



A Guidebook for Programs Serving Cultural and Scientific Heritage

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It Takes a Village: Open Source Software Sustainability

A Guidebook for Programs Serving Cultural and Scientific Heritage

February 2018



This project was made possible in part by the Institute of Museum and Library Services – Grant LG-73-17-0005-17.

It Takes a Village Project Co-Directors and Guidebook Authors



Laurie Gemmill Arp
Director, Collections
Services & Community
Supported Software
LYRISIS



Megan Forbes
Program Manager
CollectionSpace

It Takes a Village Advisory Group



Rob Cartolano
Associate Vice President
for Technology
and Preservation
Columbia University
Libraries



Tom Cramer
Assistant University
Librarian and Director,
Digital Library Systems
& Services
Stanford University



Michele Kimpton
Director of
Business Development
and Senior Strategist
Digital Public Library
of America



Katherine Skinner
Executive Director
Educopia Institute



Ann Baird Whiteside
Librarian and
Assistant Dean for
Information Services
Harvard University
Graduate School
of Design

Cover photo by David Jorre on Unsplash; Group and whiteboard photographs included in this guidebook were taken at the Baltimore forum by Laurie Arp.

Acknowledgements

We would like to thank all those who contribute their time and effort to make open source communities grow and prosper. *It takes a village* to create, manage, and sustain these efforts, many of which are critical to the fields of cultural and scientific heritage.

Our advisory group supported us with thoughtful advice and expertise. We appreciate their unflagging support and guidance.

The forum and survey participants gave of their time and their experiences, and embraced the forum activities wholeheartedly in an effort to create this work. We particularly thank the case study authors for sharing their stories.

Our forum facilitator, Christina Drummond, was dedicated to making sure we had the best possible forum to serve the larger grant and community goals.

Thanks to the entire LYRISIS team for their assistance and patience while we worked on this project. We want to especially thank Robert Miller, Carissa Egan, John Herbert, and Sandy Nyberg.

This project and publication would not have been possible without generous funding from the Institute of Museum and Library Services. We appreciate their support.

Table of Contents



Executive Summary _____	5	Facet: Resources _____	26
Background _____	6	Phase I: Creating Consistency _____	26
ITAV Project Assumptions and Activity Summary _____	7	Phase II: Diversification _____	27
Using the Guidebook:		Phase III: Stable, but Not Static _____	28
Phase and Facet Definitions _____	8	Resource Resources and Tools _____	29
Defining Phase I: Getting Started _____	8	Case Studies _____	30
Defining Phase II: Growing/Getting Established _____	8	DuraSpace by Michele Kimpton and Jonathan Markow _____	30
Defining Phase III: Stable, But Not Static _____	8	Specify by James Beach _____	31
Defining Facets _____	9	Facet: Community Engagement _____	32
Sustainability Wheel _____	10	Phase I: Getting Beyond Initial Stakeholders _____	32
Facet: Governance _____	11	Phase II: Establishing Community Engagement Infrastructure _____	33
Phase I: Establishing Governance _____	11	Phase III: Evolving Community Engagement _____	35
Phase II: Stabilizing Governance _____	12	Community Engagement Resources and Tools _____	36
Phase III: Evolving Governance _____	13	Case Studies _____	37
Governance Resources and Tools _____	14	ArchivesSpace by Christine Di Bella _____	37
Case Studies _____	15	Vega by Cheryl Ball _____	39
Islandora by Mark Jordan _____	15	Concluding Remarks _____	40
Material Order by Ann Baird Whiteside _____	16	Appendices _____	41
OLE by Michael Winkler _____	17	A. Sustainability Worksheet _____	41
VuFind: Community History by Demian Katz and Christopher Hallberg _____	19	B. Resources _____	42
Facet: Technology _____	20	C. Forum Participant List _____	44
Phase I: Laying the Groundwork _____	20	D. OSS Program Survey Results _____	46
Phase II: Expanding and Integrating _____	21		
Phase III: Preparing for Change _____	22		
Technology Resources and Tools _____	23		
Case Studies _____	24		
Fedora by David Wilcox _____	24		
LOCKSS by Nicholas Taylor _____	25		

Executive Summary

This Guidebook is designed to serve as a practical reference source to help open source software programs serving cultural and scientific heritage organizations plan for long-term sustainability, ensuring that commitment and resources will be available at levels sufficient for the software to remain viable and effective as long as it is needed.

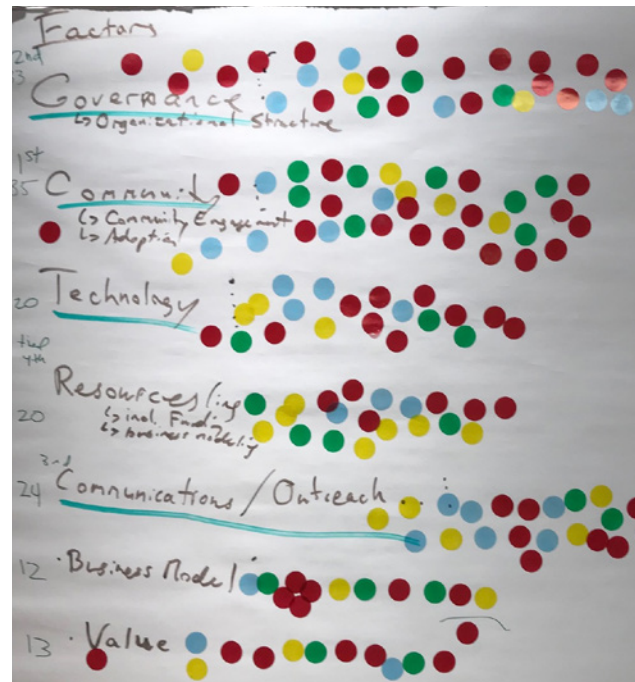
One of the most significant themes of this Guidebook is that sustainability is not a linear process, with set beginning and end points. Program sustainability shifts and evolves over time across a number of **phases** and **facets**. The phases speak to where a program is in its lifecycle: *getting started*, *growing*, or *stable but not static*. The facets describe the different components of sustainability, each of which is critical to overall program health, but may have different timelines, goals, and resource needs. The facets deemed most critical by the Guidebook’s authors and contributors are: *Governance*, *Technology*, *Resources* (Financial and Human), and *Community Engagement*.

Sections of the Guidebook will:

- Define the phases and facets of sustainability;
- Identify goals, characteristics, and common roadblocks for each phase in each facet;
- Provide guidance for moving an OSS program to the next phase in a given facet, with the understanding that the same program may be in different phases along different facets of sustainability; and
- Highlight case studies and additional resources to help a program’s research and decision-making process.

The Guidebook is intended for a broad audience. While certain paths may be of more interest than others, we would recommend reading through each of the facets before returning to the one that aligns most closely with a specific role, e.g., governance for a program manager, technology for a technical lead, engagement for a community manager, or resources for an administrator. The worksheet in [Appendix A](#) can help identify the specific phase a program is in along each facet.

The open source landscape is wide and varied. Bringing open source programs serving cultural and scientific heritage together under one shared umbrella can provide us all with the power to better advocate for our needs, develop shared sustainability strategies, and provide our communities with the information needed to assess and contribute to the sustainability of the programs they depend on.



Results of the exercise to determine the most critical facets as voted upon by forum participants.

Background

Organizations that support cultural and scientific heritage – the archives, libraries and museums that collect, preserve and provide access to the artifacts, specimens, documents, data, and other tangible and intangible knowledge of communities – are investing significant resources into open source software (OSS).

Technology supports mission critical functions for cultural and scientific heritage organizations in the acquisition, organization, description, preservation, dissemination, and management of collections, content and information. The tenets of OSS – that is, software that can be freely accessed, shared, used, changed and/or modified¹ – fit well with the missions of organizations dedicated to documenting, preserving, and providing access to cultural and scientific heritage. Libraries, archives, and museums create and adopt OSS as a way to customize and adapt technology to their own community’s needs. In addition, many publicly funded organizations and grant-making agencies prefer, and sometimes require, that new technology be open source, as an investment in the public good.

Much of the OSS created and used by cultural and scientific heritage organizations is developed and maintained through a community support model that is largely field- and sector-specific. The open source license may be provided by an individual or institution, but a larger community of users, programmers, administrators, governing agencies, and sponsors are involved in setting development priorities, providing user support, fixing bugs, defining policies, encouraging adoption, and otherwise maintaining a viable product. This is often referred to as “community-based open source software.” This community and its diversity is a critical factor in the long-term sustainability of OSS, ensuring the software’s ability to upgrade, adapt and grow to meet new needs and evolve with advances in technology.

Some OSS initiatives serving cultural and scientific heritage have been very successful at creating robust products with widespread adoption and engaged communities, while others have struggled to determine what strategies will work once development funding ends or when costly upgrades are needed. Programs that are initially successful might struggle later as other technologies evolve to offer new features and functionality, diverting stakeholder support. A sustainability strategy that works for one

community and OSS product now may not work as well in the future or at all for another community or product. OSS requires continuous attention to sustainability to ensure that commitment and resources will be available at adequate levels for the software to remain viable and effective for as long as it is needed. Such continuous attention is challenging for community-based OSS, with the diverse perspectives, capacities, levels of engagement, and priorities among potentially many stakeholders.

There are a variety of largely ad hoc OSS sustainability models currently operating in the cultural and scientific heritage sector, each working within specific communities and impacted by where the OSS application is in its lifecycle. As cultural and scientific heritage organizations become increasingly invested in and dependent on OSS-based technologies, understanding the complexities of sustainability becomes more important. To deepen the cultural and scientific heritage field’s understanding of sustainability and encourage OSS programs to share and learn from each other, LYRASIS applied to and received support from the Institute of Museum and Library Services (IMLS) to convene a national meeting of OSS stakeholders (National Leadership Grants for Libraries award LG-73-17-0005-17). The “It Takes a Village: Open Source Software Sustainability Models” forum (ITAV) was held on October 4-5, 2017. The goal of the grant project and the forum was to develop a guidebook for new and existing OSS initiatives to strengthen planning, promotion, and assessment of sustainability. In addition to providing OSS stakeholders with a path to evaluate the health of their software, the project sought to provide potential adopters of OSS applications with a structure within which to measure sustainability and risk, and identify opportunities for growth. This Guidebook represents the combined contributions of forum advisors and participants, who shared their experiences and knowledge to help define a sustainability framework for the field as well as their own OSS programs.

¹ See the Open Source Initiative for the complete Open Source Definition at <https://opensource.org/osd>

ITAV Project Assumptions and Activity Summary

While libraries, archives, and museums use a wide variety of OSS (WordPress, Linux, MySQL relational databases, etc.), the assessment and forum focused on OSS developed specifically to serve cultural and scientific heritage organizations. The ITAV project assumed that while there is no single approach to sustainability, there may be common threads among programs serving cultural and scientific heritage organizations that would lead to common needs, and strategies for meeting those needs. The project also assumed that sustainability strategies evolve as the OSS life cycle progresses, technology advances, and community needs change.

A volunteer project advisory group provided advice in regard to which OSS initiatives to invite to the ITAV forum, the forum agenda, and content of this report. This group also served pivotal roles as discussion leaders and facilitators during the ITAV forum. Advisors were: Rob Cartolano, Associate Vice President for Technology and Preservation for Columbia University Libraries; Tom Cramer, Assistant University Librarian and Director of Digital Library Systems & Services at Stanford University; Michele Kimpton, Director of Business Development and Senior Strategist for the Digital Public Library of America; Katherine Skinner, Executive Director, Educopia Institute; and Ann Baird Whiteside, Librarian and Assistant Dean for Information Services, Harvard University Graduate School of Design.

The advisory group and ITAV project co-directors Laurie Gemmill Arp, LYRASIS Director of Collections Services

and Community Supported Software, and Megan Forbes, CollectionSpace Program Manager, selected and invited 37 individuals representing 27 cultural and scientific heritage OSS initiatives to the forum. Diverse perspectives were sought by including a mix of program/governance leaders, community leaders (users), and technical leaders. The participant list of 49 attendees is included in [Appendix C](#). Prior to the ITAV forum, background information was collected from the invited OSS programs to provide context for the forum discussions. Information was collected in such areas as mission and purpose of the OSS, date of first and most recent releases, size and make-up of the community using the OSS, licensing terms, where the OSS is currently housed/hosted, size of the development community and a description of how development is managed, governance structure and roles, current sources of financial support, and investments made throughout the software’s lifecycle. The compiled results of the background survey are included in [Appendix D](#). In addition to providing a means for sharing information among participants, the background survey responses inspired directions and themes for the forum discussions.

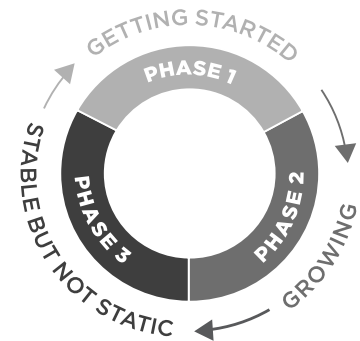
The agenda format was focused around small working groups that were formed, disbanded, and reformed with new participants each session to spawn more engagement. For each topic, the project’s advisory group facilitated open and direct conversations about project lifecycles, governance, financing, resources, community building, outreach and communications, and bumps in the road. For a worksheet that replicates one of the activities and can help identify your program’s place, see [Appendix A](#). Consultant/Facilitator Christina Drummond assisted with agenda design and served as overall facilitator. Presentations given during the forum are available on the It Takes a Village website at <https://www.lyrasis.org/technology/Pages/IMLS-OSS.aspx>.



James Beach describing Specify’s financial shift.

Using the Guidebook: Phase and Facet Definitions

To get the most out of the Guidebook, begin by reading through the following definitions for each phase and facet. Once you have identified the facet you'd like to learn more about, and the phase that best describes your program's current status, jump to that section of the book to view core goals, characteristics, common concerns, roadblocks, and potential objectives. Outside resources – books, websites, journal articles, etc. – are also listed for each facet.



Defining Phase I: Getting Started

Phase I is generally used for OSS programs that are at the early stages of planning, design, and development. At this phase, work is often grant funded and therefore focused on fulfilling the terms of the grant. Program staff are often pulled from the initial stakeholders, and there is a strong focus on determining the core values of the software community. In the event of a major transition, such as a technology re-architecture, a mature OSS program may return to the Getting Started Phase along a specific facet.

Main themes include:

- Focused goals;
- Small set of strongly committed stakeholders, typically one sponsoring organization; and
- Seeking agreement on core values and alignment around a core purpose.

Defining Phase II: Growing/Getting Established

Phase II is the broadest in terms of breadth of range, as elements of an OSS program can take a long time to grow along a number of pathways. This can be considered the “danger zone” – programs can easily stall here or go away entirely if their efforts fail to take root and engage community members. In this phase, it is critical to complete the transition from grant or niche project to sustainable program. Each program needs to find its own “special sauce” or unique blend of qualities to work for its own community. During Phase II (if not before), it is critical to set up collaborative tools to empower engaged stakeholders. Program staff and governance may need to let go of some control to enable other stakeholders to fully engage and take part in ownership of the program.

Main themes include:

- Transitioning control from founding stakeholders and sponsors to multiple stakeholders representative of the growing community;
- Creating structure, process, policies, and channels for engagement; and
- Increasing transparency.

Defining Phase III: Stable, But Not Static

Phase III reflects a more mature program, one that has reached a more established stage with some predictable elements (such as revenue streams, business apparatus, and/or technology), but in which stakeholders will need to be vigilant, as it is easy to be complacent and potentially stagnate or be replaced by more novel technologies. This is the phase at which things are going well, but may or may not stay that way. Continued progress may require shifting back to the beginning of a facet. For example, the technology platform chosen ten years ago, which took a long time to build and is now fully functional, may be out of date in the next two or three years. Fully updating the platform may require a return to Phase I in the technology facet. This may have a ripple effect in other facets as well. While resources might have been sufficient for supporting the existing technology platform, gathering the resources for a major overhaul might involve shifting the resource model.

Main themes include:

- Ongoing measurement to assess functionality, impact, and engagement;
- Flexibility to modify/adapt;
- Level of committed resources;
- Potential for offshoots and mergers; and
- Acknowledgement that the community may need to go back to Phase I or II for renewal.

Using the Guidebook: Phase and Facet Definitions



Defining Facets

There are many elements that go into OSS sustainability, but in the course of ITAV forum discussions, most participants coalesced around four main facets: governance, technology, resources, and community engagement. Each are described more fully below.

Defining the Facet: Governance

“A governance model describes the roles that project participants can take on and the process for strategic and tactical decision making within the project. In addition, it describes the ground rules for participation in the project and the processes for communicating and sharing within the project team and community.”²

Defining the Facet: Technology

The core of each of these programs is open source software or systems serving cultural and scientific heritage organizations. There are parallels with proprietary software development processes, but working within the open source world brings its own challenges around community, resources, and governance that affect the software development process.

Nota bene: For the purposes of this report, we’ve created bright lines between the facets. The real world, of course, is never so clean. In reality, facets overlap, prop each other up, and may have competing or complementary aims. The goal of the Guidebook is not to imply that each facet can be moved along independently; rather, it is to counter the idea that sustainability is a monolith, and that in fact by breaking it into facets it can be easier to define, plan, and evaluate our programs.

Defining the Facet: Resources

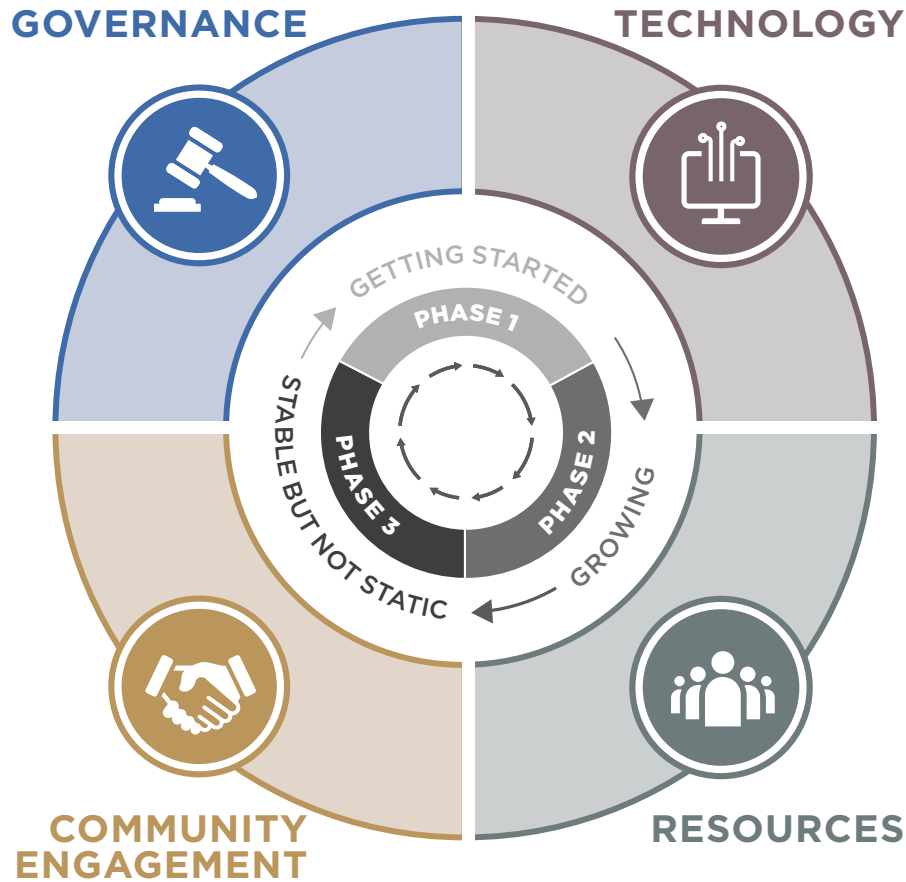
In order to launch, grow, and thrive, OSS programs need resources both human and fiscal. Human resources encompass engineers writing code, community members providing use cases, colleagues or consultants providing assistance with strategic planning, or organizational homes with fiscal stewardship. Financial resources come in and go out in a wide variety of ways – in via contributions, grants, dues, sponsorships, etc., and out via salaries, servers, telecommunications, and overhead.

Defining the Facet: Community Engagement

The Community Engagement facet reflects efforts to facilitate and foster involvement within a community. It is focused on encouraging users to become stakeholders. Those who have a sense of investment and ownership become champions who want the program to grow and succeed. A component of this facet also includes communication and outreach efforts to the community itself as well as the wider world of decision makers, potential users, funding agencies, and others.

² Gardler, Ross and Gabriel Hanganu. “Governance Models.” OSS Watch. <http://oss-watch.ac.uk/resources/governancemodels> (accessed November 30, 2017).

