technologies for core programs and services such as Integrated Library Systems (ILS) and Institutional Repositories (IRs), but one of the overarching dichotomies is proprietary versus open source.

LYRASIS, an international GLAM membership organization, has purposefully invested in open source software (OSS) both as in institutional home for different OSS communities and as an OSS service provider; in 2012, it became the organizational home of ArchivesSpace, and has since become the organizational home to several other OSS communities including DSpace, CollectionSpace, Fedora, and VIVO. To better understand how GLAM institutions interact with these kinds of OSS programs, LYRASIS conducted a survey of its membership and users in the spring of 2021. The survey questions were designed with input from LYRASIS members who were keenly interested in understanding how their peers support and advocate for OSS programs. The survey was divided into three sections: funding and support for OSS; justifying the use of OSS; and evaluating OSS.

Before examining the survey results, it is useful to review the broad differences between proprietary technologies and OSS. Proprietary technologies are products often offered and supported by a single vendor. Only the vendor has access to the source code, and they control updates and new features. OSS is the opposite: source code is developed, updated and maintained publicly, and is often community-based in nature. The dichotomy between the two options represents what is now a decades old debate within the GLAM community: is it better to pay up front for proprietary software, giving up control for guaranteed service, or is it better to maintain access to the software code, understanding that there may be hidden institutional and communal costs to both implementing and sustaining that software in the future. Choosing between these two options requires a thoughtful and engaged process, and demands that institutions conduct a thorough audit of their fundamental missions and philosophies, as well as the more practical considerations of their financial and support staff capabilities.

While proprietary systems remain the dominant paradigm, over the last two decades GLAM institutions have increasingly invested in and implemented OSS alternatives as they provide a collaborative development approach and reduce the dependency on a single service provider or vendor.

Included in this report are the results of the 2021 LYRASIS OSS survey along with an executive summary outlining the key findings from survey respondents. These findings paint a broad picture of the OSS landscape for GLAM institutions, particularly American academic institutions, and contextualize the current environment for OSS. The goal of this report is to provide GLAM institutions with a better understanding of overarching attitudes within their community and to see where they fit within the spectrum. The survey results will hopefully also help institutions better justify and support OSS and help OSS communities better serve their communities and demonstrate their value.
Executive Summary

The survey respondents reflect the demographic makeup of LYRASIS membership, which is primarily academic libraries, with lesser numbers of public libraries, galleries, archives, and museums. The majority of responses were from the United States, but some international institutions responded as well. This cross-section of GLAM institutions as well as academic institutions outside the United States presents an opportunity to draw key conclusions about overall interactions with OSS.

For the purposes of this survey, OSS programs are defined as community-based programs specifically designed for GLAM institutions, such as FOLIO, ArchivesSpace, and Omeka. OSS programs designed for more universal use, such as Ubuntu or Apache Tomcat, are outside of the scope of this survey.

Key Takeaways:

- While a majority of respondents both internally implement (73%) and pay for externally hosted (55%) OSS software for their institutions, there is a disparity between use and financial support. Less than half of respondents financially contribute to OSS, which indicates cost may be a driving factor behind decisions to implement OSS.
- One of the most important considerations in choosing OSS software appears to be the sustainability of programs and services. Respondents ranked sustainability as more important in considering supporting OSS than financial advantages or benefits for end users. The promise for greater sustainability, however, can only be realized with a robust community commitment, often in the form of healthy OSS organizational homes and strong governance structures. LYRASIS has previously worked to address these needs through the It Takes a Village Guidebook and consulting program.
- Archival management, digital exhibits, and institutional repositories represent the top three OSS use cases reported by institutions in the survey.
- In a list of general features, respondents indicated that OSS outperformed proprietary software in all provided categories but two: user experience and speed of upgrades.
- The biggest barrier to OSS adoption reported in this survey is the lack of technical expertise within an institution. Staff time and knowledge is fundamental for successful adoption, and many institutions do not have the funding available for the crucial human resources needed to support OSS. OSS communities provide a level of support, but such support can differ significantly from the help and training framework offered by proprietary vendors for one-time or ongoing fees.
- Survey responses illustrate that there appears to be a relatively even distribution between those institutions that do allocate staff time to OSS projects and those that do not. For those that do, the amount of staff time is often highly limited. Roughly 52% of respondents allocate some staff time for technical contributions (e.g., coding, software testing, etc.), but only 13% dedicate 1 or more full-time equivalent personnel (FTE) to these tasks. While these percentages offer some insight into staff allocation for technical contributions, it is important not to draw too many conclusions about dedicated personnel time without a more granular examination of overall staffing numbers, budgets, and other factors.
• A greater percentage of respondents signaled that they are willing to allocate staff time to non-technical contributions, such as governance meetings, community feedback or user testing.
• When asked in the survey, most institutions said that their IT staff do not have different standards of evaluation for OSS versus proprietary. However, several open-ended responses revealed that there are more concerns over privacy and security in OSS. When purchasing a proprietary system of any sort, privacy and security concerns can be addressed and negotiated in contracts; many registered service providers (RSPs) of OSS can provide contracts that address these kinds of concerns, but the ability to internally adopt OSS without any legal barriers could affect how privacy and security concerns are perceived and handled.