Sustainability Wheel



 **GOVERNANCE**

Phase I: Establishing
Working with original engineers, project staff, or organization. [Go to page 11.](#)

Phase II: Stabilizing
Functional but limited in one or more aspects. [Go to page 12.](#)

Phase III: Evolving
Strong management structures; not necessarily formal governance. [Go to page 13.](#)

 **TECHNOLOGY**

Phase I: Laying the Groundwork
In design, pre-release or early beta testing phase; small set of early adopters. [Go to page 20.](#)

Phase II: Expanding and Integrating
Have more than one public release. [Go to page 21.](#)

Phase III: Preparing for Change
In production, well-adopted, supported. Technology stack stable. May be looking to next generation. [Go to page 22.](#)

 **RESOURCES**

Phase I: Creating Consistency
Funded by single organization, grant-funded or volunteer operated. [Go to page 26.](#)

Phase II: Diversification
Distributed resourcing; meeting expenses, small number of revenue streams. [Go to page 27.](#)

Phase III: Stable, but not Static
Diverse staff support and income streams; focused on long-range strategy. [Go to page 28.](#)

 **COMMUNITY ENGAGEMENT**

Phase I: Getting Beyond Initial Stakeholders
Focused on primary stakeholders; lack of engagement with broader communities. [Go to page 32.](#)

Phase II: Establishing CE Infrastructure
Determining how to facilitate engagement that works for community. [Go to page 33.](#)

Phase III: Evolving CE
Established infrastructure to enable engagement. [Go to page 35.](#)

Facet: Governance

Phase I: Establishing Governance

Core Goal

Plan and implement the governance model or models that best reflect the values of the program and community.

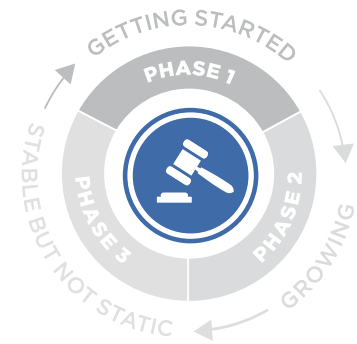
Characteristics

Phase I programs are generally still working with their original software engineers, project staff, funder, or sponsoring organization. The application may not have end users yet, leading to a “good faith over governance” approach. Although it may be unclear what type of governance model a community wants or needs, making plans early in a lifecycle can contribute positively to a program’s overall sustainability.

Governance is not one-size-fits-all.

Concerns and Roadblocks

Program staff may be concerned that governance will remove the decision-making process from the primary stakeholders or those who are doing the day-to-day work, slow down the pace of development, or that efficient operations will be bogged down in bureaucracy. These are legitimate concerns. It is critical to understand that governance is not one-size-fits-all. Programs must do the hard work of understanding what types of governance models are out there, and what the benefits and drawbacks of each are in relationship to the community they want to serve with the OSS program, in order to choose the approach that best serves the program and community.



Moving Forward: Objectives

- **Define a need for governance**
 Program staff may ask and answer a series of questions to determine what type of governance structures are necessary, such as: Where is the program having issues that a consensus policy could help mitigate? Is there tension between functional and technical teams that requires a conflict resolution mechanism? Are potential code contributors unsure of the process? Do community members receive regular updates about the program? How is the community engaged with respect to governance and what role do they represent?
- **Review existing governance models**
 Examples of existing governance models to evaluate can be found in the resources section of this Guidebook. To learn about models in use at other OSS programs serving cultural and scientific heritage, reach out to their staff and community members – the participant list for the forum that led to this Guidebook is a great start ([Appendix C](#)). Consider convening an advisory group to assist with the governance development process.
- **Select the governance model that works best now for the program**
 Once the program’s needs have been defined and governance options reviewed, draft a governance model. Put it to the test with use cases from the program’s day-to-day work. Will the draft model provide pathways to solve the issues identified? It is okay to start small and evolve governance over time as needed.
- **Communicate changes to stakeholders**
 After the plan has been drafted and approved by the governance team, share it with program stakeholders, current users, and potential users. A governance plan should be easily findable and understood by the people it affects – users, contributors, funders, potential adopters, and others.

Facet: Governance

Phase II: Stabilizing Governance

Core Goal

Evaluate existing program governance to identify strengths and weaknesses, and determine whether current structures support the needs of a growing program.

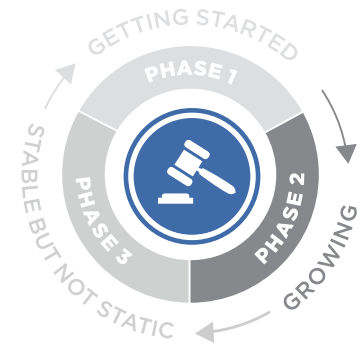
Characteristics

Phase II program governance can best be described as functional, but limited in one or more aspects. Documented policies and procedures for community contributions, technical oversight, and budgeting exist, but often still exhibit a strong influence from program founders, funders, and/or specific staff or community members. Moving a program forward requires succession planning to ensure program continuity.

Concerns and Roadblocks

Governance is a balancing act. Governance adds overhead, and when a program is growing, it may seem like too much. Ceding decision-making authority to community members or advisory groups can lead to a loss of autonomy among program staff or sponsors. Governance can slow down the pace of development. Programs need a clear strategic vision for the application and community to properly evaluate whether governance policies and processes are contributing to the success and value of an OSS program or adding an unnecessary burden.

It is not uncommon for a program to outgrow its founding or sponsoring organization.



Moving Forward: Objectives

- Document existing governance policies**

Make sure that existing policies for code contribution, technical roadmapping, strategic planning, policy decision-making, etc., are all documented and available for the community to access and use. Even if you don't have formal governance in specific areas, documenting how program decisions are made is still a useful exercise and valuable for building trust within the community.
- Evaluate each element of existing governance**

Once you have proper documentation, ask staff and the community to evaluate if the structure and policies are working. Are the needs of critical stakeholders effectively addressed? If not, then why not? Is the policy resilient – would it still work if a key program or community member left? Have confidence in de-prioritizing, sunseting, or changing the scope of governance policies that aren't working. It can often be helpful to look for outside advice to evaluate governance policies and processes.
- Increase level of community engagement**

To avoid an echo chamber where governance appears to be working because it is working well for the program team, look to increase the level of community engagement with the program. This may mean adding formal volunteer positions or advisory groups. Improved documentation may bring new contributors into the fold. Existing community members may be enlisted in outreach efforts to gather more program leaders.
- Evaluate long-term home organization options**

It is not uncommon for a program to outgrow its founding or sponsoring organization. Many open source programs explore expanding partnerships, or engaging fiscal sponsors or nonprofits to serve as home or sponsoring organizations providing administrative structure around program activities.

Facet: Governance

Phase III: Evolving Governance

Core Goal

Continue to evaluate and evolve the program governance model to keep up with new technologies, communities, and collaborators.

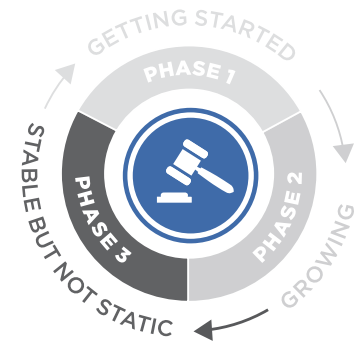
Programs should not confuse consistency with stagnation.

Characteristics

Phase III OSS programs benefit from strong management structures, although not all have formal governance. Many are part of umbrella organizations that provide the structures needed to move initiatives forward, such as marketing and communications, fiscal stewardship, and grant writing. Phase III programs generally have tried-and-tested business models, which lead to more predictability and a better ability to plan ahead.

Concerns and Roadblocks

Phase III programs often expand their focus outside – outside their country of origin for new communities and implementers, outside their domains for new partners and opportunities. With these shifts in focus, programs without strong management and governance structures risk mission drift or losing focus on core functionality. Governance must evolve to adapt to new cultures and languages.



Moving Forward: Objectives

- **Support consistent structures**

Consistent governance structures provide the community with a trusted place for making contributions of time, effort, and funds, and help new implementers overcome resistance to open source solutions at their institutions. It can be beneficial to have written “job” descriptions for Board members or other elected leaders, so that their responsibilities are clear, both to them and the broader OSS community. This also facilitates succession planning. Training opportunities for boards are available (e.g. BoardSource), and can be useful for those who are new to OSS program governance.

- **Continue to evaluate and evolve governance practices**

Programs should not confuse consistency with stagnation. In order to support program expansion, new partnerships, and worthy collaborations, governance practices must evolve to meet the needs of growing and changing communities. Programs should continue to engage in regular evaluations of governance models as priorities, funding streams, and technologies shift.

- **Expand community participation in governance**

Well established programs should ensure that their governance representation matches the makeup of their community and key stakeholders. It is easy to be dominated by a few well-funded community members. Having participants take on leading roles in working groups or councils can lead to senior leadership positions or “train-the-trainer” style onboarding for new participants in program governance, which can help mitigate this issue.

Governance Resources and Tools

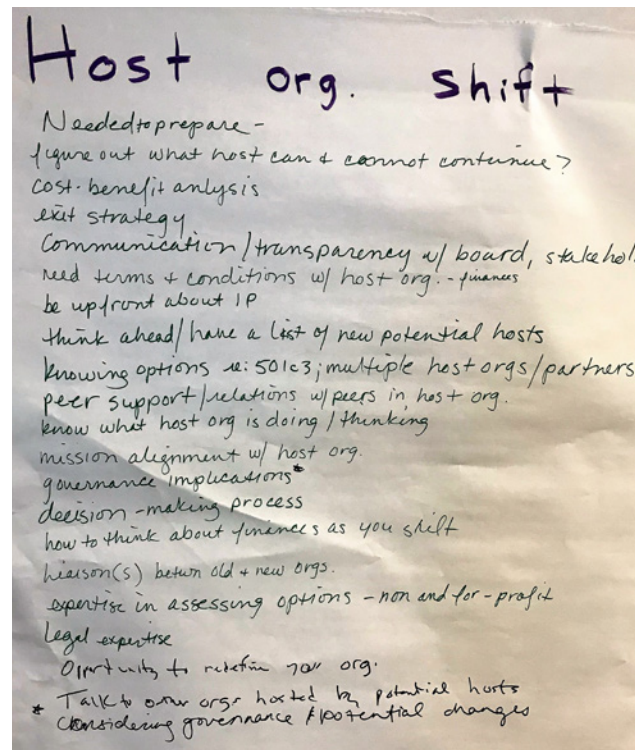
- Benkler, Yochai. *The Penguin and the Leviathan: How Cooperation Triumphs over Self-Interest*. New York: Crown Business, 2011.
- “Boardsource Home.” BoardSource. Accessed 1 February 2018. <https://boardsource.org/>.
- “Community Explorer.” REALISE Project. Accessed 1 February 2018. <http://fullmeasure.co.uk/REALISE/>.
- Fay, Randy. “How do Open Source Communities Govern Themselves?” RandyFay.com. Accessed 1 February 2018. <https://randyfay.com/content/how-do-open-source-communities-govern-themselves>.
- Gardler, Ross and Gabriel Hanganu. “Governance Models.” OSS Watch. Accessed 1 February 2018. <http://oss-watch.ac.uk/resources/governancemodels>.
- Resnick, Pete. “On Consensus and Humming in the IETF.” Internet Engineering Task Force. Accessed 1 February 2018. <https://tools.ietf.org/html/rfc7282>.

OSS organizational homes and incubators:

- “Aperio Incubation Process.” Aperio. Accessed 1 February 2018. <https://www.apereo.org/content/apereo-incubation-process>.
- “DuraSpace What We Do: Projects.” DuraSpace. Accessed 1 February 2018. <http://www.duraspace.org/whatwedoprojects>.
- “Educupia Institute: Our Work.” Educupia Institute. Accessed 1 February 2018. <https://educopia.org/about-us/our-work>.
- “LYRISIS Open Source Organizational Homes.” LYRISIS. Accessed 1 February 2018. <https://www.lyrasis.org/technology/Pages/open-source-org-homes.aspx>.
- “Software Freedom Conservancy Projects.” Software Freedom Conservancy. Accessed 1 February 2018. <https://sfconservancy.org/projects/>.

Governance documentation examples:

- “Apache Corporate Governance Overview.” Apache Foundation. Accessed 1 February 2018. <http://www.apache.org/foundation/governance/>.
- “ArchivesSpace Governance Board and Councils.” ArchivesSpace. Accessed 1 February 2018. <http://archivesspace.org/governance-board-and-councils/>.
- “Fedora Governance Model.” Fedora. Accessed 1 February 2018. <http://fedorarepository.org/governance>.
- “MetaArchive Resources.” MetaArchive. Accessed 1 February 2018. <https://metaarchive.org/documentation-resources/>.



Whiteboard notes captured the forum discussion on governance and organizational shifts.

Governance Case Studies

Guidebook case studies provide first-hand accounts from forum participants about their program's work toward sustainability. Governance case studies are from the Islandora, Material Order, OLE, and VuFind programs.

Islandora

By Mark Jordan

<https://islandora.ca/>



Islandora's governance model offers opportunities for institutions and individuals to participate in the community at a variety of levels. Institutions can join the Islandora Foundation at the Partner, Collaborator, or Member level. At each of these levels, an institution commits to paying a membership fee but

also earns the privilege of appointing a representative to the Islandora Foundation Board of Directors, the Islandora Coordinating Committee, and the Islandora Technical Advisory Group (the fee and the committee depends on the level of membership). Each of these bodies has a specific focus: the Board is primarily concerned with legal and financial aspects of the Islandora community, the Coordinating Committee acts as the operational governing committee for the Foundation's activities, and the Technical Advisory Group provides recommendations regarding Islandora's technical roadmap.

Individuals participate in other ways. The most common, and easiest, is answering other users' questions in the discussion groups. Other ways include testing bug fixes, joining the biweekly committers' calls, volunteering at an Islandora Camp, and becoming involved in the semiannual software releases as documenters, auditors, or release managers.

We find that this two-part model works well. Institutions can participate by helping support the Islandora Foundation financially (and gain a direct voice in governance at the same time), while individuals can become involved in the more general Islandora community in ways that require a variety of levels of commitment.

Looking forward, the Islandora Foundation is working on refining its strategic goals for 2018 so that they articulate achievable ways to improve our software and to strengthen and broaden our community. The new goals will highlight even more ways for institutions and individuals to participate in our community's governance and sustainability.

“Institutions can participate by helping support the Islandora Foundation financially ... while individuals can become involved in the more general Islandora community.”

Governance Case Studies

Material Order

By Ann Baird Whiteside

<https://wiki.collectionspace.org/display/deploy/>

Material+Order



The Material Order Consortium grew out of a collaboration between the Harvard University Graduate School of Design (GSD), the Fleet Library at the Rhode Island School of Design (RISD), and CollectionSpace to design a collection management system for materials samples collections. The team developed a Materials Profile

in CollectionSpace based upon earlier work between GSD-RISD. The earlier work included in-depth studies of the GSD written Materials Classification Protocol, which developed into a broader and more relevant materials taxonomy and database schema. Key concepts of the taxonomy provide multiple points of access to meet material research needs – composition, form, properties, material ecology, process, typical uses, and associated geo-locations.

In 2016, we opened the doors to institutions hosting materials samples collections across the US with the statement that Material Order provides a community-based approach to management and access to design materials collections utilizing and developing standards and best practices. This includes an open source collection management database and an access system that allows searching across international materials collections to support research and applications in the design fields. Current work in 2018 includes bringing in additional collections, and the development of a user front-end.

As the GSD and RISD were developing the concept of a consortium of materials collections, we understood that we were entering into the development of an organization, and that we were going to require tools and processes to support a consortium if it is to be viable. We had team members who had previously been involved in consortia that shared technology tools, one project of which had high

level structures around it (RLG) and the other which was very informal (one reason it did not survive over time).

In early 2016, we were led to a consultant who had strengths in identifying the needs of “start-up” organizations. We hired the consultant to help us map out the first few years of Material Order as a full consortium. Our work with the consultant helped us to articulate our vision and mission, and the scope of the consortium. Further work also outlined a complete organizational structure – governing structure, requirements for participation, benefits of participation, and intellectual property rights. We developed a governance structure that outlined charges for all potential sub-groups, operating principles, and deliverables – from the steering team through working groups.

For the year and a half after we drafted foundational documentation for the consortium, we felt that given we were

“... Because we laid our groundwork in developing a framework early on, we have something to fall back on.”

still only two organizations, the prescriptive structure that we had developed was unnecessary.

In the last year, we have had several institutions express interest in the consortium and we are in the process of bringing two new consortium members into the organization. This is leading us to think about governance issues again, and because we laid our groundwork in developing a framework early on, we have something to fall back on.

Having guidance as we started the consortium helped us think through how we want to work as a consortium, setting the stage for our future. In 2018, we will begin implementing some of the formal structure of the consortium as collective decisions will need to be made regarding further development.

Governance Case Studies

Open Library Environment (OLE)

By Michael Winkler

<https://www.openlibraryenvironment.org/>



The Open Library Environment (OLE) formed in late 2008 under funding from the Andrew W. Mellon Foundation and leadership from Duke University. OLE conducted community workshops to determine the interest in a community-supported, open source library management system to replace increasingly

monopolistic market choices. The review of the workshops and input of hundreds of librarians found solid support and enthusiasm for an open source solution.

Encouraged by these outcomes, in 2010 OLE and a new set of partner libraries formed the OLE Partnership and sought further funding from the Mellon Foundation to pursue building a next-generation, open source library management system with utility and availability to libraries worldwide. The OLE Partners sought membership in the Kuali Foundation, a not-for-profit organization with a mission to deliver open source administrative software for higher education. The OLE Partners prospered under the administrative umbrella of the Kuali Foundation, adding five new members and developing and releasing our first production release in 2013. By 2015, three of the OLE Partners had deployed the Kuali OLE software to manage their libraries.

The OLE Partners adopted the Kuali community governance model that included a governing board of directors that oversees vision, goals, and resourcing for the partnership. OLE formed functional and technical councils to guide specifications and requirements for developing software. The Partners hired a project management team to coordinate the activities and operations of the project, with development outsourced to a commercial partner to provide velocity and deep software development expertise. The Kuali community was based on a buy-in model of membership and relied on participant institutions to bring sufficient capital to the project to underwrite the cost of software development. The OLE Partners fulfilled our

budget requirements with a mix of grants and self-funding that mobilized over 7M USD by 2015.

In 2015, the Kuali Foundation community undertook a review of its open source business. Their Board determined that a new business model was necessary to improve software quality and uptake. The Foundation formed a for-profit corporation, KualiCo, to “professionalize” software development and implementation. While retaining an open source license going forward, Kuali software products would seek to have an exclusive relationship with KualiCo as the sole service provider. Further, the Kuali Foundation decided to stop development and support for the critical middleware component, Kuali Rice, on which Kuali OLE was developed.

These changes at the Kuali Foundation prompted a moment of reflection for the OLE Partners, assessing our community, our resources, and our software. We found that while we were successful as a community with over seven years of collaboration, growth and production, our software was difficult to implement and operate, we were missing critical functionality required to encourage further adoption of the software, and we had failed to internalize sufficient technical understanding of our software to allow delivery of our vision of modular and flexible software for widescale adoption. The decision by the Kuali Foundation to abandon the Kuali Rice middleware would require a complete refactoring of our software, and the OLE Partners had few available resources to begin that task. Additionally, the OLE Partners felt that the new Kuali business model did not match the OLE community’s values for openness nor with the need to encourage a rich and diverse commercial support ecosystem.

Coincident with these assessments about the state of the Kuali OLE community was a new opportunity for collaboration through a partnership with EBSCO Information Services. Together, we have developed concepts for what has become the FOLIO project and community. FOLIO was to be a “green field” development thus addressing the technical debt resident in the Kuali middleware stack.

(Continues on page 18)

Governance Case Studies

Open Library Environment (OLE)

(Continued)

EBSCO and Index Data as partners bring new resources to blend with OLE resources to marshal sufficient capacity to undertake new software development. The FOLIO community model of wide inclusiveness and low barriers to participation – that encourages a growing and healthy ecosystem of librarians, developers, and service providers – matched OLE’s concern about an exclusive business model. The remaining issue for OLE was to find a host organization to enable the collaboration and community ownership of the effort. The OLE Board developed a plan to take action. The plan, which we began in the spring of 2016 was to:

- Join with EBSCO and Index Data as founders of the FOLIO Project
- Leave the Kualii Foundation and form a new not-for-profit – the Open Library Foundation – with broad library services/collaboration mission
- Complete Kualii OLE software to provide sufficient stability and capability for implemented partners
- Implement a hybrid business model that combines cash and effort contributions from Partners

As OLE enters 2018, we have completed our pivot. Our partnership is strong and growing, adding three new partners in the second half of 2017. We are enthusiastic about our work in FOLIO and looking forward to software

releases in 2018, and potential implementations in 2019. Our business model is still evolving, but we are adopting a hybrid model of mixing cash contributions with contributed staffing. The lessons that we learned during this hard turn can be summarized into several primary takeaways. OLE is powered by the commitments of its Partners. To sustain efforts for years requires a business model that is easy to join without extraordinary financial burdens on participants. It is important to encourage and reinforce deep staff engagement and invest in our own expertise in technology, functionality and leadership. OLE’s experience demonstrates how the web of dependencies resident in complex networked applications can have dramatic impact on how a community is governed. OLE not only survived shifts in the environment and in our project, but prospered. I attribute this to the Partnership’s commitment to openness and inclusiveness. For us, these were not simply platitudes, but formed the reservoir of strength that allowed us to hold together and support our partners who had taken a risk to implement the OLE code, to assess and endorse a pivot to the FOLIO project, and to empower the many functionalists and technologists within our partnership to take leadership roles and work together towards a more sustainable future.

“It is important to encourage and reinforce deep staff engagement and invest in our own expertise...”

Governance Case Studies

VuFind: Community History

By Demian Katz and Christopher Halberg

<https://vufind.org/vufind/>



The VuFind project began in 2007, when a team at Villanova University began developing an open source discovery tool, inspired by the faceted search

capabilities of North Carolina State University Libraries' commercial Endecca system. The largely unsatisfactory state of most commercial OPACs at the time inspired substantial interest, and an informal community of developers quickly formed around the project.

Despite a strong start, the project faced a crisis shortly after issuing its first release candidate late in 2008: the project's lead developer, Andrew Nagy, left Villanova for another position and could not maintain the full-time effort of his former leadership role. While this scenario can kill a project, in this case, Villanova was able to hire another developer to continue Nagy's work. Demian Katz took over the lead role in July of 2009, and, with the support of Nagy and the existing community, was able to reinstate a reasonably regular release cycle before the year ended, reaching a stable release 1.0 by July 2010.

Despite receiving the community's trust and support, Katz wanted to create a formal mechanism for community decision-making. After discussion on the project's mailing lists, the community decided to create an administrative decision-making group. Volunteers filled out a "skills survey" showing how they could contribute to the project, and an election was held to select administrators. By September 2009, a dedicated VuFind-admins mailing list was created to facilitate this group's decision-making.

This initial experiment with an administrative group proved largely unsuccessful, simply because there was insufficient conflict within the project to require a formal voting body. Problems were solved and decisions were made organically on the technical mailing lists, and the admin list stagnated.

A year later, VuFind held an in-person conference at Villanova University to discuss plans for the next

generation of the software. This conference highlighted the importance of real-time conversation to the community and development process. To allow conversations started at the conference to continue on a regular basis, an online developers' call was established by November of 2010. This call quickly superseded the admin mailing list as the forum where major decisions were discussed.

The pattern established in 2010 has held to this day. Annual in-person meetings create the long-term plans that drive the VuFind project. Bi-weekly online calls create an open dialogue where developers and users report progress, discuss problems, share ideas and make decisions. A coding philosophy that welcomes additions that are modular and configurable also contributes to the success of this model. The contribution of ideas and code is encouraged when the core team focuses on improving all viable contributions rather than choosing which to include or exclude.

This inclusive, contribution-driven model is not without costs. While it does offload most of the steering away from the core team, it also brings a heavy code-review load. This can create a bottleneck when contributions are particularly complex. Additionally, the success of the project is dependent on the limited number of developers capable of performing critical review and integration work.

VuFind has been very fortunate to have the support of Villanova University funding core developers throughout its development. While there are no signs of this support waning, it would be irresponsible to count on it forever. One of the clearest future steps is to secure VuFind in an institutional home separate from its sole source of financial support. This may require some new ideas about governance and the development of succession-planning contingencies.

The success of VuFind to date is not an indication that formal governance is unnecessary; it is certainly conceivable that a situation could arise where the current informal system would prove to be a liability. Yet, this history does demonstrate the difficulty of establishing governance in the absence of a pressing conflict or need. When a community consists primarily of software developers working in a collegial environment, the focus tends to be on solving problems and meeting goals, and if this is happening organically, it is difficult to impose a formal structure on top of it in the absence of any external pressure to do so.

Facet: Technology

Phase I: Laying the Groundwork

Core Goal

Turn an idea for an application into a viable product that serves the needs of the community.

Characteristics

Programs in Phase I are in the design, pre-release, or early beta-testing phase of software development. These programs may have no users yet, or a core of committed early adopters or beta testers. New development may also be based on newer or unproven technology, require staff training, and may exhibit considerable technical or resource challenges.

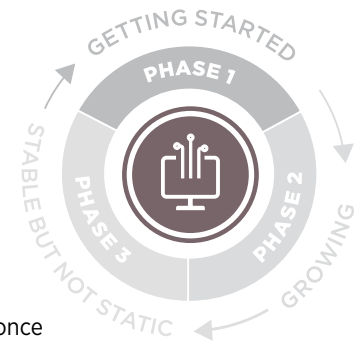
Concerns and Roadblocks

Programs in the early phases often suffer from the need to be all things to all people – in order to get funding, they often promise the moon to sponsors. This leads programs in the early phases to be very susceptible to scope creep. A focus on trying to cram in every last feature may leave critical elements behind, such as testing, documentation, and community building. It can also be difficult to accurately assess the amount of time new development will take in a new environment.

Moving Forward: Objectives

- **Understand core community needs**

OSS for cultural and scientific heritage is often developed in response to a specific institutional or community need. Programs should evolve from working within a single organization to gathering input and feedback from the broader community. This feedback can help define community-based functional needs, influence the architectural approach, and help refine core needs that require coordinated development. Programs can gain community confidence by articulating a broader vision; regularly releasing small, solid updates that allow funders and stakeholders to visualize the bigger picture; communicating how feedback influences development; and by focusing on overall quality.



- **Continue to gather data**

A community needs analysis does not end once a program moves from design to development. Reach out directly to users. Continue to have conversations with the end users of applications. While it may be too early to ask for input on software improvements or new features and functionality, community members can provide valuable feedback and engagement by assisting with testing and documentation.

Early openness with stakeholders and other investors will provide a good foundation.

- **Communicate process and progress with stakeholders**

Museums generally do not let people view exhibits until they are completely installed. Archivists prefer to process a collection before making it available to researchers. Until fairly recently, scholarly data was not made available until the journal article was published. Contrary to these approaches, the best OSS development is open and transparent. Program staff need to counteract the tendencies of subject matter experts to play things close to the vest during design and development. By using an open code repository, public bug tracking and regular releases, OSS developers can inspire confidence and engage stakeholders. This kind of transparency may be somewhat counter to the culture of wanting to present completely finished work, but early openness with stakeholders and other investors will provide a good foundation for opening up the program to the wider community in future phases.

Facet: Technology

Phase II: Expanding and Integrating

Core Goal

Refine the application: identify and strengthen areas that are working well, identify gaps that can be filled with new features and functionality, and phase out elements that are not working.

Characteristics

Phase II programs have had more than one public release, developed a formal release process that includes a numbering system or other method for identifying major and maintenance releases, and the application is being used in production outside of the founding organizations. Programs are generally adding new features and functionality to their software packages and exploring integrations with related applications.

Concerns and Roadblocks

Once an application has been developed and released, it can sometimes be difficult to evaluate it with an objective point of view. Making the decision to deprecate or redesign features that took several sprints to design and develop can be complicated, especially if the features were championed by important project stakeholders. Programs that do not engage with their communities at this phase run the risk of developing features the community does not care about, and can be seen as only serving their own interests.

Long-lived OSS programs spend as much effort on the process of producing code as they do on producing code itself.

Moving Forward: Objectives

- **Engage the community**

Community involvement in the requirements gathering and functional specification process is paramount. Sitting down, either physically or virtually, with the people who use the application frequently can provide development teams with a clearer view of what is working, what features and functionality are most heavily used, and how the application may be improved or expanded to better fit user needs.

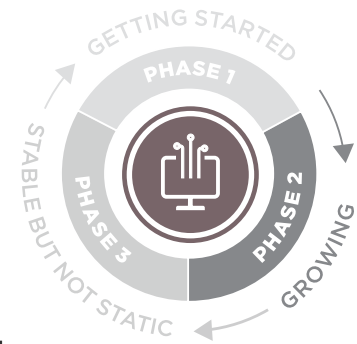
- **Grow thoughtfully**

Once an application has been released and a community of users begins to grow, the program team must learn to balance community feedback and interest in exciting new features with maintaining stable, up-to-date, and well-documented software. Programs that can communicate clearly about architecture and infrastructure can form a common understanding with the community of the importance of backend maintenance and support. It is also important during this phase to cultivate the community of developers and committers (with commit rights) outside of the core organization and stakeholders. Outside contributors add not only valuable code to the application, but also new perspectives that keep the program from becoming an echo chamber.

- **Consider integration over new development**

We have communities and we are a community. There are many organizations working to develop open source solutions to address cultural and scientific heritage problems, and it may be that one of the problems an OSS program needs to solve has already been tackled by other members of our community. Leveraging existing open source solutions can not only add functionality, but also open up a program to a new set of users, developers, and stakeholders. Instead of using scarce resources to develop new functionality which may or may not be integral to the software's core purpose, explore if integrations with existing platforms with appropriate functionality can serve this function. It may be possible to increase the sustainability of the core product, especially if these ancillary platforms have significant user communities, development communities and strong governance. This leveraging of other communities allows the program to grow in functionality and potentially serve new audiences without having to necessarily invest a large amount of resources.

Invest in testing, documentation and training. Long-lived OSS programs spend as much effort on the process of producing code as they do on producing code itself. Robust and efficient testing, documentation, and training (both of developers and end users) are critical to scalability and sustainability.



Facet: Technology

Phase III: Preparing for Change

Core Goal

Determine how the core application’s technology stack and functionality will serve the future needs of the community; plan ahead for expansion, integration, re-architecture, or retirement.

Characteristics

Phase III applications are in production, well-adopted, and well-supported. Design and development of the core technology stack is stable, with few changes to the application’s architecture with each release. Programs typically have a stable supply of developers and committers, and a published and predictable release schedule. Program staff in this phase are generally looking to the next generation of the application. The existing application may be nearing the end of its useful life due to changing market circumstances or require a technology overhaul to bring the code up to date with new technology or community needs.

Concerns and Roadblocks

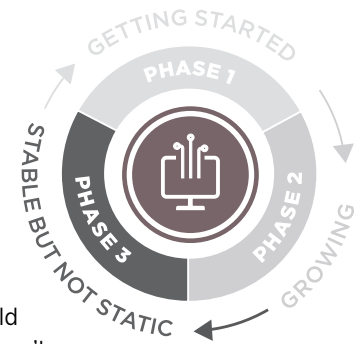
Some community members may feel comfortable with the current platform, it is stable and has been proven as a production-ready application for some time. For others, Phase III can feel like a return to the drawing board. New communities and stakeholders or technology obsolescence may require re-architecting or retiring elements of an application. Program staff must balance the needs of stakeholders invested in and comfortable with earlier versions with the need for significant refresh and potential expansion to new communities.

Moving Forward: Objectives

- **Reassess community needs**

The demand for software re-architecture or retirement must come from stated community requirements, balanced with the community’s ability to support and keep up with change. Program staff must ask themselves

Sustainability is not synonymous with perpetuity.



how re-architecture or retirement will serve the community. Are there things users would like to accomplish but can't with the current architecture? Are things fine the way they are but underlying technology is sunseting and must be replaced? Is there an opportunity to migrate current users to an OSS application built on newer technology? Users of OSS for cultural and scientific heritage rely on these applications to care for information held in the public trust, and must be part of any decision-making process that would affect their ability to create, maintain, and preserve that information.

- **Plan for evolution**

Once the need for change has been identified, the community needs to review whether incremental improvements to the OSS application are sufficient or whether a complete refactoring and re-architecture is required. If the core requirements that inspired the original development of the application still exist, but the language, libraries, or hardware platform used to create the application are obsolete, it may make sense to refactor or re-architect the application. It is sometimes the case, however, that requirements have evolved, and at the time of refresh, additional functionality or a fundamental restructuring is needed. Thinking ahead rather than waiting for crises allows program staff to get buy-in from the community, secure necessary funds, and develop transition and migration plans for existing implementers.

- **Document an exit strategy**

Sustainability is not synonymous with perpetuity. There are cases where a program has been successful, but served its purpose, and should be gracefully retired. Programs that no longer meet the needs of their communities or have been supplanted by alternatives may need to develop plans to communicate the end-of-life decision to the community and organize support or migration services for remaining users.

Technology Resources and Tools

- Dombrowski, Quinn. “What Ever Happened to Project Bamboo?” *Literary and Linguistic Computing*, Volume 29, no. 3 (2014): 326–339.
- Fogel, Karl. *Producing Open Source Software: How to Run a Successful Free Software Project*. Beijing: O’Reilly, 2009. <http://producingoss.com/>.
- Ries, Eric. *The Lean Startup: How Today’s Entrepreneurs Use Continuous Innovation to Create Radically Successful Businesses*. New York: Currency, 2017.
- Rosenberg, Scott. *Dreaming in Code: Two Dozen Programmers, Three Years, 4,732 Bugs, and One Quest for Transcendent Software*. New York: Three Rivers Press, 2008.

Software documentation examples:

- “Avalon Media System Documentation.” Avalon Media System. Accessed 1 February 2018. <http://www.avalonmediasystem.org/documentation>.
- “Koha For Developers.” Koha Community. Accessed 1 February 2018. <https://koha-community.org/get-involved/for-developers/>.
- “Samvera: Developers.” Samvera Community. Accessed 1 February 2018. <https://wiki.duraspace.org/display/samvera/Developers>.



Technology Case Studies

Guidebook case studies provide first-hand accounts from forum participants about their program’s work toward sustainability. Technology case studies are from the Fedora and LOCKSS programs.

Fedora

By David Wilcox

<http://fedorarepository.org/>



The first public release of Fedora (version 1.0) was made available in 2003. Through a combination of grant funding and community contributions the software matured over time; version 2.0 was released in 2005 and 3.0 in 2008. But like most software projects, a considerable amount of technical debt built up over time as a

distributed community continued to build on top of a now-aging codebase, and by 2012 it was time to consider a major project re-architecture. This initiative, dubbed Fedora Futures, focused on five key priorities:

- Improved performance, enhanced vertical and horizontal scalability;
- More flexible storage options;
- Features to accommodate research data management;
- Better capabilities for participating in the world of linked open data; and
- An improved platform for developers—one that is easier to work with and which will attract a larger core of developers.

These priorities represented challenges based on the then-current version of Fedora, but the Fedora Futures initiative also provided an opportunity to re-think the Fedora software based on lessons learned and emerging technologies and standards. Early on, the development team decided to focus on a robust REST-API built on top of an existing open source software platform, thereby reducing the amount of custom code the Fedora community would need

to maintain. The API would also be aligned with modern, well-adopted web standards, such as the Linked Data Platform, which would help Fedora move beyond the walls of the library into the world of the web and linked data. These decisions provided great opportunities for the Fedora project and community, but there were also several challenges to overcome.

The biggest challenge of a complete software re-architecture is how to support the existing community of users. Specifically, many institutions were already using Fedora in production, often with client applications that were built based on expectations of functionality that would change in Fedora 4. A considerable amount of community energy has been put into supporting migrations, including tooling, documentation, metadata mapping, and training. However, migrations are often an institutional resourcing problem as they inevitably take considerable, dedicated effort. Supporting migrations continues to be a high priority for the Fedora community as we try to move everyone forward to the latest version of the software.

Fedora 4 has now been in production for over three years, and our focus has shifted toward stability. Ideally, Fedora is a dependable piece of infrastructure that works well and doesn’t change very often. To this end, we are committing to

“The biggest challenge of a complete software re-architecture is how to support the existing community of users.”

a slower release cycle of only one major release per year, and publishing a formal specification of the Fedora REST-API that will provide additional stability for client applications.

Technology Case Studies

LOCKSS

By Nicholas Taylor

<https://www.lockss.org/>

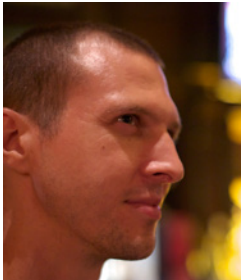


Photo: Ben Chernicoff

For nearly two decades, the Stanford University LOCKSS (Lots of Copies Keep Stuff Safe) Program has supported community-based, distributed digital preservation through its eponymous software. Changes in the larger technical environment in the intervening time have lately prompted a major re-architecture

effort, currently underway with substantial funding from the Andrew W. Mellon Foundation, with the goal of bidirectional integration of LOCKSS with the broader ecosystem. This move will support the sustainability of the LOCKSS Program by broadening the communities that are sharing costs to maintain functionality upon which the LOCKSS software depends.

two decades motivated technical evolution in web archiving. Though the LOCKSS software confronts similar challenges as the broader web archiving field, its architecture has heretofore incentivized implementing independent solutions.

Recognizing otherwise missed opportunities for alignment with extant community initiatives and the long-term sustainability risk posed by a siloed software stack, we are now modularizing the major functionalities of the LOCKSS software into a set of interoperating web services. This will novelly enable existing open source software to be leveraged as part of a LOCKSS system, reducing maintenance costs and simplifying adoption of new technologies. Conversely, it will also allow for the incorporation of individual LOCKSS software components – e.g., the peer-to-peer data integrity and repair mechanism – into non-LOCKSS systems, unlocking the potential for more flexible integration and a broader impact.

“The gains to sustainability from the re-architecture have as much to do with community strategy as with technical insight.”

These objectives underscore that the gains to sustainability from the re-architecture project have as much to do with community strategy as with technical insight. We have a strong sense of the need to find, align with, and invest in the broadest possible

The LOCKSS software was originally developed in the nineties, at the inception of web archiving by memory institutions. Like other web archiving applications of this era, e.g., the archival crawler Heritrix and archived web content replay engine Wayback Machine, the LOCKSS software evolved into a complex, monolithic Java application. Significant developments in web technologies in the ensuing

open source software communities focused on our shared challenges if those challenges are to be addressed both effectively and efficiently. We need to further build, engage, and learn from open source software communities with a stake in the unlocked functionality of the LOCKSS software to maximize the good that it can provide for digital preservation broadly.

Facet: Resources

Phase I: Creating Consistency

Core Goal

Create a sustainability plan focused on achieving a consistent and sustained level of resources. That may be a mix of reliable, diverse, predictable financial resource streams as well as time/efforts commitments from volunteers or consistently allocated staff time from dedicated institutions. Move program resources from early enthusiasm and grant funding to the next step.

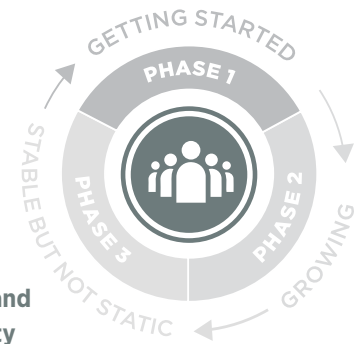
OSS programs do not have to go it alone.

Characteristics

Phase I programs are typically funded by a single organization, grant-funded or volunteer operated, and may not have a long-term plan for ongoing support such as membership or any earned income streams. There is often a single program owner or champion writing grants, shifting internal resources and obtaining necessary internal support. Software development staff may be grant-funded and therefore not permanent members of the team, or may be temporarily re-assigned from other projects. A small number of contributors generally means that a loss of one person has an outsized impact.

Concerns and Roadblocks

In a program's early days, it may be difficult to make the case to those who control the resources that the program is important. Tensions between what users and programs need, such as local vs. community needs, infrastructure, iteration, and exploration of potential uses outside of the original community, may be different from the solid plans funders would like to see. Unrealistic expectations placed on small teams can lead to burnout.



Moving Forward: Objectives

- **Undertake business and financial sustainability planning**
 Understanding a program's market and end users, and the options for long-term dedicated resources, are critical to long-term financial sustainability. Options for obtaining sustainable resources include but are not limited to earned revenue streams, in-kind contributions from multiple organizations, sponsorship or membership programs for active users, and other arrangements for shared revenue. Some programs may have resources that can assist with these efforts in house or at their founding/sponsoring organization, but others will need to look outside for assistance.
- **Determine human resources needed to move forward**
 In addition to financial resources, human resources are needed to develop functional specifications, write code, and perform community outreach. Within the OSS program's business plan, enumerate the people and skill sets required to support program elements in priority order, and be clear about what may be delayed or deferred when resources are focused on one aspect of a program over another.
- **Explore partnerships and collaborations**
 OSS programs do not have to go it alone. Many programs explore partnerships with similar communities or engage with fiscal sponsors or nonprofits to serve as home organizations that provide administrative structure around a program's activities.

Facet: Resources

Phase II: Diversification

Core Goal

Diversify income streams and talent pools to mitigate reliance on one source of income or program member.

Characteristics

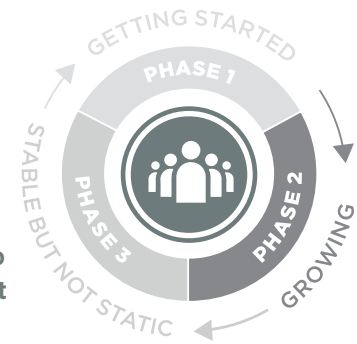
Phase II programs have generally moved to distributed resourcing – be it membership fees, cost recovery, value-added services, institutional commitments of in-kind resourcing, or a mix. They are able to meet day-to-day expenses, but may still be reliant on a small number of organizations and revenue streams, and have difficulty funding out-of-the-norm expenses. On the personnel side, Phase II programs have a strong core team and are usually able to recruit diverse team members, but retention can be difficult without long-term funding assurances.