Philosophically, by their very nature as mission-driven organizations, GLAM institutions are motivated to support systems and services that are more open than closed. When previously designated OSS programs have been purchased by for-profit companies, there has been a hue and cry from the GLAM community, often galvanizing institutions and organizations to evaluate existing OSS alternatives or work in partnership to develop new OSS options. However, such philosophical support does not always translate into realistic implementation, as evidenced by the barriers presented in the survey, such as institutional lack of technical expertise and concerns surrounding community sustainability. These survey results offer a glimpse into how GLAM institutions continue to interact with available OSS options as well as their struggle to choose wisely between proprietary and OSS programs and services.
Methodology

Survey Design

For the purposes of this survey, open source software (OSS) programs are defined as community-based programs specifically designed for GLAM institutions, such as FOLIO, ArchivesSpace, and Omeka. OSS programs designed for more universal use, such as Ubuntu or Apache Tomcat, are outside of the scope of this survey. The survey is divided into three sections concerning three different aspects of OSS: (1) funding/supporting OSS, (2) justifying OSS, and (3) evaluating OSS.

The questions throughout the survey were a mixture of multiple choice and open-ended questions, and a complete list can be found in Appendix A.

Survey Distribution

This survey was conducted between March 1st and April 9th, 2021. It was distributed via email to all LYRASIS members, as well as via two listservs run and maintained by LYRASIS staff and sent to additional targeted groups within the LYRASIS community.

The listservs are as follows:

- **lyropen@lyralists.lyrasis.org** – This is a semi-public LYRASIS listserv run by the Content and Scholarly Communication Initiatives (CSCI) department which distributes information about new LYRASIS initiatives related to Open Access (OA) content and open infrastructure activities.

- **archivpres@lyralists.lyrasis.org** – This is a public listserv also run by the CSCI department specifically designed to inform members and non-members about new vendors, discounts, and classes related to archives and preservation.

- **lyraleaders@lyralists.lyrasis.org** – This is a private members-only LYRASIS listserv that distributes messages to the LYRASIS Leaders Circle members (this group of approximately 150 institutions represents the highest tier of membership with LYRASIS, and includes a wide spectrum of institutional types and sizes).

The following additional groups of LYRASIS members were targeted in to obtain a representative group of respondents:

- Current members of the DSpace community
- Current members of the ArchivesSpace community
- Current members of the CollectionSpace community

A Note about Question Design

Many of the questions included an ‘Other’ option. While these are not in the main report, all ‘Other’ responses have been included in the complete survey responses in Appendix B.

Survey Results

The survey received one hundred and three (103) total entries. After data clean-up, ninety-two (92) distinct survey responses were used for central analysis.
Due to the demographic makeup of LYRASIS membership (which is primarily academic libraries, with lesser numbers of public libraries, galleries, archives, and museums), respondents were asked to identify themselves by Carnegie Classifications within the United States (U.S.), with the possibility of identifying as an academic institution outside of the U.S., or not being employed by an academic institution at all.

The survey received a fairly concentrated response from American academic institutions, with the majority of responses coming from doctoral universities. The only major group of U.S. academics not represented in this survey is associates colleges.

Non-academic institutions included independent archives, museums, public libraries, academic library consortia, national libraries, and private libraries.

Institutions from outside of the Unites States included multiple responses from Canadian universities, as well as individual responses from universities in Colombia, El Salvador, Italy, and South Africa.
Analysis and Findings

Introductory Questions

The following questions were intended to provide a baseline for the three proceeding sections. First, respondents were asked how their institution interacts with GLAM OSS. Respondents were allowed to select any or all of the following options:

- We are a founding member of one or more OSS programs
- We are on a governing board and/or highest level contributor to one or more OSS programs
- We financially contribute to one or more OSS programs (e.g. membership)
- We provide technical contributions to one or more OSS programs
- We provide non-technical contributions to one or more OSS programs
- We internally use one or more OSS programs within our institution
- We use OSS through external hosting services
- We advocate for OSS through conferences, presentations, focus groups, etc.
- We partner with OSS programs and initiatives where we use OSS as a driver for success
- Our institution prohibits use of OSS
- Other (please specify)
The majority of respondents both internally use (73%) and externally host (55%) OSS software for their institutions. The results indicate a disparity between use and support - only 41% of respondents said they financially contribute to OSS (it is important to note that although the question specifically mentioned memberships as an example of external support, respondents may have had different interpretations of "financially contribute," which could have fallen under other categories such as external hosting).
Chart 2.