Concerns and Roadblocks

It can be difficult to recognize when things are not working and to identify ways to pivot to more successful paths. Converting users to community members and contributors can be difficult. Transitioning from user support to institutional support is challenging. Expanding into different countries or regions can bring its own set of issues, from the mundane, such as difficulty with financial transactions, to the foundational, such as a lack of understanding of open source contribution models.

Moving Forward: Objectives

- **Expand community of funders and contributors**
Grant funding and contributions from original stakeholders will only take the program so far. In order to grow and sustain, program staff need to seek a more diverse set of funds and contributors. Programs may explore diversifying income streams via memberships, sponsorships, or providing support and services around their application. New contributors may be identified via bounty models (offering payment or “bounties” for specific work), workshops or hackathons at conferences, student interns and/or the user community’s personal networks.



- **Work with vendors to support development needs**

In some cases, the community of implementers and users for an open source application may have sufficient technological resources to provide code contributions and all the necessary implementation support. In others, however, implementing institutions just don’t have the human resources and skills in house – a common challenge for cultural and scientific heritage organizations. In these instances, vendors providing services and support around the OSS may be a good source of development resources for the program. Working with vendors involves considerable requirements analysis on both sides; in the end, the service provider needs to develop the features in a way the implementing institution can use but that is generic enough that other organizations can use them too. If done well, these types of arrangements can provide a high level of community engagement while covering the costs of continuing to develop the software. Some programs choose to create formal registered service provider agreements with outside vendors.

Converting users to community members and contributors can be difficult.

- **Cultivate expectations around community contributions**
Programs should provide structure to support community contributions, with established expectations around contributions. Community efforts should be encouraged to help with answering technical questions, fostering the development of code committers, supporting regular community gatherings, and assisting with strategies related to software development and community engagement.

Facet: Resources

Phase III: Stable, but Not Static

Core Goal

Focus on resilience – ensuring that the program is aware of changes in the landscape and has plans to address them. In other words, make sure to continue to evolve to meet the community’s needs.

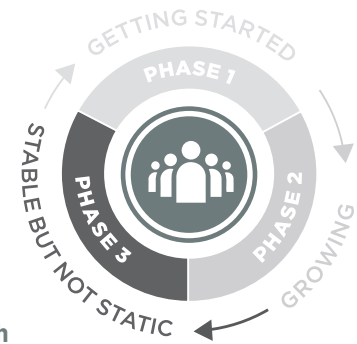
Characteristics

Phase III programs generally have diverse staff support and income streams covering daily operations, and can focus on long-range strategy and even endowment formation. Money is available for R&D and infrastructure programs, and the loss of or change to one income stream does not spell disaster. On the human side, Phase III programs have paid staff and a strong contributor model with many skill sets and roles represented.

Concerns and Roadblocks

Large contributions by implementing institutions may be mirrored by expectations around how program priorities are set. Grant funding that allows for more exploratory or experimental work can be hard to come by. Chasing revenue can cause a loss of focus, or move priorities away from the ultimate needs of the end users of the OSS.

Make sure to continue to evolve to meet the community’s needs.



Moving Forward: Objectives

- **Focus on alliances and partnerships with leading institutions**

Large, well-funded organizations may be drawn to the notion that with OSS, they can have a strong voice in governance and program direction, while supporting the needs of their often-diverse constituents. Partnerships with leading organizations can provide steady sources of income, in-kind contributions such as development resources, and intangible benefits associated with the organization’s reputation such as shared ownership and responsiveness.

- **Shift business model in response to external events**

Programs need to evaluate their resource plans in response to the broader technology landscape and trends in the domain the OSS serves. It is critical to develop a board or advisory group that has the right skill set for identifying trends and determining how to mitigate their effect on a program’s viability. Some trends may be positive, such as the current increased focus in higher education on supporting open resources and technologies. Other trends may be challenging, such as cuts to funding agencies.

- **Calibrate revenue streams to a global economy**

Open source software can be very attractive to organizations in developing economies. Program staff must be flexible in their expectations for financial and in-kind contributions from these organizations; for example, by calibrating financial requirements for governance participation on a sliding scale.

Resources Resources and Tools

- “BountySource Home.” BountySource. Accessed 1 February 2018. <https://www.bountysource.com/>.
- Eghbal, Nadia. “A Handy Guide to Financial Support for Open Source.” GitHub. Accessed 1 February 2018. <https://github.com/nayafia/lemonade-stand>.
- Evans, Duncan. “Three Simple Steps to Make Distributed Teams Work.” Scrum.org. Accessed 1 February 2018. <https://www.scrum.org/resources/blog/three-simple-steps-make-distributed-teams-work>.
- “Financial Management.” National Council of Nonprofits. Accessed 1 February 2018. <https://www.councilofnonprofits.org/tools-resources-categories/financial-management>.
- Fogel, Karl. “Hiring Open Source Developers.” In *Producing Open Source Software: How to Run a Successful Free Software Project*. Beijing: O’Reilly, 2009. <http://producingoss.com/>.
- “Foundation Center Home.” Foundation Center. Accessed 1 February 2018. <http://foundationcenter.org/>.
- “Reports and Resources.” Nonprofit Technology Network. Accessed 1 February 2018. <https://www.nten.org/knowledge/reports-and-resources/>.
- “Planning for Sustainability.” OSS Watch. Accessed 1 February 2018. <http://oss-watch.ac.uk/resources/planningsustainability>.



Katherine Skinner discussing the “Steps” model created by Educopia.

Resources Case Studies

Guidebook case studies provide first-hand accounts from forum participants about their program’s work toward sustainability. Resource case studies are from the DuraSpace organization and Specify program.

DuraSpace

By Michele Kimpton and Jonathan Markow

<http://www.duraspace.org/>

<http://duraspace.org/sites/duraspace.org/files/2014%20DuraSpace%20Annual%20Report.pdf>

2014 was a year of growth and transition for DuraSpace. DuraSpace’s key goals for the year were to increase community participation and engagement in the open source projects, and to increase transparency regarding DuraSpace’s role and how funds are allocated to projects and services. To help achieve these goals, DuraSpace transitioned from a sponsorship to a community membership program to support the open source projects. A key objective of the new membership program was to increase community engagement by establishing a robust governance structure for each open source project. By the end of 2014 steering groups and leadership groups had been established for each of the projects. Participants in these groups came directly from the membership.

Continued growth of membership in DuraSpace was a key objective to expanding the organization’s reach and engaging with software users both far and near. Thirty-three percent of the membership came from outside the United States. Focused efforts were made to increase engagement with users outside the USA, to better understand their needs,

“A key objective of the new membership program was to increase community engagement.”

and give them a more democratic way to voice their needs through the governance model established. Significantly reduced membership fees were available for institutions from developing countries, as low as \$250 per year. The membership program provided a pathway for DuraSpace to



increase awareness and education about how to best contribute to and participate in open source projects, and to illustrate how global engagement and contribution drives successful community source software development.

DuraSpace also continued to expand its portfolio of hosted services running on cloud infrastructure. DuraSpace services continued to be developed and expanded based on the goal of providing small to mid-size organizations with services that enabled management, access to and preservation of their digital research and scholarship without having to pay for in-house technical expertise to deploy and maintain technologies. DuraSpace’s goal was to enable any institution the capability to access, manage and preserve their digital holdings regardless of the institution’s size.

DuraSpace’s success was based on a deep understanding of how to advance community source projects through community engagement, and how to continually adapt services to meet the emerging needs of the larger community invested the stewardship of our collective digital scholarship.

In fiscal year 2014, all revenue was derived from membership and services revenue. No revenue in 2014 came from grant funding, the first time in DuraSpace’s history. In 2009, the organization was 100% grant funded and in 2014, 75% of revenue was derived from membership while 25% came from services.

Resources Case Studies

Specify

By James Beach

<http://www.sustain.specifysoftware.org/>



For over 400 years, field biologists have explored the world’s wild places to discover and document the diversity of life on earth. Preserved animal and plant specimens from those forays provide the physical evidence for describing new species and for documenting species distributions in space and in time. Specify

(<http://www.specifysoftware.org>) museum databases are catalogs of those specimens; they include descriptive, taxonomic, geographic and other types of specimen data.

In 1987, the U.S. National Science Foundation began funding the MUSE Project, the predecessor to Specify. Over the subsequent 30 years the two projects competed for \$12M in grants with additional support from the University of Kansas. In 2017, with encouragement from NSF, we began a process to identify an organization/revenue model that would engage biological collections institutions to financially support future costs of the Specify Project’s core software development and technical support services.

collections to use inexpensive or free software for the processing the data associated with curation and research.

Specify’s open source license is valued by most small and medium-sized collections because the software is free to use. But large university and national museums have told us that open source licensing was a precondition for their adoption of it, because of an institutional commitment to open source software.

In transitioning Specify from grant funding to financial sustainability, our two biggest challenges are: 1) identifying an organization/financial model for generating revenue to sustain the project, and 2) finding a way to keep the project embedded within a research center or university. For the first challenge, a non-profit, membership organization model looks like the most promising option as it will enable us to leverage fees from larger “Founding Member” institutions who are in a position to, in effect, subsidize Specify for smaller collections with meager financial resources.

For the second challenge, being embedded within a university research campus gives us direct access to collections researchers for feedback and to inform priorities.

More importantly, being under the wing of a university or research museum would give us benefits from existing infrastructure, including human resources, financial management,

payroll services and the like. In addition, staff would enjoy the benefits of university employment which partially compensate for mid-range ‘academic’ salaries.

“Ultimately, economic sustainability of the Project will depend on the number of research institutions who value open source software enough to help underwrite it ...”

Research institutions with natural history collections range in size from large national museums with tens of millions of specimens, to mid-size university collections (50,000-several million), to small college and free-standing collections (5,000-50,000). The Specify Software Project primarily serves mid- and small-sized museums – a total of about 500 collections in the U.S. and 37 other countries. Generally biological museums are sparingly-resourced; collections in some large U.S. state universities have budgets, exclusive of salaries, of a few thousand dollars per year. Such limiting financial resources drives the majority of biological

Ultimately economic sustainability of the Project will depend on the number of research institutions who value open source software enough to help underwrite it, extreme cost effectiveness for smaller institutions, and our ability to deliver mature and agile software products that keep up with evolving research requirements, community standards and architectures, and commercial computing technologies.

Facet: Community Engagement

Phase I: Getting Beyond Initial Stakeholders

Core Goal

Identify and involve a wider group of stakeholders.

Characteristics

Phase I programs are generally focused on their primary stakeholders. There is frequently lack of engagement with the broader cultural and scientific heritage and OSS communities, and lack of an externally focused communications strategy, either from limited experience or a feeling that outreach is not a priority at this point. In this stage, the core stakeholders may still be developing their product strategy and doing a competitive environmental scan. In this early stage, staffing resources are limited and can be dependent on one organization, with a focus on doing core set-up work rather than engaging with a larger audience or establishing communications practices to a wider community.

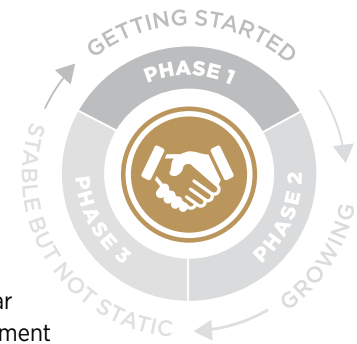
Concerns and Roadblocks

Insufficient staffing can be an issue in this stage. Work may be done by volunteers and/or overcommitted program staff. This leads to a difficult balance between doing the work and communicating about what is going on to a wider community. There may be tension among the core stakeholders between focusing on critical early set-up functions while at the same time feeling pressure to start seeding the larger community. The software may not be available to a wider audience and there is frequently a lack of documentation to share – thus making it difficult to connect with the larger potential community that the software will need in order to grow.

Moving Forward: Objectives

- **Identify and involve a wider group of stakeholders**

In order for the open source software to grow, the small group supporting it needs to grow as well. The tight group of dedicated people working on it should determine and define the audience for the software and start involving them in its growth and development. Useful questions to ask and answer as you seek to increase stakeholders include: Who are you serving? What value are you adding? Are there additional communities that can be served by this software?



- **Form an outreach committee**

One strategy for regular and consistent engagement with the community is to form an outreach committee, thus prioritizing this objective. Making a group responsible for it means that community engagement and outreach is no longer a “nice” thing to do when people have time, but rather a commitment for all stakeholders with long-term impact.

- **Formulate a communications and engagement strategy/plan**

Despite being time consuming, it is critical to create a community engagement strategy at this early stage. Programs should consider it part of their overall strategic and operating plans. Be sure to include specific elements, such as creating mailing lists, conducting member forums, giving conference presentations, and committing to regular blog posts. When considering the OSS program’s communications strategy, read through the resources in this Guidebook. Reach out to staff and community members of other OSS programs serving cultural and scientific heritage – the participant list for the ITAV forum is a great start.

- **Implement communications and engagement strategy**

An iterative and ongoing communications and engagement strategy may be appropriate for many OSS programs. Programs should continue to evaluate and adapt as they go forward. Contributors may find that weekly blog posts are too burdensome or regional in-person meetings are better than online meetings for the community. Find users who are willing to serve as program champions and tell stories of successful use of the OSS. It is not just about communicating out to people; it should be the start of the larger community engaging with and contributing to the OSS program and software.

Insufficient staffing can be an issue in this stage.

Facet: Community Engagement

Phase II: Establishing Community Engagement Infrastructure

Core Goal

Bringing more into the fold – turning users into stakeholders.

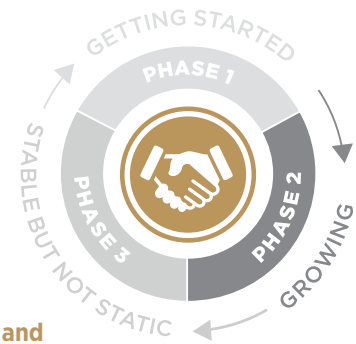
Characteristics

Phase II is when program participants determine how to best facilitate engagement that works for the specific community. At this stage, the community may be small and unsure of how to contribute. For example, individuals may be contributing code, but the processes aren't very clear, streamlined or efficient. People may want to help in a variety of ways, but aren't sure how, or they may wait until they are specifically asked to contribute.

Concerns and Roadblocks

Frustration or fatigue may be an issue in Phase II. Efforts take time to pay off and some strategies may need to be shifted. Stale patterns may need to be changed and new methods employed. Potential stakeholders may be unfamiliar with OSS models and may not understand how they differ from the traditional vendor relationship; they may be more accustomed to a “transactional” model wherein a specific price is paid for a specific service. When there are membership fees or sponsorship levels, it may be more difficult to quantify specific benefits and so individuals or institutions new to open source might need help to understand and embrace the model or explain it to their resource allocators. Efforts may be necessary to educate or explain how and why members/participants contribute, and the benefits of being a contributor.

Potential stakeholders may be unfamiliar with OSS models and may not understand how they differ from the traditional vendor relationship.



Moving Forward: Objectives

- **Setting up processes and infrastructure to facilitate engagement**

Focus on shifting people from “interested” to “engaged” and “eager to see” to “eager to participate and contribute.” Programs in this phase benefit from having policies that guide and foster engagement including contributor guidelines, community guidelines, and best practices.

- **Clear communication practices and policies**

In this phase, programs frequently need to create and improve communication policies. Examples may include: a code of conduct and onboarding materials. It is a good time to consider if you have branding issues – does the program have a cohesive overall message?

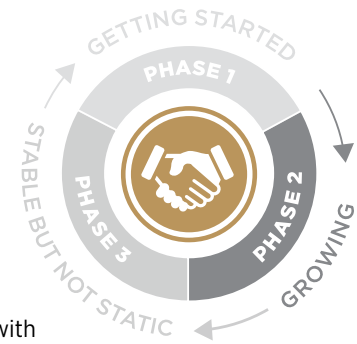
- **Increased non-directed community activities**

Increase active representatives and empower them to be ambassadors. Programs should encourage spontaneous, informal, non-directed, autonomous community activities. Participants should be empowered to do presentations at conferences, start regional meet-ups, organize a working group, etc., and act without explicit directions from program staff or leadership. A culture of shared ownership and responsiveness will also encourage the community to respond to questions. Consider creating “toolkits” or structures to facilitate more effective communication with clear and consistent messaging.

(Continues on page 34)

Facet: Community Engagement

Phase II: Establishing Community Engagement Infrastructure (continued)



- **Increased transparency**

Programs will want to ensure that their activities (ranging from governance to technology) are clear to current and potential community members. The participants need to feel that they understand how decisions are made and what development will occur. Specific ways to foster this include regularly distributed technology roadmaps, annual reports, and updates from governance and committees.

- **Dedicated staffing**

Many OSS programs benefit from dedicated staffing (commonly product manager and/or program manager and technical lead) in order to sustain their efforts.

- **Engaging a more diverse set of engaged participants**

Sustainable programs need diversity in all forms. Diversity of skill sets (such as training, translation, documentation, programming, etc.) is important. Geographic diversity may also be important to broaden the reach of the program. Programs will also want to ensure they are positioned so that people of all backgrounds feel welcome to participate.

- **Engaging with new communities**

Consider integrations with other communities as a way to broaden the reach and appeal of the software and engage a broader audience. Examples include repository software integrating with digital preservation software or collections management software integrating with another program to offer a discovery layer. The more interconnected the software is to wider workflows and processes, the stickier it is. The more embedded an OSS program is, the more critical it becomes to the institution, and as such, it will be more likely to have audiences and institutions stay engaged. Programs at this stage want to develop a strong network of relationships and partnerships with other programs, institutions, and companies. If the engagement strategy isn't working, governance may want to consider changes to marketing or membership/contributor models.

Sustainable programs need diversity in all forms.

Facet: Community Engagement

Phase III: Evolving Community Engagement

Core Goal

Continue to evaluate and evolve the program engagement model to keep up with new technologies, communities, and collaborators.

Characteristics

Phase III programs tend to have a well-established infrastructure to enable participation. They provide a variety of opportunities to engage – such as conferences, user groups, and awards. They have representation from diverse geographic regions and different skill sets represented (technical, documentation, training, etc.).

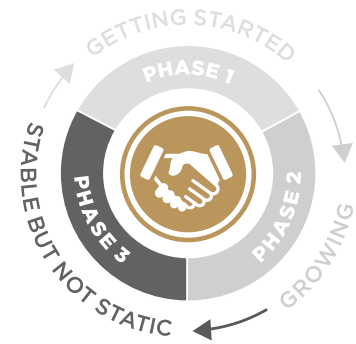
Concerns and Roadblocks

At this point the program may be considering international audiences. In order to support that, the program will need additional resources such as skill at cross-cultural communications and multilingual marketing capability. At the same time, the program needs to continue to work with and continue to meet the needs of existing users. Efforts to engage new audiences shouldn't entail neglecting longtime participants.

There may be perceived lack of communication in pockets.

A strong concern in this stage is burn out – the initial and building enthusiasm may be gone, and the tendency to rely on a few dedicated participants may be wearing them out. It may be time to think in terms of succession planning or new strategies to continue to find fresh people through specific or time-bound projects so they can contribute frequently, but not constantly.

Continue to communicate with all stakeholders and users that the software needs to continue to grow. Programs don't want to be too comfortable and then face massive technical debt.



Moving Forward: Objectives

- **Working across communities**

If they haven't already, programs in this phase should consider infrastructure and tools to enable further communication to new communities.

- **Empower the community supporting each other**

Ensure there are mechanisms and processes that enable the participants to help each other – supporting blogs, enabling easy-to-update documentation, and hosting arenas for lively discussions are important.

- **Establish ways to continually evaluate community engagement**

At this phase, continuous improvement is important to recognize, interpret, and adapt to changing environments.

At this point the program may be considering international audiences.

Community Engagement Resources and Tools

- Bacon, Jono. *The Art of Community*. Sebastopol, CA: O'Reilly 2009.
- Hintjens, Pieter. *Social Architecture: Building On-line Communities*. Self-Published, CreateSpace, 2016.
- Kraut, Robert E. and Paul Resnick. *Building Successful Online Communities: Evidence-Based Social Design*. Cambridge, MA: MIT Press, 2011.
- McCann, Laurenellen. *Experimental Modes of Civic Engagement in Civic Tech*. Chicago, IL: Smart Chicago Collaborative, 2015.
- Owens, Trevor. *Designing Online Communities: How Designers, Developers, Community Managers, and Software Structure Discourse and Knowledge Production on the Web*. New York: Peter Lang, 2015.
- Severance, Charles Russell. *Sakai: Building an Open Source Community*. Self-Published, CreateSpace, 2015. <https://www.dr-chuck.com/sakai-book/>.

Program-based examples:

- “VuFind Community.” VuFind. Accessed 1 February 2018. <https://vufind.org/wiki/community>.

Consider tools such as:

- Group messaging and collaboration, e.g. Slack, IRC
- Customer Relationship Management (CRM) – systems to manage engagement
- Source code repositories, e.g. GitHub
- Public wikis for collaboration and communication
- Publicly available issue/bug trackers
- Email lists



Program representatives participating in one of the forum activities.

Community Engagement Case Studies

Guidebook case studies provide first-hand accounts from forum participants about their program's work toward sustainability. Community Engagement case studies are from the ArchivesSpace and Vega programs.

ArchivesSpace

By Christine Di Bella
<http://archivesspace.org/>



As an open source application, ArchivesSpace is free for anyone to download and use. On the other hand, as we all well know, developing and maintaining an open source application is not itself free. In our organizational model, dues and intellectual contributions from institutional members sustain the application

and ensure its future. To maintain sufficient membership to sustain the application, we must demonstrate that membership is not only important, but also rewarding for those who choose it. While our strategies and tactics for accomplishing this have changed over time, we increasingly recognize the degree to which community engagement is an important factor in keeping members satisfied and maintaining their ArchivesSpace membership in the face of financial and other institutional pressures.

ArchivesSpace membership has exceeded projections from the beginning, sometimes by as much as double, which means the community we serve has always been larger than anticipated. The membership program launched in summer 2013 with 54 charter members, which quickly grew to 156 members by the end of the first full year. Membership has continued to grow every year, and now, a little over four years in, ArchivesSpace has over 340 General member institutions, as well as 19 Educational Program Members, and three Registered Service Providers. With this kind of success has also come great expectations on the part of those members. ArchivesSpace is blessed with a vibrant and active community of users. But connecting those users to us and to each other, while keeping the application moving forward, requires continual attention and a good measure of flexibility.

The way we meet our users' engagement expectations has evolved over time. Initially our community efforts were primarily focused on exhibiting and presenting at professional conferences and working with our appointed and elected volunteer groups. In fact, when ArchivesSpace launched as a full program in 2013, it had only two permanent staff members, a Program Manager and a Developer. It was anticipated that the Program Manager would be able to manage any associated community activities in the course of his other duties.

As the community and its expectations grew, recognizing that the Program Manager could not fulfill all needs in this area, in 2015 ArchivesSpace created a position for a part-time Community Outreach Manager. The Community Outreach Manager's original focus was improved communication with and responsiveness to individual users and groups of users and organizing a few face-to-face events, such as training sessions and an annual Member Forum. The scope was somewhat limited, but for the first time, the ArchivesSpace program had a position that was solely focused on the application's users rather than the application itself. Feedback about this change from the user community was very positive; many indicated that since part of what they liked most about being ArchivesSpace members was being part of a community, anything that helped them share and share in the experience with others made membership more valuable to them.

As our community continued to grow and diversify, it was important that our community activities grew and diversified as well. With membership continuing to outpace projections, providing additional revenue for staffing and activities to meet user needs, in 2016, the community position became full-time. In 2017 the position was retitled "Community Engagement Coordinator," in recognition of our increasing

(Continues on page 38)

Community Engagement Case Studies

ArchivesSpace

(Continued)

focus on not just reaching out to our community members, but also actively engaging them around ArchivesSpace and with each other. Our Community Engagement Coordinator now organizes a full complement of online and face-to-face events, manages communications and social media, and coordinates a range of user-focused resources, in addition to interacting with and supporting individual users around the application. As well as proven offerings like our annual Member Forum, we're trying out new things, including quarterly open calls on Zoom and wrangling contributions for a community-centered blog series. Though our focus has been to engage the entire community in large platform discussions, we are also now looking at opportunities to engage more locally through regional forums. Recognizing that different parts of our community have different needs, we've also launched efforts related to cultivating our developer community, including monthly Core Committers open calls and repositories on Github in which developers can share and collaborate on plug-ins or other kinds of code that extend or supplement the application.

“When a community comes together around a software application, it is sometimes easy to favor the latter over the former.”

Our efforts have been rewarded with greater and broader participation in our activities, and especially notably higher levels of contribution and collaboration on activities that both strengthen the community and feed directly into improving the application.

When a community comes together around a software application, it is sometimes easy to favor the latter over the former. In our program, we firmly believe that while developing and maintaining a high-quality application ensures ArchivesSpace will continue to exist, engagement of our users, and particularly the members that sustain it, ensures that it will thrive. We're fortunate at ArchivesSpace that our community recognizes this, and actively supports and inspires our efforts in both areas.

Community Engagement Case Studies

Vega

By Cheryl Ball

<https://vegapublish.com/>



Vega is an open-source publishing system that provides workflows and a range of features and customizations for authors, editors, and publishers to interact with data and multimedia. Although it may be too early to discuss Vega as a fully realized case study on community engagement (its initial release is forthcoming), Vega's

origins speak to the importance of informal community engagement. Were it not for dozens of watercooler conversations regarding the failures of existing publishing tools to support, share, and remix content regardless of form, the thought that “there’s got to be a better way” might have remained an individual’s pipe dream rather than a Mellon-funded tool with a long and diverse list of early adopters.

“Vega’s origins speak to the importance of informal community engagement.”

Although the Vega community was formed around mutual unhappiness, we expect our community will develop in a more positive direction as we deliver both a technical solution (the Vega software) and a mechanism for its sustained development (a process to gather and address current and future community needs in digital publishing). While we have relied on our community to describe features and requirements, we have not used a community approach to Vega’s technical development, preferring to contract with professional software developers (Bengler) to code our first release. For Vega, this has proved to be the most efficient approach: our community’s expertise lies primarily in the publishing domain, and we want to work to our strengths, allowing the design developers to work to theirs. We will turn to our community soon to test our production release and are pleased that our early adopters present diverse needs, testing Vega’s ability to create new journals and books, convert old publishing venues, and construct new features to advance digital publishing.

Concluding Remarks

Sustainability is one of the most challenging elements that OSS programs serving the cultural and scientific heritage community face. This Guidebook is intended to provide guidance for new and continuing programs, and to serve as a bridge to further collaboration.

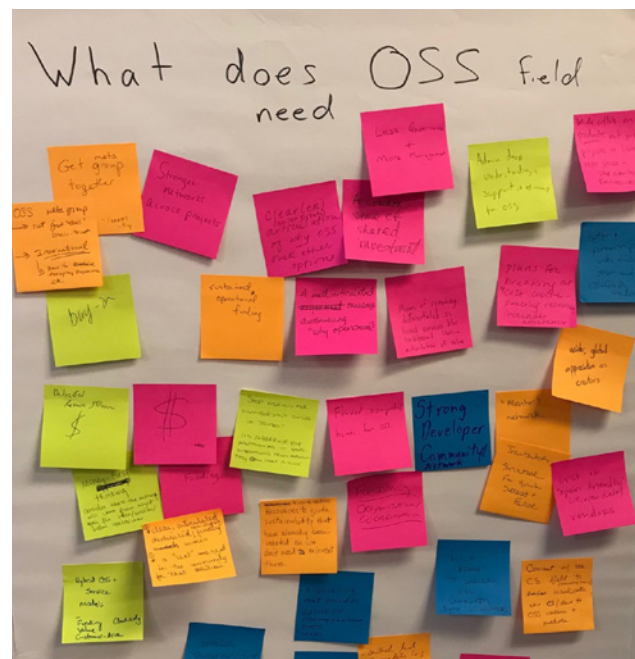
One of many benefits of the project was the opportunity to bring together people representing different programs and perspectives. Many of the forum participants found the opportunity to meet others at different phases in their programs extremely valuable. There was consensus that there is strength in working together across programs and many were eager to follow up with others or assist other programs in their future plans.

Near the end of the forum, participants discussed the needs and opportunities they see that cross OSS programs, summarized as:

- Program incubation;
- Community coordination and partnerships across OSS;
- Public Service Announcement (PSA) campaign/materials to promote open source as a value;
- Networking with other OSS efforts and mentoring others;
- Building awareness of open-friendly partners;
- Business modeling and planning; and
- Planning and guidance around if/when/how programs gracefully exit.

Participants were eager to harness the energy and spirit of collaboration in the room. They agreed that in-person meetings provided benefits that virtual communication does not. Some participants already knew each other, but appreciated the opportunity to focus on OSS sustainability in a concentrated way without the distractions or conflicting priorities of a larger conference or event focused on another topic. Avenues for future action could focus around cross program needs and opportunities for in person collaboration.

The co-directors, advisory group members, and forum participants will continue to explore ways to work together that benefit the larger OSS community. The project website (<https://www.lyrasis.org/technology/Pages/IMLS-OSS.aspx>) will maintain this Guidebook but will also serve as a place for updates on other potential activities that will arise from the project.



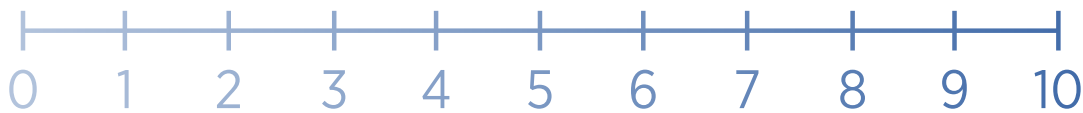
The results of the forum exercise to capture suggestions regarding the needs across the larger OSS landscape.

Appendix A: Sustainability Worksheet

For each facet, give your program a score from 1-10 based on your knowledge of the program’s strengths and weaknesses in that area. Scores between 0-3 will align most closely with Phase I, between 4-7 with Phase II, and 8-10 with Phase III.

Facet: Governance

“A governance model describes the roles that project participants can take on and the process for decision making within the project. In addition, it describes the ground rules for participation in the project and the processes for communicating and sharing within the project team and community.”³



Facet: Technology

The core of each of these programs is an open source software application serving cultural heritage organizations. There are parallels with proprietary software development processes, but working within the open source world brings its own challenges around community, resources, and governance that affect the software development process.



Facet: Resources

In order to launch, grow, and thrive, OSS programs need resources both human and fiscal. Human resources encompass engineers writing code, community members providing use cases, or organizational homes with fiscal stewardship. Financial resources come in and go out in a wide variety of ways - in via contributions, grants, dues, sponsorships, etc., and out via salaries, servers, overhead, etc.



Facet: Community Engagement

The Community Engagement facet reflects efforts to facilitate and foster engagement within a community. It is focused on encouraging users to become stakeholders. A component of this facet includes communication and outreach efforts to the community itself as well as the wider world of decision makers, potential users, funding agencies and others.



³ Gardler, Ross and Gabriel Hanganu. “Governance Models.” OSS Watch. <http://oss-watch.ac.uk/resources/governancemodels> (accessed November 30, 2017).

Appendix B: Resources

General

Resources in this section provide an overview of OSS program management and development. Some resources are “how-to” or best practices guides, while others provide a retrospective look at a specific project.

- Dolphin, Ian, Douglas Johnson, Laura Gekeler, and Patrick Masson. “7 Things You Should Know about Open-Source Projects.” Educause. Accessed 1 February 2018. <https://library.educause.edu/resources/2017/8/7-things-you-should-know-about-open-source-projects>.
- Fogel, Karl. *Producing Open Source Software: How to Run a Successful Free Software Project*. Beijing: O’Reilly, 2009. <http://producingoss.com/>.
- “It Takes A Village Home.” LYRISIS. Accessed 1 February 2018. <https://www.lyrasis.org/technology/Pages/IMLS-OSS.aspx>.
- Knight Foundation. “Scaling Civic Tech: How Can We Harness Technology to Promote Civic Engagement and More Responsive Government.” Knight Foundation, Rita Allen Foundation. Accessed 1 February 2018. <https://knightfoundation.org/features/civictechbiz/>.
- Lenhardt, Jan. “Sustainable Open Source.” Writing by Jan Lenhardt (blog). Accessed 1 February 2018. <http://writing.jan.io/2015/11/20/sustainable-open-source.html>.
- Lewis, David. “The 2.5% Commitment.” Accessed 1 February 2018. <https://scholarworks.iupui.edu/handle/1805/14063>.
- Raymond, Eric. *The Cathedral and the Bazaar: Musings on Linux and Open Source by an Accidental Revolutionary*. Cambridge, MA: O’Reilly, 2001.

Governance

Resources in this section provide a nuts-and-bolts look at developing governance plans, including: developing roles and responsibilities for board members, program staff (paid or volunteer), and community contributors; and determining the decision-making process within programs.

- Benkler, Yochai. *The Penguin and the Leviathan: How Cooperation Triumphs over Self-Interest*. New York: Crown Business, 2011.

- “Boardsource Home.” BoardSource. Accessed 1 February 2018. <https://boardsource.org/>.
- “Community Explorer.” REALISE Project. Accessed 1 February 2018. <http://fullmeasure.co.uk/REALISE/>.
- Gardler, Ross and Gabriel Hanganu. “Governance Models.” OSS Watch. Accessed 1 February 2018. <http://oss-watch.ac.uk/resources/governancemodels>.
- Resnick, Pete. “On Consensus and Humming in the IETF.” Internet Engineering Task Force. Accessed 1 February 2018. <https://tools.ietf.org/html/rfc7282>.

OSS organizational homes and incubators:

- “Aperero Incubation Process.” Aperero. Accessed 1 February 2018. <https://www.apereo.org/content/apereo-incubation-process>.
- “DuraSpace What We Do: Projects.” DuraSpace. Accessed 1 February 2018. <http://www.duraspace.org/whatwedoprojects>.
- “Educopia Institute: Our Work.” Educopia Institute. Accessed 1 February 2018. <https://educopia.org/about-us/our-work>.
- “LYRISIS Open Source Organizational Homes.” LYRISIS. Accessed 1 February 2018. <https://www.lyrasis.org/technology/Pages/open-source-org-homes.aspx>.
- “Software Freedom Conservancy Projects.” Software Freedom Conservancy. Accessed 1 February 2018. <https://sfconservancy.org/projects/>.

Program-based examples:

- “Apache Corporate Governance Overview.” Apache Foundation. Accessed 1 February 2018. <http://www.apache.org/foundation/governance/>.
- “ArchivesSpace Governance Board and Councils.” ArchivesSpace. Accessed 1 February 2018. <http://archivespace.org/governance-board-and-councils/>.
- “Fedora Governance Model.” Fedora. Accessed 1 February 2018. <http://fedorarepository.org/governance>.
- “MetaArchive Resources.” MetaArchive. Accessed 1 February 2018. <https://metaarchive.org/documentation-resources/>.

Appendix B: Resources

Technology

Resources in this section, for the most part, do not attempt to explain how to run a successful software development project; rather, they focus on how managing an OSS project is different from other software development projects, and how understanding and working with those differences can lead to a stronger overall project.

- Dombrowski, Quinn. “What Ever Happened to Project Bamboo?” *Literary and Linguistic Computing*, Volume 29, no. 3 (2014): 326–339.
- Fogel, Karl. *Producing Open Source Software: How to Run a Successful Free Software Project*. Beijing: O’Reilly, 2009. <http://producingoss.com/>.
- Ries, Eric. *The Lean Startup: How Today’s Entrepreneurs Use Continuous Innovation to Create Radically Successful Businesses*. New York: Currency, 2017.
- Rosenberg, Scott. *Dreaming in Code: Two Dozen Programmers, Three Years, 4,732 Bugs, and One Quest for Transcendent Software*. New York: Three Rivers Press, 2008.

Program-based examples:

- “Avalon Media System Documentation.” Avalon Media System. Accessed 1 February 2018. <http://www.avalonmediasystem.org/documentation>.
- “Koha For Developers.” Koha Community. Accessed 1 February 2018. <https://koha-community.org/get-involved/for-developers/>.
- “Samvera: Developers.” Samvera Community. Accessed 1 February 2018. <https://wiki.duraspace.org/display/samvera/Developers>.

Finance

Resources in this section provide guidance on where to find funding and non-monetary contributions for open source projects. Also included are resources on developing earned income streams.

- “BountySource Home.” BountySource. Accessed 1 February 2018. <https://www.bountysource.com/>.
- Eghbal, Nadia. “A Handy Guide to Financial Support for Open Source.” GitHub. Accessed 1 February 2018. <https://github.com/nayafia/lemonade-stand>.
- “Financial Management.” National Council of Nonprofits. Accessed 1 February 2018. <https://www.councilofnonprofits.org/tools-resources-categories/financial-management>.

- “Foundation Center Home.” Foundation Center. Accessed 1 February 2018. <http://foundationcenter.org/>.
- “Reports and Resources.” Nonprofit Technology Network. Accessed 1 February 2018. <https://www.nten.org/knowledge/reports-and-resources/>.

Human Resources

Resources in this section provide guidance on hiring program staff and managing distributed teams.

- Evans, Duncan. “Three Simple Steps to Make Distributed Teams Work.” Scrum.org. Accessed 1 February 2018. <https://www.scrum.org/resources/blog/three-simple-steps-make-distributed-teams-work>.
- Fogel, Karl. “Hiring Open Source Developers.” In *Producing Open Source Software: How to Run a Successful Free Software Project*. Beijing: O’Reilly, 2009. <http://producingoss.com/>.
- “Planning for Sustainability.” OSS Watch. Accessed 1 February 2018. <http://oss-watch.ac.uk/resources/planningsustainability>.

Community Engagement

Resources in this section provide guidance on building and sustaining effective open source communities.

- Bacon, Jono. *The Art of Community*. Sebastopol, CA: O’Reilly 2009.
- Hintjens, Pieter. *Social Architecture: Building On-line Communities*. Self-Published, CreateSpace, 2016.
- Kraut, Robert E. and Paul Resnick. *Building Successful Online Communities: Evidence-Based Social Design*. Cambridge, MA: MIT Press, 2011.
- McCann, Laurenellen. *Experimental Modes of Civic Engagement in Civic Tech*. Chicago, IL: Smart Chicago Collaborative, 2015.
- Owens, Trevor. *Designing Online Communities: How Designers, Developers, Community Managers, and Software Structure Discourse and Knowledge Production on the Web*. New York: Peter Lang, 2015.
- Severance, Charles Russell. *Sakai: Building an Open Source Community*. Self-Published, CreateSpace, 2015. <https://www.dr-chuck.com/sakai-book/>.

Program-based examples:

- “VuFind Community.” VuFind. Accessed 1 February 2018. <https://vufind.org/wiki/community>.

Appendix C: Forum Participant List

Advisory Group

Robert Cartolano

Associate Vice President for
Technology and Preservation
Columbia University Libraries

Tom Cramer

Assistant University Librarian &
Director, Digital Library Systems
and Services
Chief Technology Strategist
Stanford University Libraries

Michele Kimpton

Director of Business Development
and Senior Strategist
Digital Public Library of America

Katherine Skinner

Executive Director
Educopia Institute

Ann Whiteside

Chair, CollectionSpace Leadership
Working Group
Librarian and Asst. Dean for
Information Services
Harvard University Graduate School
of Design

Program Team

Laurie Gemmill Arp

It Takes a Village Co-Director
Director, Collections Services and
Community Supported Software
LYRASIS

Megan Forbes

It Takes a Village Co-Director
Program Manager, CollectionSpace
LYRASIS

Christina Drummond

Forum Facilitator

Program Representatives and Presenters

Ben Armintor

Blacklight
Development Head, Infrastructure
and Applications
Columbia University Libraries

Chris Awre

Steering Group, Samvera
Head of Information Services
University of Hull

Cheryl Ball

Co-Principal Investigator, Vega
Director, Digital Publishing
Collaborative
Wayne State University

James Beach

Specify Software Project
Assistant Director for Informatics
Biodiversity Institute
University of Kansas

Sheila Brennan

Director, Omeka
Director of Strategic Initiatives &
Acting Director of Public Projects,
Roy Rosenzweig Center for History
and New Media
Research Associate Professor,
History and Art History
George Mason University

Chris Cormack

Technical Lead, Koha Team
Catalyst IT Limited

Ian Dolphin

Sakai
Executive Director
Aperio Foundation

Jon Dunn

Project Director, Avalon Media System
Assistant Dean for Library Technologies
Indiana University

Carissa Egan

Hosting Services Brand Manager
LYRASIS

James English

Project Manager, Library Simplified
New York Public Library

Courteney Ervin

Applications Developer, Library
Simplified
New York Public Library

Declan Fleming

Leadership Group, Fedora
Chief Technology Strategist
Head, Information Technology
Services
University of California, San Diego
Libraries

Christopher Hallberg

Developer, VuFind
Library Technology Development
Specialist
Villanova University

John Herbert

Director, Technology Services
LYRASIS

Rachel Howard

Chair, MetaArchive Steering
Committee
Digital Initiatives Librarian
University of Louisville

Salwa Ismail

Chair, DSpace Steering Group
Head, Library Information Technology
Georgetown University

Appendix C: Forum Participant List

Mark Jordan

Chair, Islandora Board of Directors
Head of Library Systems
Simon Fraser University

Demian Katz

Lead Developer, VuFind
Director of Library Technology
Villanova University

Seth Kaufman

Lead Developer, CollectiveAccess
Whirl-i-Gig

Dean Krafft

Chair, OLE Board of Directors
Chief Technology Strategist
Cornell University Library

Debra Hanken Kurtz

Chief Executive Officer
DuraSpace

Cal Lee

Principal Investigator, BitCurator
UNC-Chapel Hill School of Information
and Library Science

David Lewis

Outgoing Chair, DSpace Steering Group
Dean, University Library
Assistant Vice President, Digital
Scholarly Communication
Indiana University –
Purdue University Indianapolis

Laney McGlohon

Technical Lead, ArchivesSpace
LYRASIS

Evelyn McLellan

Archivematica
President
Artefactual Systems

Sam Meister

Program Manager, MetaArchive
Preservation Communities Manager
Educopia

Robert Miller

Chief Executive Officer
LYRASIS

David Millman

ArchivesSpace
Assistant Dean for Digital Library
Technology Services
New York University Libraries

Steve Oberg

Chair, CORAL Steering Committee
Group Leader for Resource
Description and Digital Initiatives
Wheaton College

Brian Owen

Managing Director, Public
Knowledge Project
Associate Dean of Libraries,
Library Technology Services
and Special Collections
Simon Fraser University

Art Pasquinelli

Partnership Manager, LOCKSS
Stanford University

Mervin Richard

Principal Investigator,
ConservationSpace
Chief of Conservation
National Gallery of Art

Michael Roy

Dean of the Library
Middlebury College

Robin Ruggaber

Steering Group, Samvera
Senior Director of Library Experience
Library Chief Technology Officer
University of Virginia

Michael Skalka

Project Manager, ConservationSpace
Conservation Administrator
National Gallery of Art

Kari Smith

President, BitCurator Consortium
Digital Archivist and Program Head
for Born-Digital Archives
Massachusetts Institute of Technology

Tim Spindler

Chair, Evergreen Oversight Board
Executive Director
C/W MARS

Kevin Stranack

Head, Digital Publishing & Associate
Director for Community Engagement
and Learning, Public Knowledge Project

Nicholas Taylor

Program Manager, LOCKSS
Web Archiving Service Manager
Stanford University Libraries

Kaitlin Thaney

Endowment Director
Wikimedia Foundation

Evviva Weinraub

Project Director, Avalon Media System
Associate University Librarian
for Digital Strategies
Northwestern University

Appendix D: OSS Program Survey Results

A survey was distributed to all participating programs in advance of the Baltimore forum. The information was submitted by program staff between June – July, 2017, and was used to help plan the forum agenda and Guidebook content. Entries have been very lightly edited for clarity.