**In what area(s) of your institution do you use OSS?**

![Bar chart showing the use of OSS in various areas of institutions. The top three areas (archival management, digital exhibits, and institutional repositories) all appear to promote the use of unique materials within an institution. Under ‘Other,’ services varied widely, including, a Learning Management System (LMS), a Content Management System (CMS), a journal publishing system, and small apps and tools. Researcher management/information systems were mentioned more than once.]

Chart 3.

**In instances where you choose not to use GLAM OSS programs, could you please indicate the reason(s) why?**

![Bar chart showing reasons for not using OSS programs. Technical expertise appears to be the primary reason for not using OSS programs.]

Technical expertise appears to be the primary reason for not using OSS programs.
Section 1: Funding/Supporting OSS

The first section, funding/supporting OSS, covers how (either through monetary support or allocated staff time) and how much institutions contribute to OSS programs. The first set of questions focuses on financial contributions.

Chart 4.

How much money does your institution directly financially contribute to OSS program(s)?

For each institution type (Bachelors, Masters, Doctoral, etc.), the majority of institutions do not financially contribute to OSS programs. Due to the dominance of doctoral universities within the survey responses, it is difficult to draw many conclusions about different types of higher education institutions. However, the graph does demonstrate that doctoral universities provide a wide array of financially contributions, with no apparent dominant financial bracket.
If you are able, please share where OSS funds come from in your institutional budget?

Respondents listed many sources for OSS funds, but the most frequently mentioned sources were the operations budget and the collections budget, followed by IT and general library budgets. Oftentimes respondents mentioned more than one area involved in OSS fund allocation:

“Either software funds if need be, or collections funds, depending on the purposes for which the OSS will be used.”

“Salary & Wage budget, operating budget, some endowed funds.”

“Various sources, including administrative budget, collection funds, and endowed funds.”

Who manages the budgetary decision around OSS?

The majority of respondents said that the University Librarian or Dean of the Libraries was responsible for managing budgetary decisions around OSS, often with input from general staff or advisory groups:

“Dean with input from all.”

“The Dean in consultation with appropriate colleagues.”

“Dean’s cabinet.”

Other respondents mentioned different types of senior leadership (Associate University Libraries, library administrators), and a few mentioned the technology team; the responses all indicated that OSS decision making sits at the very top levels of institutional administration.

Aside from financial contributions, respondents were also asked about the amount of staff time they allocate to OSS programs.
There appears to be a fairly even split between those institutions that do allocate staff time and those that do not. The majority of survey respondents that do allocate staff time to OSS do not allocate very much time, typically less than 1 FTE. Respondents are more likely to allocate staff time to non-technical contributions than technical contributions.

**If you went from only using OSS to actively supporting OSS, what motivated you to start contributing money or resources external OSS efforts?**

For several respondents, an obligation to support the community was a vital motivation:

“Obligation to support the OSS community and to support Libraries and Archives controlling their own future was a big part of our decision to financially support OSS efforts.”

“altruism”

“We were able to contribute. I have done so in the past at larger institutions, but mostly could not at my current one. But this year, we had a bit more flexibility and a small amount of funds left in our budget. Whenever I can, I wish to contribute, in any way I can.”

Good will was more often combined with an institutional need, such as product sustainability, custom features or desired development:

“OSS works if we all contribute. It is in our own interest to contribute and we gain expertise; we are more proactive and we can influence/request/support the development of specific features.”
“To ensure the development of features needed to support our implementation and because of our strong commitment to Open generally.”

“We wanted to ensure the longevity of the product that supports our operations.”

“Sustainability of the projects is key to our success, so we invest resources.”

“We had broad agreement that IIIF was a software solution and approach that would be beneficial to our organization. By joining the IIIF Consortium we could align ourselves more with the leaders in that OSS community. The API specifications from IIIF and the utility of IIIF have been very useful for us and are relevant to our software development goals and investments.”

Section 2: Justifying OSS

The second section, justifying OSS, focuses on how institutions justify investing in OSS programs.

Chart 6.