Archivematica

What is the high level purpose of the OSS?

Digital preservation microservices, including ingest, identifier assignment, checksum generation, virus scanning, format identification, format validation, metadata extraction, format normalization, generation of standardized preservation metadata, AIP packaging, fixity checks and placement in archival storage.

Who is your target audience?

Archives, libraries, and museums.

How would you categorize your program’s current stage of development?

Self-sustaining – project has sufficient resources to continue ongoing development, community support, etc.

Is your program affiliated with an organization that provides organizational infrastructure and support? If yes, please indicate the name of the organization and the type of support it provides.

No.

What is the license for the software?

AGPL-3.0

Is there any formal governance of the OSS?

No

How are major and minor decisions made?

By the development team in partnership with institutions funding development. The development team includes archivists, librarians, developers and systems administrators.

How many organizations are using the OSS?

100+.

What percentage of users are outside of the USA?

More than 50%

In what ways do institutions contribute to the project?

Code contributions; Documentation; Domain expertise; Financial contribution; Outreach/advocacy; Peer support.

What is the rough percentage of institutions contributing to the software?

Less than 25%

Are your communication platforms, software development tools, and documentation openly available to all?

Yes

What was the date of the first release and/or when did the project start?

Analysis started in 2010, first alpha release 2010, first production release January 2014.

What was the date of the latest major release?

March 2017.

Is integration/compatibility with another system essential to your project’s success or value proposition?

Not essential but highly useful. For example, integration with repository management and access systems is required by many institutions for full ingest-to-access workflows.

Does the project/program have a technology roadmap?

Yes

If yes, how is it produced and how often is it updated?

Produced by Artefactual, updated regularly (weekly/monthly).

Approximately how many developers have contributed to the project to date?

11-25

Approximately how many code committers and committing organizations are actively contributing?

5-10.

Is there a dominant organization that provides committers?

Artefactual Systems Inc., a private company based in New Westminster, Canada.

Are any of the committing organizations for-profit entities?

Artefactual Systems.

How do you cultivate/organize the coding community?

Word of mouth, participation in conferences, provision of contribution guidelines and contributor’s agreement on GitHub.

Describe your onboarding strategy for new contributors, or include link to info if online.

<https://github.com/artefactual/archivematica/blob/stable/1.6.x/CONTRIBUTING.md>

Does the program have paid staff? If so, how many FTE?

Yes; 8.5

What is the current annual budget for the project/program?

\$500,001-\$1 million

Appendix D: OSS Program Survey Results

Archivematica (continued)

How is the program currently being funded?

Earned income (through hosting, tech support, training and consulting services); bounty model.

How many stakeholders contribute financially?

20-40 per year, depending on projects. Includes hosting/maintenance clients and institutions that provide development bounties.

How many stakeholders contribute developer resources? Among stakeholders who contribute developer resources, what is the average contribution?

Artefactual provides nearly all developer resources but other organizations also provide code commits, QA review, documentation or other types of support. Some institutions (typically university libraries and archives) provide developer resources during bounty development projects.

What is the next major milestone for the project? How do you plan to fund that effort?

Robust integrations with leading open-source tools such as Hydra, Islandora, ArchivesSpace and Dataverse. Numerous institutions have expressed interest and some integration work has been done already. We need to secure funding to provide integrations that meet the workflow needs of multiple institutions.

What was the source and funding for initial development of the software?

Seed funding from UNESCO and the City of Vancouver Archives.

How long did initial development and testing take before the software was released for community adoption?

Four years from conception to production release.

Are there competing products, either proprietary or open source?

Yes, there are a few.

What are your aspirations for the OSS?

Serve the needs of as many institutions as possible that are seeking to preserve digital holdings sustainably and in compliance with internationally recognized standards.

What are specific challenges faced by stakeholders in support of this OSS?

Main challenge is continuing to fund the development of the software in a rapidly revolving field, and being able to meet the digital preservation requirements of numerous diverse organizations. It is important to us to continue to work toward preserving as many different types of holdings as possible – datasets, websites, email, multimedia etc.

What are specific challenges faced by developers?

Participating in multiple streams of development (i.e. multiple new features funded by various organizations) while maintaining one public release branch of the software; merging all features and managing public releases.

What are specific challenges faced by target audience?

Understanding digital preservation requirements and how they may or may not be met by the software; using multiple systems to accomplish diverse digital curation, preservation and access tasks; scaling up workflows.

Do you have service providers that help you or the community? If so, with what?

Artefactual partners with the Canadian Council of Archives, the Council of Pacific and Prairie University Libraries and DuraSpace to provide hosting services.

What, if any, is the financial arrangement between the project and these service providers?

Revenues are shared between Artefactual and the various partners in different ways, depending on the partner organization.

Program wiki

https://wiki.archivematica.org/Main_Page

Program website

<https://www.archivematica.org/>

Program social media

@archivematica

Program mailing lists

<https://groups.google.com/forum/#!forum/archivematica>

Program training

<https://www.artefactual.com/services/training/>

Program code repository

<https://github.com/artefactual/archivematica>

Program meeting opportunities

<https://wiki.archivematica.org/Community/Camps>

Is there anything else you want to tell us?

Artefactual has another open-source project called Access To Memory (AtoM), a web-based access and discovery system. The development history is fairly similar to Archivematica's but we are working with a number of institutions to establish a non-profit foundation to serve as a governance body for AtoM. If that is successful we may do the same thing with Archivematica.

What would you want to get out of the conference?

I love to meet with other open-source groups to talk about common challenges. And I'd specifically like to learn more about other governance and development models.

Appendix D: OSS Program Survey Results

ArchivesSpace

What is the high level purpose of the OSS?

ArchivesSpace is an archival information management system that provides support for core functions in archives administration, including acquisitions, accessioning, appraisal, arrangement, description, preservation, and access. It can be used to manage information about materials in any format, including analog, digital, and hybrid content.

Who is your target audience?

Archivists, metadata analysts and others responsible for managing archival materials, as well as their users.

How would you categorize your program's current stage of development?

Self-sustaining – project has sufficient resources to continue ongoing development, community support, etc.

Is your program affiliated with an organization that provides organizational infrastructure and support? If yes, please indicate the name of the organization and the type of support it provides.

Yes; LYRASIS is the organizational home for the ArchivesSpace program. Staff of the program are employees of LYRASIS and other departments/employees of LYRASIS provide support for common functions such as HR, finance, IT services, and marketing.

What is the license for the software?

ECL-2.0

Is there any formal governance of the OSS?

Yes

If yes to previous question, does the governance extend beyond the originating institution/entity that created the product?

Yes

If yes, please describe how representatives are chosen through election or other processes.

The ArchivesSpace Governance Board is comprised of 12 members, 9 with voting privileges and 3 ex officio. The 9 voting members are: 5 elected, representing each of the five levels of ArchivesSpace membership; 3 representing the three partners (NYU, UCSD, UIUC); and the LYRASIS CEO (representing the organizational home). The 3 ex officio represent LYRASIS management, the program team and the LYRASIS Board. There are also two advisory councils, the User Advisory Council and the Technical Advisory Council, featuring individuals, mostly from membership institutions, appointed to provide assistance and direction to the program team for specific operational activities and activities in support of the application.

How are major and minor decisions made?

Day-to-day and operational decisions are made by the organizational home, informed by the wishes of the membership. Larger decisions of policy, budgeting and resource allocation, and direction are discussed and sometimes voted on by the Governance Board. The membership, individually and as represented by the Advisory Councils, has a say in prioritization for development.

How many organizations are using the OSS?

Anyone can download and use the ArchivesSpace application (we need to keep better statistics on this), but we currently have 328 member institutions.

What percentage of users are outside of the USA?

Less than 25%

In what ways do institutions contribute to the project?

Code contributions; Documentation; Domain expertise; Financial contribution; Leadership; Outreach/advocacy; Peer support.

ArchivesSpace members are involved in all aspects of the program; the annual membership fee provides a base level of support, but members are highly encouraged to make contributions beyond the annual fee (and do).

What is the rough percentage of institutions contributing to the software?

25%-50%

Are your communication platforms, software development tools, and documentation openly available to all?

Yes

Please describe restrictions, if any.

Most of our informational tools, including all tools related to development and all technical documentation, are open to anybody. We maintain 4 member-only listservs (one general and three for specific units within our governance structure) and a member area with the user manual and video tutorials.

What was the date of the first release and/or when did the project start?

The merger of Archivists' Toolkit and Archon was first publicly announced in summer 2009. ArchivesSpace 1.0 (our first full release of the software) came out in September 2013.

What was the date of the latest major release?

We are currently about to put out ArchivesSpace 2.1.0. It will be out in July 2017.

Appendix D: OSS Program Survey Results

ArchivesSpace (continued)

Is integration/compatibility with another system essential to your project's success or value proposition?

ArchivesSpace can be used on its own, but as most archives use a number of systems in their workflow (including parts of the workflow that ArchivesSpace does not address, such as managing digital files), it is strongest when integrated with other systems. As much as possible, we use design principles and technologies that support integration, and work with other projects/vendors to facilitate specific integrations of interest to our members when we can.

Does the project/program have a technology roadmap?

Yes

If yes, how is it produced and how often is it updated?

Currently made available as an Excel spreadsheet and updated several times a year. We would like to develop a better process for this.

Approximately how many developers have contributed to the project to date?

11-25

Approximately how many code committers and committing organizations are actively contributing?

We are currently working on building up a strong code committer community and recently announced our first core committers group, featuring six individuals including the ArchivesSpace Technical Lead. We currently work with a development partner in a fee for service relationship, but hope to ramp up other types of contributions.

Is there a dominant organization that provides committers?

Our paid development partner currently does most of our development, under the direction of the organizational home/program team; the organizational home and program team do some development. On occasion, staff at member institutions provide some development, though rarely as part of a formal agreement.

Are any of the committing organizations for-profit entities?

We currently work with a paid development partner. Nearly all ArchivesSpace member institutions are non-profits.

How do you cultivate/organize the coding community?

We are currently working on building up a strong code committer community and recently announced our first core committers group, featuring six individuals including the ArchivesSpace Technical Lead. More information will be available later this year.

Describe your onboarding strategy for new contributors, or include link to info if online.

We have a Contributors' Guide, currently being reviewed by the Core Committers group and circulated within the community. More information will be available later this year.

Does the program have paid staff? If so, how many FTE?

Yes; 3.7

What is the current annual budget for the project/program?

\$500,001-\$1 million

How is the program currently being funded?

The program is currently funded almost entirely by membership fees and reserve funds. A small amount of funding comes from Registered Service Provider fees and occasional sponsorships (of activities associated with our annual Member Forum, for example).

How many stakeholders contribute financially?

We currently have 328 institutional members and 3 Registered Service Providers.

How many stakeholders contribute developer resources? Among stakeholders who contribute developer resources, what is the average contribution?

There are no formal developer contributions, though developers from the organizational home and member institutions do provide some development. Aside from the organizational home, this represents a very small percentage of an FTE (perhaps as little as 0.05) for these institutions.

What is the next major milestone for the project? How do you plan to fund that effort?

There is a great deal of functionality we would like to add to the application, including a redesign of the staff interface, expanded integrations, and easy installation/better support for smaller institutions. Most development funds currently go to our development partner, but we would like to move beyond this, while maintaining a rapid development pace. We may seek grant support or strategic partnerships with higher resourced member institutions (or others) to achieve this goal.

What was the source and funding for initial development of the software?

Mellon Foundation and funding from the three partners.

How long did initial development and testing take before the software was released for community adoption?

There were about 4 years between the announcement of the effort to build ArchivesSpace and our first full release. ArchivesSpace built on two previous open source systems, Archivists' Toolkit and Archon, which continued to be used in the intervening period.

Appendix D: OSS Program Survey Results

ArchivesSpace (continued)

Are there competing products, either proprietary or open source?

Yes, there are a few.

What are your aspirations for the OSS?

A robust and stable application that can be easily used by many different types of institutions, around the world. We would like the application to integrate seamlessly with other applications used in archives.

What are specific challenges faced by stakeholders in support of this OSS?

Sustained development is our biggest challenge – we have a lot of enthusiasm and participation from our domain experts (people know what they want and are willing to put the money and intellectual energy into it). We need to translate this into development.

What are specific challenges faced by developers?

It is a complex application, used in a domain not very well understood by people outside archives. The function it supports tends to be less privileged in our most well-resourced member institutions, so getting permission and time to do development on ArchivesSpace (vs. working on an LMS or a digital repository) from administrators can be hard.

What are specific challenges faced by target audience?

The target audience is by and large not developers and so translating what they want into what developers can or will do is difficult. Finding the time to do that is often even more so.

Do you have service providers that help you or the community? If so, with what?

Development; Hosting; Implementation; Maintenance; Migration; Training.

What, if any, is the financial arrangement between the project and these service providers?

Anyone can provide ArchivesSpace services to users and the community at large, but we do have a Registered Service Provider (RSP) program for those that want to support the sustainability of the application and participate in the membership community. RSPs pay an annual fee that can be discounted according to the percentage of their users that are also ArchivesSpace members.

Program wiki

<http://wiki.archivesspace.org>

Program website

<http://archivesspace.org>

Program social media

@ArchivesSpace

Program mailing lists

Program-hosted listservs are member-only; public archives at http://lyralists.lyrasis.org/mailman/listinfo/archivesspace_users_group.

Program training

Training videos are available to members at <http://docs.archivesspace.org>; we offer training programs for a fee to members and nonmembers, details at <http://archivesspace.org/using-archivesspace/training-and-consultations/>.

Program code repository

<https://github.com/archivesspace/archivesspace>

Program news and updates

Monthly email updates are sent to member and nonmember online lists/forums; posted on our blog at <http://archivesspace.org/category/news/monthly-updates/>.

Program meeting opportunities

Annual Member Forum; info about 2017's at <https://archivesspace.atlassian.net/wiki/display/ADC/ArchivesSpace+Member+Forum+2017>.

What would you want to get out of the conference?

Mainly just to learn from and talk with others about how to get and maintain enthusiasm and development once an application/community is no longer new. Would also love to begin forming some strategic partnerships with other projects that serve the archives community specifically.

Avalon Media System

What is the high level purpose of the OSS?

Provide a complete and scalable system for managing and providing access to large collections of digital audio and video. This includes the ability to easily curate materials, manage workflows, distribute content, and provide online access to collections for purposes of teaching, learning and research.

Who is your target audience?

Libraries and archives, primarily in academic and research institutions.

How would you categorize your program's current stage of development?

Early Production – initial core of community supporters but in early stage of adoption/growth cycle.

Is your program affiliated with an organization that provides organizational infrastructure and support?

Yes; Indiana University and Northwestern University (fiscal management, IT infrastructure, HR, some communications)

What is the license for the software?

Apache-2.0

Is there any formal governance of the OSS?

No

Appendix D: OSS Program Survey Results

Avalon Media System (continued)

How are major and minor decisions made?

Major decisions for the project are made by the project co-directors, with input from other project team members. Major decisions for the product are typically agreed upon by general consensus of the stakeholders, often with input from the product owners. As a team working in an Agile Scrum context, minor decisions are generally made by team members with the agreement of the product owners, or by the product owners with the input of the Scrum team as a whole.

How many organizations are using the OSS?

8.

What percentage of users are outside of the USA?

Less than 25%

In what ways do institutions contribute to the project?

Code contributions; Documentation; Domain expertise; Financial contribution; Leadership; Outreach/advocacy; Peer support.

What is the rough percentage of institutions contributing to the software?

Less than 25%

Are your communication platforms, software development tools, and documentation openly available to all?

Yes

Please describe restrictions, if any.

Some internal documentation such as work-in-progress documents, team meeting notes, and preliminary UX design is restricted to members of the development team.

What was the date of the first release and/or when did the project start?

The project started in a planning phase in August 2010. The first non-beta software release (Avalon 1.0) was in April 2013.

What was the date of the latest major release?

April 2017 - Avalon 6.0.1 released.

Is integration/compatibility with another system essential to your project's success or value proposition?

Yes. Avalon is built on the Samvera stack of technologies, and the health of the Samvera community is important to the success of Avalon. As a repository system, integration and compatibility with other complementary products is also important. Our recent IMLS grant, for example, includes integration with digital preservation solutions and workflow and management tools among its goals.

Does the project/program have a technology roadmap?

Yes

If yes, how is it produced and how often is it updated?

Produced and edited on an ongoing basis; most frequently updated after a major release when goals for the next are planned out, and after meeting with the entire development team where strategy and features are laid out.

Approximately how many developers have contributed to the project to date?

11-25

Approximately how many code committers and committing organizations are actively contributing?

Currently, 6 committers from 2 committing organizations.

Is there a dominant organization that provides committers?

Indiana University, followed by Northwestern University.

Are any of the committing organizations for-profit entities?

No.

How do you cultivate/organize the coding community?

By ensuring that Avalon stays up to date with the underlying software stack, allowing developers familiar with development on that platform to quickly get up to speed in an Avalon-specific development environment. The core group of Avalon developers also contribute back to the community by engaging in community sprints and working groups.

Describe your onboarding strategy for new contributors, or include link to info if online.

There is no formal process; generally a development team member will assist a new contributor in getting a development environment up and running for working on Avalon and assist as needed. For core staff members, there are also internal communication channels such as private mailing lists and Slack channels to which new contributors will be added.

Does the program have paid staff? If so, how many FTE?

Yes; 1

What is the current annual budget for the project/program?

\$500,001-\$1 million

How is the program currently being funded?

Avalon is currently funded by a Mellon Foundation grant (ending in 2018) and a new IMLS grant (to run from July 2017 - June 2019), along with significant in-kind contributions from Indiana University and Northwestern University and smaller financial contributions from a few outside organizations via specific collaborations (e.g. American Anthropological Association, Lilly Endowment).

Appendix D: OSS Program Survey Results

Avalon Media System (continued)

How many stakeholders contribute financially?

Both Indiana University and Northwestern University contribute significant in-kind and financial resources.

How many stakeholders contribute developer resources? Among stakeholders who contribute developer resources, what is the average contribution?

Both Northwestern University and Indiana University contribute developer resources; currently 1.5 FTE for NU and 4 FTE for IU.

What is the next major milestone for the project? How do you plan to fund that effort?

Since we are at the beginning of a two year grant and our current milestones fall within that time period, there are none currently planned that are beyond our current level of support.

What was the source and funding for initial development of the software?

IMLS National Leadership Grants: \$50,000 planning grant (2010-2011) and \$948K implementation grant (2011-2014).

How long did initial development and testing take before the software was released for community adoption?

14 months.

Are there competing products, either proprietary or open source?

Yes, there are a few.

What are your aspirations for the OSS?

To provide a robust, turnkey repository solution for institutions desiring to host audio and video content; to be able to provide Avalon as a software-as-a-service hosted offering; to provide components useful for integrating audio and video functionality into other Samvera (formerly Hydra) based repository applications; to provide integration with systems that complement Avalon's focus on access to meet institutional needs such as preservation; and to be leaders in implementing community AV standards such as IIIF 3.0.

What are specific challenges faced by stakeholders in support of this OSS?

Continued funding and staffing for the project; tensions between local needs and needs of users beyond the two key stakeholder institutions; developing a sustainable funding and governance model.

What are specific challenges faced by developers?

Since it is a large system comprised not only of the core Rails application but also many dependency applications that provide media encoding, streaming, it can be challenging for new developers to get up to speed with the codebase.

What are specific challenges faced by target audience?

Since a full Avalon installation includes many components, it can be difficult to troubleshoot when problems arise. Installation and support may be difficult for smaller institutions that do not have dedicated staff.

Do you have service providers that help you or the community? If so, with what?

Development; Hosting.

What, if any, is the financial arrangement between the project and these service providers?

Indiana University has paid Data Curation Experts from local funds to assist in development on a time-and-materials basis. Funding will be provided by Northwestern University via the project's new IMLS grant to LYRASIS to support costs for piloting a hosted service offering of Avalon.

Program wiki

<https://wiki.dlib.indiana.edu/display/VarVideo/>

Program website

<http://www.avalonmediasystem.org/>

Program social media

<https://twitter.com/AvalonMediaSys>

<https://www.facebook.com/AvalonMediaSys>

<http://www.avalonmediasystem.org/blog>

Program mailing lists

avalon-l@list.indiana.edu

avalon-discuss-l@list.indiana.edu

Program code repository

<https://github.com/avalonmediasystem>

Appendix D: OSS Program Survey Results

BitCurator environment, BitCurator Access webtools, BitCurator Access redaction tools, and BitCurator NLP tools

What is the high level purpose of the OSS?

The BitCurator Environment is an Ubuntu-derived Linux distribution geared towards the needs of these institutions. It includes a suite of open source digital forensics and data analysis tools to help collecting institutions process born-digital materials. BitCurator Access Webtools is a web service to simplify access to raw and forensically-packaged disk images, and BitCurator Access Redaction Tools is a toolset to streamline redaction of targeted patterns in raw data streams. The BitCurator NLP project is developing software for collecting institutions to extract, analyze, and produce reports on features of interest in text extracted from born-digital materials contained in collections. The software will use existing natural language processing software libraries to identify and report on those items (such as entities and topics) likely to be relevant to ongoing preservation, information organization, and access activities.

Who is your target audience?

People working in libraries, archives or museums, who are responsible for born-digital materials, especially (though not limited to) those held or received on removable storage media.

How would you categorize your program's current stage of development?

Self-sustaining – project has sufficient resources to continue ongoing development, community support, etc.

Is your program affiliated with an organization that provides organizational infrastructure and support? If yes, please indicate the name of the organization and the type of support it provides.

Yes; Educopia Institute.

What is the license for the software?

GPL-3.0

Is there any formal governance of the OSS?

Yes

If yes to previous question, does the governance extend beyond the originating institution/entity that created the product?

Yes

If yes, please describe how representatives are chosen through election or other processes.

See <https://bitcuratorconsortium.org/governance>

How are major and minor decisions made?

Major decisions are made by the BCC Executive Council or by full BCC membership vote (e.g. elections). Minor decisions are made within the BCC's committees.

How many organizations are using the OSS?

Estimated to be several hundred, though we don't have any way to measure this precisely.

What percentage of users are outside of the USA?

25%-50%

In what ways do institutions contribute to the project?

Code contributions; Documentation; Domain expertise; Financial contribution; Leadership; Outreach/advocacy; Peer support.

What is the rough percentage of institutions contributing to the software?

Less than 25%

Are your communication platforms, software development tools, and documentation openly available to all?

Yes

Please describe restrictions, if any.

There are some resources on the BCC site that members have decided to restrict to members only (see e.g. workflows). There is also a dedicated help desk only available to member institutions. Everything else is completely open.

What was the date of the first release and/or when did the project start?

The first BitCurator project began on October 1, 2011. The first public release of the BitCurator VM (0.1.3) was in July 2012.

What was the date of the latest major release?

May 12, 2017.

Is integration/compatibility with another system essential to your project's success or value proposition?

We've coordinated closely with the developers of Archivematica. This probably hasn't been essential to the success of the BitCurator environment, but it's been valuable and will continue to be valuable.

Does the project/program have a technology roadmap?

Yes

If yes, how is it produced and how often is it updated?

This is being maintained by the Software Development Committee – <https://bitcuratorconsortium.org/committees/software-development-committee>.

Approximately how many developers have contributed to the project to date?

3-10

Appendix D: OSS Program Survey Results

BitCurator environment, BitCurator Access webtools, BitCurator Access redaction tools, and BitCurator NLP tools (continued)

Approximately how many code committers and committing organizations are actively contributing?

There have been about 4-5 contributors.

Is there a dominant organization that provides committers?

Yes, UNC SILS.

Are any of the committing organizations for-profit entities?

No.

How do you cultivate/organize the coding community?

This is coordinated through the BCC, with most direct coordination being through GitHub.

Describe your onboarding strategy for new contributors, or include link to info if online.

Informal at this time, though the software development committee is working on further processes.

Does the program have paid staff? If so, how many FTE?

Yes; One half of a dedicated FTE, portions of several other people's time

What is the current annual budget for the project/program?

\$50,001- \$250,000

How is the program currently being funded?

Primarily through BCC membership dues and grants.

How many stakeholders contribute financially?

About 30.

How many stakeholders contribute developer resources? Among stakeholders who contribute developer resources, what is the average contribution?

Unknown.

What is the next major milestone for the project? How do you plan to fund that effort?

We need to scale up membership in order to fund dedicated IT personnel.

What was the source and funding for initial development of the software?

Grant funding from the Andrew W. Mellon Foundation.

How long did initial development and testing take before the software was released for community adoption?

Approximately nine months until initial public release, but we did not reach version 1.0 until about 3 years after the project began.

Are there competing products, either proprietary or open source?

Yes, there are a few.

What are your aspirations for the OSS?

A sustainable community around the software and further incorporation into production workflows.

What are specific challenges faced by stakeholders in support of this OSS?

Institutional buy-in.

What are specific challenges faced by developers?

Institutional buy-in.

What are specific challenges faced by target audience?

Institutional buy-in.

Do you have service providers that help you or the community? If so, with what?

Development; Hosting.

What, if any, is the financial arrangement between the project and these service providers?

Educopia pays for web hosting. We will be using OSSArcFlow (IMLS grant) funds to support further enhancement of the BitCurator environment to better support partner workflows.

Program wiki

<https://wiki.bitcurator.net/>

Program website

<https://bitcuratorconsortium.org/>

Program social media

@bitcurator

Program mailing lists

<https://groups.google.com/forum/#!forum/bitcurator-users>

Program training

Webinars available through the BitCurator Consortium.

Program code repository

<https://github.com/BitCurator>

Program meeting opportunities

BitCurator Users Forum (annual). See <https://bitcuratorconsortium.org/bitcurator-users-forum-2017>, <https://bitcuratorconsortium.org/events/buf2016>.

What would you want to get out of the conference?

Opportunities for further collaboration.

Blacklight

What is the high level purpose of the OSS?

To provide a basic discovery interface for searching an Apache Solr (or similar NoSQL) index.

Who is your target audience?

Principally, installers have been libraries, archives and museums.

Appendix D: OSS Program Survey Results

Blacklight (continued)

How would you categorize your program’s current stage of development?

Self-sustaining – project has sufficient resources to continue ongoing development, community support, etc.

Is your program affiliated with an organization that provides organizational infrastructure and support? If yes, please indicate the name of the organization and the type of support it provides.

No.

What is the license for the software?

Apache-2.0

Is there any formal governance of the OSS?

No

How are major and minor decisions made?

Committer consensus, informally defined (there is no project staff).

How many organizations are using the OSS?

Based on a survey of public GitHub repositories, 107.

What percentage of users are outside of the USA?

25%-50%

In what ways do institutions contribute to the project?

Code contributions; Documentation; Domain expertise; Outreach/advocacy; Peer support.

What is the rough percentage of institutions contributing to the software?

Less than 25%

Are your communication platforms, software development tools, and documentation openly available to all?

Yes

What was the date of the first release and/or when did the project start?

2009.

What was the date of the latest major release?

June 2017.

Is integration/compatibility with another system essential to your project’s success or value proposition?

Yes: Rails and Solr.

Does the project/program have a technology roadmap?

No

Approximately how many developers have contributed to the project to date?

More than 50

Approximately how many code committers and committing organizations are actively contributing?

17 committers in the last year to the main repository from 7 organizations.

Is there a dominant organization that provides committers?

Yes: Stanford University Libraries.

Are any of the committing organizations for-profit entities?

Yes: Some consultancies also contribute.

How do you cultivate/organize the coding community?

Conference presentations, workshops, project communications to journals and mailing lists.

Describe your onboarding strategy for new contributors or include link to info if online.

<https://github.com/projectblacklight/blacklight/wiki/Contributing-to-Blacklight>

Does the program have paid staff? If so, how many FTE?

No

What is the current annual budget for the project/program?

None

How is the program currently being funded?

Work in kind, though some supporting institutions fund outreach tables at conferences or focused developer meetings. To quote the published statement: “There are no membership dues or software licensing costs. All of the development, coordination, and commons infrastructure is supported and underwritten by the participating institutions.”

How many stakeholders contribute financially?

It varies, but it is very few.

How many stakeholders contribute developer resources? Among stakeholders who contribute developer resources, what is the average contribution?

Many, but the average by developer is very low; a small number of contributors make the vast majority of the updates.

What is the next major milestone for the project? How do you plan to fund that effort?

It is unclear whether any expected work cannot be completed under the current model.

What was the source and funding for initial development of the software?

University of Virginia contributing the project.

How long did initial development and testing take before the software was released for community adoption?

Approximately 2 years (2007-2009).

Are there competing products, either proprietary or open source?

Yes, there are a few.

Appendix D: OSS Program Survey Results

Blacklight (continued)

What are your aspirations for the OSS?

To quote the partners' published statement: "Project Blacklight was originally developed as a response to sluggish and awkward online public access catalogs (OPACs) in an attempt to increase usability and findability for their users. It allows repositories to tailor and customize their relevance rankings in catalog search results based on their unique collections and local needs. It allows institutions to provide a single discovery solution for collections that would otherwise be siloed, e.g., providing a single search for physical library collections, digital library holdings, and archival collections." These continue to be the goals, though the success of the project has made portability and ease of installation much more important to ongoing development.

What are specific challenges faced by stakeholders in support of this OSS?

The converse of challenges facing the developers: Especially in product evaluation, stakeholders tend to have less experience with the supporting software stack or control over the platform of installation. Work on the project is driven by current use at existing stake-holding institutions, so efforts to address installation concerns and documentation currency are difficult to staff. Likewise, coupling between the backend and interface implicates existing stakeholders in changes driving new feature development even when uninterested in the new developments.

What are specific challenges faced by developers?

The lack of formal support or direction for the project means:

1. Work must be articulated to related projects
2. Changes are driven by plurality consensus about platform needs, and/or the evolving needs of downstream products
3. Coupling to platform and backend mean that interface changes often mandate backend changes, and vice versa.

All of which make backwards compatibility and project roadmapping a challenge.

What are specific challenges faced by target audience?

In my experience, the most frequent questions to the tech list are regarding installation and set-up difficulties or the use of alternative index data sources (e.g. ElasticSearch).

Do you have service providers that help you or the community? If so, with what?

Development; Implementation; Maintenance; Training.

Program wiki

<https://github.com/projectblacklight/blacklight/wiki>

Program website

<http://projectblacklight.org/>

Program social media

<https://twitter.com/projblacklight>

Program mailing lists

blacklight-development@googlegroups.com

Program code repository

<https://github.com/projectblacklight>

What would you want to get out of the conference?

Since Blacklight is an extreme of both popularity and lack of supporting structures among library OSS, I hope to see how the problems it faces vary from those of more formally organized projects.

CollectionSpace

What is the high level purpose of the OSS?

CollectionSpace manages day-to-day collections management activities such as acquisitions, cataloging, loans, media handling, and location management.

Who is your target audience?

Museums, historical societies, biological collections, and other collections-holding organizations.

How would you categorize your program's current stage of development?

Early Production – initial core of community supporters but in early stage of adoption/growth cycle.

Is your program affiliated with an organization that provides organizational infrastructure and support? If yes, please indicate the name of the organization and the type of support it provides.

Yes; CollectionSpace is supported by LYRASIS, which provides executive leadership, fiscal sponsorship, development (e.g. fundraising), HR, and marketing/communications support.

What is the license for the software?

ECL-2.0

Is there any formal governance of the OSS?

Yes

If yes to previous question, does the governance extend beyond the originating institution/entity that created the product?

Yes

Appendix D: OSS Program Survey Results

CollectionSpace (continued)

If yes, please describe how representatives are chosen through election or other processes.

Representatives are elected annually for two-year terms on one of three working groups: Leadership, Functional, and Technical. Only representatives of dues-paying member organizations may stand for election.

How are major and minor decisions made?

Major decisions are made by the Leadership Working Group, with recommendations from the Technical and Functional Working Groups as required. Each of the working groups strives for consensus but, ultimately the majority decides in cases of disagreement, with each member receiving one vote. In the case of a tie, the chair makes the final decision. Within the framework of major goals, minor decisions are made by program staff or others empowered to complete tasks.

How many organizations are using the OSS?

30+ known, no sign-in required to download so may be higher.

What percentage of users are outside of the USA?

Less than 25%

In what ways do institutions contribute to the project?

Code contributions; Documentation; Domain expertise; Financial contribution; Leadership; Outreach/advocacy; Peer support.

What is the rough percentage of institutions contributing to the software?

Less than 25%

Are your communication platforms, software development tools, and documentation openly available to all?

Yes

Please describe restrictions, if any.

A very small portion of the program wiki is restricted to members of the leadership working group. All other tools and platforms are completely open.

What was the date of the first release and/or when did the project start?

The program began in 2008, core development in 2009, and the first alpha release was in 2010. The first production release was in 2012.

What was the date of the latest major release?

Version 4.5 of the application was released in July 2017.

Is integration/compatibility with another system essential to your project's success or value proposition?

Yes and no. We have plenty of users who have implemented CSpace as a standalone application, and its core functionality does not depend on any integrations. That said, the long-term success of the application and a core feature is its ability to integrate with other application used by museums and collecting organizations to manage collections and connect with audiences.

Does the project/program have a technology roadmap?

Yes

If yes, how is it produced and how often is it updated?

The technology roadmap is drafted by the technical and functional working groups based on architecture and end-user priorities. It is approved by the leadership working group. The roadmap is updated on an annual basis, although if things change (e.g. release dates are shifted, new funding is received) it would be updated more often.

Approximately how many developers have contributed to the project to date?

11-25

Approximately how many code committers and committing organizations are actively contributing?

There are currently approximately ten active code committers and contributors across four organizations. We also have a community of non-technical contributors across a dozen organizations, who provide QA assistance, use cases, functional expertise and peer support.

Is there a dominant organization that provides committers?

Most code contributors are based at LYRASIS or UC-Berkeley. Non-technical contributors are spread across a much wider number of organizations.

Are any of the committing organizations for-profit entities?

Yes, two code committing/ contributing organizations are for-profit service providers.

How do you cultivate/organize the coding community?

Our current coding community is spread among implementing institutions and service providers who support implementing institutions. The technical working group serves to cultivate and encourage new code contributors and committers, while the community listserv is used to call for and organize code contributions. Non-technical contributors are organized via the community listserv and functional working group.

Describe your onboarding strategy for new contributors, or include link to info if online.

<https://wiki.collectionspace.org/display/collectionspace/Process+for+gaining+Commit+Access>

Does the program have paid staff? If so, how many FTE?

Yes; 2.25

What is the current annual budget for the project/program?

\$250,001-\$500,000

Appendix D: OSS Program Survey Results

CollectionSpace (continued)

How is the program currently being funded?

A combination of grants, earned income (primarily consulting), memberships, and fees for registered service providers.

How many stakeholders contribute financially?

18.

How many stakeholders contribute developer resources? Among stakeholders who contribute developer resources, what is the average contribution?

3, average <.25FTE.

What is the next major milestone for the project? How do you plan to fund that effort?

We are in the midst of a push now that is beyond our “base” level of support, and it is grant funded. Once that push is complete there is no major milestone currently planned that would require us to move beyond that base.

What was the source and funding for initial development of the software?

Grant funding from the Mellon Foundation.

How long did initial development and testing take before the software was released for community adoption?

3 years.

Are there competing products, either proprietary or open source?

Yes, there are many.

What are your aspirations for the OSS?

To design, develop, and share a platform for collections information management that: supports traditional collections management activities; enables the integration of emergent and dynamic new technologies into the information ecologies of museums; and is an effective and affordable alternative to one-off applications developed in-house and proprietary offerings.

What are specific challenges faced by stakeholders in support of this OSS?

Museums and other collecting organizations don’t generally have software engineers on staff, limiting the amount of code contributors we can realistically expect to cultivate from the install base. OSS is still not very well understood by the mainstream museum community, so selling it as a feature to museum administration can be an uphill battle.

What are specific challenges faced by developers?

Currently, working with an outdated and unsupported UI framework. In the longer term, finding adequate development resources to support new features, functionality, and integrations. Balancing the needs of specific implementing institutions with the needs of the community as a whole.

What are specific challenges faced by target audience?

Collections management is necessary but boring – it’s not audience facing, it doesn’t bring in big grant funding, no one is putting their name over the door of a collection storage vault. It can be difficult to get administrators to understand the importance of having modern technology infrastructure in order to support the goals/mission of the organization, especially when folks are used to muddling along with whatever they’re currently using. Workflows are very tangled up with software choices, making migration a daunting and scary idea.

Do you have service providers that help you or the community? If so, with what?

Development; Hosting; Implementation; Maintenance; Migration.

What, if any, is the financial arrangement between the project and these service providers?

Service providers pay a small fee to the project and are listed as registered service providers on the website.

Program wiki

<https://wiki.collectionspace.org>

Program website

<http://www.collectionspace.org/>

Program social media

@collectionspace

Program mailing lists

talk@lists.collectionspace.org

Program training

<http://www.collectionspace.org/calendars/>

Program code repository

<https://github.com/collectionspace>

CollectiveAccess

What is the high level purpose of the OSS?

“CollectiveAccess is a museum collections management system with an emphasis on flexibility and adaptability. While initially targeted at cultural heritage organizations, it has taken root across a range of disciplines, from natural history to research (catalogues raisonné, phylogenetic analysis, etc.) and special projects.

In general, any project seeking to document, preserve and analyze structured data can find a useful tool in CollectiveAccess.”

Who is your target audience?

Initially our target audience were museum collections managers and registrars. The community of interest has expanded since then, with users continuously finding new applications for CollectiveAccess. At this time our primary audiences are:

- Cultural heritage, including history, fine art, film and related research.
- Natural history, including fossil and biodiversity management.
- Archives management, especially where archives and digital asset management meet.
- Special projects, including participatory data collection in the social sciences.

Appendix D: OSS Program Survey Results

CollectiveAccess (continued)

How would you categorize your program’s current stage of development?

Self-sustaining – project has sufficient resources to continue ongoing development, community support, etc.

Is your program affiliated with an organization that provides organizational infrastructure and support? If yes, please indicate the name of the organization and the type of support it provides.

Yes; Whirl-i-Gig; non-profit and commercial hosting, technical support, consulting and software development.

What is the license for the software?

GPL-3.0

Is there any formal governance of the OSS?

No

How are major and minor decisions made?

The core development team at Whirl-i-Gig, in consultation with contributing developers and users, make all decisions.

How many organizations are using the OSS?

It is difficult to say as it’s open source and we don’t track downloads. Current estimate based upon support forum traffic and email requests is ~800.

What percentage of users are outside of the USA?

25%-50%

In what ways do institutions contribute to the project?

Code contributions; Documentation; Financial contribution; Outreach/advocacy; Peer support.

What is the rough percentage of institutions contributing to the software?

Less than 25%

Are your communication platforms, software development tools, and documentation openly available to all?

Yes

What was the date of the first release and/or when did the project start?

The project started in 2003. The first open-source release was in 2007.

What was the date of the latest major release?

The last major release was in May 2017.

Is integration/compatibility with another system essential to your project’s success or value proposition?

Integration with other widely used systems and services is critical to continued uptake of our project. To that end we integrate with a range of web services and software/hardware platforms, including the Getty vocabularies, Library of Congress Subject Headings and OCLC Worldcat, as well as digitization hardware, barcode readers, etc.

Does the project/program have a technology roadmap?

Yes

If yes, how is it produced and how often is it updated?

It is a working document and updated biannually.

Approximately how many developers have contributed to the project to date?