What considerations are most important to your institution in terms of supporting OSS?

- None of the above
- Other (please specify)
- Expanding staff skills
- Agility to quickly address user needs
- Ethical imperative to support open infrastructure
- In-house control and/or customization of software
- A financial benefit in supporting OSS instead of proprietary
- If OSS delivers a better outcome for our users
- Long-term sustainability of programs and services

Respondents were asked to choose their top three choices. Long term sustainability of programs and services was the most important consideration for institutions. Two additional options provided in the survey received no responses: software customization options, and being able to contribute to a community of like-minded practitioners.
There is no predominant trend in how long institutions have invested in OSS programs.

According to the survey, 61% of respondents said their institutional mission does not affect decision making related to OSS. The follow up questions were designed to garner examples of phrasing that either encourages or discourage the use of OSS. No examples of phrasing that discourages the use of OSS were provided in the survey. Here are a few examples of phrasing that encourages the use of OSS:

1. Our institutional mission is structured in a way that encourages the use of OSS and/or open infrastructure, 29%
2. Our institution mission is structured in a way that discourages the use of OSS and/or open infrastructure, 5%
3. Our institutional mission does not affect OSS decision-making, 61%
"We believe that the broad sharing of information, ideas, knowledge, skills, and tools benefits society by enabling information equality, facilitating life-long learning, and driving innovation. We support and encourage open access publishing, open content, and open source software. We strive to make our resources accessible to all. We promote the open exchange of ideas and transparency in communication and decision-making."

“It is embedded throughout our strategic plan including in our vision to be "a provider of essential, equitable, and sustainable infrastructure for libraries and cultural memory organizations" and in strategic initiatives aimed at "support(ing) institutional efforts to migrate to open repository systems.""

“OSS allows us to be good stewards of resources. "We accomplish our mission through education, research, creative activities, and service while being good stewards of the resources entrusted to us.""

"With the goal of full and unimpeded public access to the outcomes of research, devise and implement, with the involvement of faculty, policies pertaining to public access to manuscripts, publications, etc. by 2030. Continue to develop infrastructure to support open access behaviors and facilitation of open processes for knowledge production."

Section 3: Evaluating OSS

The third section, evaluating OSS, covers the ways that GLAM institutions determine the qualifications for OSS, their evaluation tactics, and their decision-making about long term OSS maintenance.
In the survey, OSS was technically more popular than Proprietary for Digital Workflows by three votes – however, compared to the other features, this did not seem a big enough difference to enumerate in the comparison chart, so they are marked as equal.

Institutions appear to prefer OSS in almost all categories except for User Experience and Speed of Upgrade Releases.
Chart 10.

Are the IT criteria used to evaluate GLAM OSS at your institution different from those used to evaluate proprietary software?

- 77% No
- 12% Other (please specify)
- 11% Yes

If the considerations at your institution are different for proprietary software vs OSS, please share what those differences are:

The only common thread across responses was a concern over privacy and/or security:

“Privacy, security, and impact of support.”

“Security concerns, upgrades, interoperability and integrations. Central IT worries about being responsible for software that may not be kept up to date.”

“We have a much larger battle to convince IT that OSS systems can be very secure.”

Chart 11.

What factors related to OSS product maturity affect your decision making?

- None of the above
- Other (please specify)
- Organizational home
- Software language
- Age of product
- Number of committers/contributors
- Operating system dependencies
- Size of community

The majority of survey respondents see the size of an OSS community as the most important factor related to OSS product maturity, with the remaining factors clustered fairly close together.
Chart 12.

What is the typical lifespan of OSS products within your institution?

Chart 13.

If you previously used an OSS product but discontinued its use, what factors affected your decision?

Software no longer being updated was the primary reason that institutions have discontinued use of OSS services. Under ‘Other,’ various reasons were given, including: better OSS software
becoming available; consortia moving to a shared platform; the institution did not get the value from the product they expected; the institution never had the staff expertise to adequately support the product; ongoing staff commitment was no longer viable.
Conclusion

Mission alignment is fundamental to any decision regarding the adoption of strategic technology, regardless of its OSS status. However, GLAM institutions face unique and variegated issues when evaluating and justifying the initial implementation and continued use of OSS. This survey offers a broad overview of how LYRASIS members and user communities interact with OSS products, but future surveys or investigations could delve deeper into issues such as financial contributions and more granular staff allocation and support, as well as expand analysis into registered service providers and OSS organizational homes. The survey responses herein and the accompanying examination and reporting of key findings will hopefully present the GLAM community with a deeper understanding of how institutions currently work with OSS to serve their respective users and patrons.
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