11-25

Approximately how many code committers and committing organizations are actively contributing?

Approximately 10.

Is there a dominant organization that provides committers?

Whirl-i-Gig, the original developer performs the bulk of development.

Are any of the committing organizations for-profit entities?

There are two for-profit consulting companies, one in France and another in Australia that actively contribute code.

How do you cultivate/organize the coding community?

We encourage code contributions to our GitHub repository, answer coding questions in our support forum, and follow a strict policy of “only open-source.” Any development we do, regardless of funding source, is covered by the GPLv3 and available to all. Knowing that the entire community will benefit from development is an incentive for contributors.

Describe your onboarding strategy for new contributors or include link to info if online.

We do not have a formal on boarding strategy. Contributors are generally motivated by need.

Does the program have paid staff? If so, how many FTE?

Yes; 7

What is the current annual budget for the project/program?

\$500,001-\$1 million

How is the program currently being funded?

We are funded primarily through paid projects from users and hosting fees. A smaller amount of funding comes directly and indirectly through grants from private and government funders in the USA, Canada and European Union.

How many stakeholders contribute financially?

> 10.

How many stakeholders contribute developer resources? Among stakeholders who contribute developer resources, what is the average contribution?

< 5.

Appendix D: OSS Program Survey Results

CollectiveAccess (continued)

What is the next major milestone for the project? How do you plan to fund that effort?

CollectiveAccess is implementing using the PHP programming language and MySQL database engine. These foundational elements were chosen for their ubiquity and the potential for easy adoption by small and mid-size organizations. Experience has born this out, but both PHP and MySQL are no longer an ideal platform. To sustain the project for the next 10 years we are now looking towards possibly transitioning to a different platform.

What was the source and funding for initial development of the software?

Funding was cobbled together from contract work paid for by a number of institutions, including the American Museum of Natural History, American Museum of the Moving Image, Parrish Art Museum and Coney Island History Project.

How long did initial development and testing take before the software was released for community adoption?

From initial development and iteration to first open source release was approximately 3.25 years.

Are there competing products, either proprietary or open source?

Yes, there are a few.

What are your aspirations for the OSS?

CollectiveAccess was born out of frustration with expensive, proprietary collections management software. Our goal was to provide modern, usable and free software that any collecting organization could use. Fourteen years in, we have achieved this goal! Now we are focused on expanding our range to underserved disciplines, and to exploring the possibilities for regional and thematic networks of collections.

What are specific challenges faced by stakeholders in support of this OSS?

The challenges faced are familiar to any open source project with a varied user base: keeping up with changing platforms, supporting users in very different environments and use cases, and generally keeping everything moving forward while also generating enough funding to keep the lights on.

What are specific challenges faced by developers?

Maintaining a large and complex code base, balancing shifting and emerging standards, and implementing all of the new features users demand.

What are specific challenges faced by target audience?

Our target audiences are often underfunded and lack the in-house support required to ensure their projects thrive.

Do you have service providers that help you or the community? If so, with what?

Development; Hosting; Implementation; Maintenance; Migration; Training.

What, if any, is the financial arrangement between the project and these service providers?

We have no connection with service provider, other than providing encouragement.

Program wiki

<http://docs.collectiveaccess.org>

Program website

<http://collectiveaccess.org>

Program social media

<https://twitter.com/collaccess>

Program mailing lists

<http://support.collectiveaccess.org>

Program code repository

<https://github.com/collectiveaccess>

ConservationSpace

What is the high level purpose of the OSS?

A document management system for conservation professionals.

Who is your target audience?

Conservators and conservation scientists in museums, libraries, and private practice around the world.

How would you categorize your program's current stage of development?

Early Production – initial core of community supporters but in early stage of adoption/growth cycle.

Is your program affiliated with an organization that provides organizational infrastructure and support? If yes, please indicate the name of the organization and the type of support it provides.

No.

What is the license for the software?

LGPL-3.0

Is there any formal governance of the OSS?

Yes

If yes to previous question, does the governance extend beyond the originating institution/entity that created the product?

Yes

If yes, please describe how representatives are chosen through election or other processes.

At the moment, a steering committee is composed of representative from the partner institutions involved in the development.

How are major and minor decisions made?

By the steering committee.

What percentage of users are outside of the USA?

25%-50%

Appendix D: OSS Program Survey Results

ConservationSpace (continued)

In what ways do institutions contribute to the project?

Leadership; Outreach/advocacy.

What is the rough percentage of institutions contributing to the software?

0%

Are your communication platforms, software development tools, and documentation openly available to all?

Yes

What was the date of the first release and/or when did the project start?

Began with meetings organized by the Andrew W. Mellon Foundation in 2006. Development began by the partner institutions in 2010. The first release became available in March 2017.

What was the date of the latest major release?

We are actively updating the March 2017 release.

Is integration/compatibility with another system essential to your project's success or value proposition?

It is integrated with multiple enterprise systems.

Does the project/program have a technology roadmap?

Yes

If yes, how is it produced and how often is it updated?

The partners identify and prioritize all future development initiatives.

Approximately how many developers have contributed to the project to date?

3-10

Is there a dominant organization that provides committers?

No.

Are any of the committing organizations for-profit entities?

No, but the developer is a for-profit company.

Does the program have paid staff? If so, how many FTE?

Yes; 2

What is the current annual budget for the project/program?

\$500,001-\$1 million

How is the program currently being funded?

Andrew W. Mellon Foundation plus significant in-kind contributions (time) by the partner institutions.

How many stakeholders contribute financially?

None except for in-kind contributions by six institutions.

How many stakeholders contribute developer resources? Among stakeholders who contribute developer resources, what is the average contribution?

None.

What is the next major milestone for the project? How do you plan to fund that effort?

Establish a sustainable program after the grant cycle ends in 2019.

What was the source and funding for initial development of the software?

Andrew W. Mellon Foundation

How long did initial development and testing take before the software was released for community adoption?

Six years.

Are there competing products, either proprietary or open source?

Yes, there are a few.

What are your aspirations for the OSS?

That it will be widely accepted by the conservation community for creating, managing, and sharing documents, images, and related information.

What are specific challenges faced by stakeholders in support of this OSS?

To develop a sustainable support program. The conservation community is not accustomed to using document management systems and, therefore, do not have a history of paying annual usage fees for software.

What are specific challenges faced by developers?

The current system is incredible powerful and configurable but requires significant improvements in the UI/UX.

What are specific challenges faced by target audience?

Change management from manual record keeping processes to automated systems.

Do you have service providers that help you or the community? If so, with what?

Development; Hosting; Implementation; Maintenance; Migration; Training.

What, if any, is the financial arrangement between the project and these service providers?

Grant funded and in-kind contributions.

Program website

www.conservation-space.org

Program code repository

Available through the National Gallery of Art.

What would you want to get out of the conference?

A dialogue on sustainability.

Appendix D: OSS Program Survey Results

CORAL

What is the high level purpose of the OSS?

An Electronic Resources Management System consisting of interoperable modules designed around the core components of managing electronic resources.

Who is your target audience?

Libraries and information centers that are charged with or responsible for managing e-resources.

How would you categorize your program's current stage of development?

Self-sustaining – project has sufficient resources to continue ongoing development, community support, etc.

Is your program affiliated with an organization that provides organizational infrastructure and support? If yes, please indicate the name of the organization and the type of support it provides.

No.

What is the license for the software?

GPL-3.0

Is there any formal governance of the OSS?

Yes

If yes to previous question, does the governance extend beyond the originating institution/entity that created the product?

Yes

If yes, please describe how representatives are chosen through election or other processes.

Please refer to <http://docs.coral-erm.org/en/latest/overview.html#steering-committee-s-governance>.

How are major and minor decisions made?

Please refer to <http://docs.coral-erm.org/en/latest/overview.html#steering-committee-s-governance>.

How many organizations are using the OSS?

200-300 estimated.

What percentage of users are outside of the USA?

Less than 25%

In what ways do institutions contribute to the project?

Code contributions; Documentation; Domain expertise; Leadership; Outreach/advocacy; Peer support.

What is the rough percentage of institutions contributing to the software?

Less than 25%

Are your communication platforms, software development tools, and documentation openly available to all?

Yes

What was the date of the first release and/or when did the project start?

2010.

What was the date of the latest major release?

June 2017.

Is integration/compatibility with another system essential to your project's success or value proposition?

Yes.

Does the project/program have a technology roadmap?

No

Approximately how many developers have contributed to the project to date?

11-25

Approximately how many code committers and committing organizations are actively contributing?

10.

Is there a dominant organization that provides committers?

No.

Are any of the committing organizations for-profit entities?

Yes.

How do you cultivate/organize the coding community?

- regular monthly meetings of the Steering Committee as well as the Web Committee
- regular communications via dedicated discussion list
- informal consultations
- publicly accessible website
- GitHub repository

Describe your onboarding strategy for new contributors or include link to info if online.

At this point it is very informal and network-based (e.g. pairing an experienced developer/institution with the inexperienced one). We plan to strengthen our documentation and clarify how people can be onboarded as a top priority.

Does the program have paid staff? If so, how many FTE?

No

What is the current annual budget for the project/program?

None

How is the program currently being funded?

It is fully volunteer-based.

How many stakeholders contribute developer resources? Among stakeholders who contribute developer resources, what is the average contribution?

Approximately ten at about .25 FTE annually at most.

What is the next major milestone for the project? How do you plan to fund that effort?

2.1 release to add in enhanced batch record loading functionality and other updates.

Appendix D: OSS Program Survey Results

CORAL (continued)

What was the source and funding for initial development of the software?

Hesburgh Library, University of Notre Dame.

How long did initial development and testing take before the software was released for community adoption?

Two years.

Are there competing products, either proprietary or open source?

Yes, there are a few.

What are your aspirations for the OSS?

Provide no cost, very low technology barrier to full-featured, flexible e-resources management that will continue to grow in thoughtful, community-driven ways to address user needs.

What are specific challenges faced by stakeholders in support of this OSS?

- still working out governance issues (we are getting better over time)
- balancing feature complexity vs. overall system flexibility
- balancing individual implementer wants/needs with needs of the broader community
- navigating commercial vs. non-commercial interests
- strengthening our onboarding process for new contributors
- developing a coherent roadmap for future product development

What are specific challenges faced by developers?

- understanding underlying code structure, although this has been hugely simplified with release 2.0 of CORAL when we introduced a unified code base
- abstracting shared code components
- code review to ensure standards and best practices are followed

What are specific challenges faced by target audience?

- many commercial products compete and most of those are tightly integrated with other proprietary software
- even with the no cost and low technology barrier approach to constructing CORAL, many institutions do not have even the most basic technical/IT support to implement it, which means that we need to figure out ways to support a cloud-based solution
- diversity of local needs vs. features that will enhance the software for the broadest possible audience

Do you have service providers that help you or the community? If so, with what?

Hosting.

What, if any, is the financial arrangement between the project and these service providers?

One service provider services as an affiliate member of the Steering Committee (BibLibre, an open source services company in France), and they currently provide some essential hosting services for the community's website, discussion lists, etc.

Program wiki

<https://github.com/Coral-erm/Coral/wiki>

Program website

<http://coral-erm.org>

Program mailing lists

<http://lists.coral-erm.org/pipermail/coral-user/>

Program code repository

<https://github.com/Coral-erm/Coral>

Program meeting opportunities

E-Resources & Libraries (ER&L) and NASIG, among others.

What would you want to get out of the conference?

- contribute, add the voice of our experiences to the broader OSS community
- obtain ideas for ways to improve our project, specifically with governance, community involvement, onboarding, and more

DSpace

What is the high level purpose of the OSS?

DSpace is an open source repository software package typically used for creating open access repositories for scholarly and/or published digital content.

Who is your target audience?

DSpace is the software of choice for academic, non-profit, and commercial organizations building open digital repositories. It is free and easy to install "out of the box" and completely customizable to fit the needs of any organization.

How would you categorize your program's current stage of development?

Self-sustaining – project has sufficient resources to continue ongoing development, community support, etc.

Is your program affiliated with an organization that provides organizational infrastructure and support? If yes, please indicate the name of the organization and the type of support it provides.

Yes; Duraspace. DuraSpace is the umbrella organization for the DSpace Project. It provides technical management, fiscal oversight, promotion, membership support, and governance.

What is the license for the software?

BSD-3-Clause

Appendix D: OSS Program Survey Results

DSpace (continued)

Is there any formal governance of the OSS?

Yes

If yes to previous question, does the governance extend beyond the originating institution/entity that created the product?

Yes

If yes, please describe how representatives are chosen through election or other processes.

Project members are represented on the DSpace Leadership Group that provides project guidance. It meets quarterly. The DSpace Steering Group The Steering Group is nominated and elected by the Leadership Group. The Steering Group, which meets monthly, provides project oversight and ensures that the priorities of the Leadership Group and members are met, by:

- Providing strategic direction to the Project
- Recommending annual budget allocations
- Presenting key decisions to the Leadership Group for discussion and approval
- Raising funds and securing other resources on behalf of the Project
- Overseeing project operations

A detailed description of the DSpace governance structure can be found at: <http://www.dspace.org/governance>.

How are major and minor decisions made?

Major decisions are made as described above. Technical implementation decisions are made by the project technology lead in conjunction with the DSpace committers group.

How many organizations are using the OSS?

There are over 2,300 DSpace users in the DSpace registry.

What percentage of users are outside of the USA?

More than 50%

In what ways do institutions contribute to the project?

Development; Hosting; Implementation; Maintenance; Migration; Training. Various institutions provide support in all of these categories; however, the number of institutions that contribute directly to the project is a small portion of the institutions that have installed the software.

What is the rough percentage of institutions contributing to the software?

Less than 25%

Are your communication platforms, software development tools, and documentation openly available to all?

Yes

Please describe restrictions, if any.

All our communication platforms are on the wiki, especially under the Support page: <https://wiki.duraspace.org/display/DSPACE/Support>

What was the date of the first release and/or when did the project start?

2002.

What was the date of the latest major release?

Release 6.0 was issued in October 2016.

Is integration/compatibility with another system essential to your project's success or value proposition?

Yes, for its value proposition and for increase in adoption.

Does the project/program have a technology roadmap?

Yes

If yes, how is it produced and how often is it updated?

The technology roadmap is continually updated by the project technology lead. It is available at: <https://wiki.duraspace.org/display/DSPACE/RoadMap>.

Approximately how many developers have contributed to the project to date?

More than 50

Approximately how many code committers and committing organizations are actively contributing?

We have about 20 Committers currently, but in the most recent release (6.0) had 74 total code contributors (average about 50-60 per release at least in recent years).

Is there a dominant organization that provides committers?

Besides our RSPs (Resource Service Providers), the contributions vary depending on the need from the institutions. So no one organization is dominant over another.

Are any of the committing organizations for-profit entities?

We have some for-profit (service providers) involved in development, e.g. Atmire & 4Science.

How do you cultivate/organize the coding community?

We have weekly developer meetings to keep development moving along. Code contribution guidelines on wiki at: <https://wiki.duraspace.org/display/DSPACE/Code+Contribution+Guidelines>.

Describe your onboarding strategy for new contributors or include link to info if online.

All information is available online at <https://wiki.duraspace.org/display/DSPACE/Development> and there are biweekly calls for developers.

Appendix D: OSS Program Survey Results

DSPACE (continued)

Does the program have paid staff? If so, how many FTE?

Yes; .7

What is the current annual budget for the project/program?

\$50,001- \$250,000

How is the program currently being funded?

The project is supported by memberships and contributions from registered service providers.

How many stakeholders contribute financially?

July 1, 2016-June 30, 2017: 55 members.

How many stakeholders contribute developer resources? Among stakeholders who contribute developer resources, what is the average contribution?

We ask members of the Leadership Group to have at least 0.5 FTE devoted to development efforts from their institutions.

What is the next major milestone for the project? How do you plan to fund that effort?

DSPACE 7 is the next major effort. We plan to “fund” this essentially by volunteers and service providers working collaboratively on the project. So, there is/will be no centralized funding, but will be a volunteer effort like all other DSPACE releases.

What was the source and funding for initial development of the software?

The initial DSPACE development was done by MIT and Hewlett Packard Labs with support from the Andrew W. Mellon Foundation.

How long did initial development and testing take before the software was released for community adoption?

About 2 years.

Are there competing products, either proprietary or open source?

Yes, there are a few.

What are your aspirations for the OSS?

The DSPACE Vision and Mission is:

Vision: The DSPACE Project will produce the world’s choice for repository software providing the means for making information openly available and easy to manage.

Mission: We will create superior open source software by harnessing the skills of an active developer community, the energy and insights of engaged and active users, and the financial support of project members and registered service providers.

DSPACE software will:

1. Focus on the Institutional Repository use case.
2. Be lean, agile, and flexible.
3. Be easy and simple to install and operate.
4. Include a core set of functionality that can be extended to or integrated with complementary services and tools in the larger scholarly ecosystem

What are specific challenges faced by stakeholders in support of this OSS?

DSPACE faces competition in the North American market, particularly from the Hyku project. North American universities have been the major source of memberships in the past. Increasing the membership base in North America has been a challenge. There are significant adoptions of DSPACE in Europe and code contributions from Europe have been significant. It has though been difficult to generate memberships in Europe. There is also significant use of DSPACE in South America, Asia, and Africa, but language barriers and distance, as well as economic challenges, make difficult to develop memberships in these areas. There is also a challenge around how to balance the need to provide special or favored benefits for project members to encourage membership while at the same time maintaining the large and vibrant open community.

What are specific challenges faced by developers?

Primary challenges to developers is keeping in touch with each other as it’s very much a worldwide effort and *coordinating* our efforts (avoiding duplication of effort, and stressing collaboration / open development, to allow others to provide feedback and help out).

What are specific challenges faced by target audience?

A tool that they can easily adopt and customize with very minimal effort, which can be a little difficult.

Do you have service providers that help you or the community? If so, with what?

Development; Hosting; Implementation; Maintenance; Migration; Training. DSPACE has sixteen registered service providers (<http://www.dspace.org/service-providers>) that provide the full range of services.

What, if any, is the financial arrangement between the project and these service providers?

There is a formal registered service provider (RSP) agreement, and a percentage of income that RSPs give back to DSPACE.

Program wiki

<https://wiki.duraspace.org/display/DSPACE/Home>

Program website

<http://www.dspace.org>

Program social media

@dspacetweets

Program mailing lists

<https://wiki.duraspace.org/display/DSPACE/Mailing+Lists>

Program training

Training is routinely done at the annual Open Repositories conference. A variety of other training activities are offered by local user groups and service providers.

Appendix D: OSS Program Survey Results

DSpace (continued)

Program code repository

<https://github.com/DSpace/DSpace/>

Program news and updates

Included in the DuraSpace Digest:
<http://www.duraspace.org/duraspace-digest>

Program meeting opportunities

DSpace has not had a regular conference for some years. There will be a North American User's Group Meeting in August 2017 at Georgetown University.

What would you want to get out of the conference?

Some discussion of how to engage non-North American participants in supporting projects, and how to generate contributions of both code and funding.

Some discussion of the tension between providing special or favored benefits to project members and the need for projects to be open to everyone to encourage wide adoption and to develop a large group of technical contributors.

Evergreen

What is the high level purpose of the OSS?

The software is used for the integrated library system.

Who is your target audience?

Member libraries of our consortium.

How would you categorize your program's current stage of development?

Maintenance – in production, supported, potential transition to a new focus/version.

Is your program affiliated with an organization that provides organizational infrastructure and support? If yes, please indicate the name of the organization and the type of support it provides.

Yes; Software Freedom Conservancy.

What is the license for the software?

CC BY-SA 3.0

Is there any formal governance of the OSS?

Yes

If yes to previous question, does the governance extend beyond the originating institution/entity that created the product?

Yes

If yes, please describe how representatives are chosen through election or other processes.

An oversight board working with the Evergreen Community manages the project.

How are major and minor decisions made?

Decisions are made by community members who are elected to the Oversight Board as well as participants in a development committee and documentation interest group. Development is added to the master version after being approved by a group of core committers who selected by the Evergreen community.

How many organizations are using the OSS?

At least 1000 organizations in over 2000 locations.

What percentage of users are outside of the USA?

Less than 25%

In what ways do institutions contribute to the project?

Code contributions; Documentation; Leadership; Outreach/advocacy; Peer support.

What is the rough percentage of institutions contributing to the software?

25%-50%

Are your communication platforms, software development tools, and documentation openly available to all?

Yes

What was the date of the first release and/or when did the project start?

Evergreen began September 5, 2006.

What was the date of the latest major release?

March 22, 2017.

Is integration/compatibility with another system essential to your project's success or value proposition?

No.

Does the project/program have a technology roadmap?

Yes

If yes, how is it produced and how often is it updated?

There is a wiki page where community members post planned development projects. A release manager for the next release maintains and guides development for the next release.

Approximately how many developers have contributed to the project to date?

26-50

Approximately how many code committers and committing organizations are actively contributing?

Approximately 15 (there are probably more).

Is there a dominant organization that provides committers?

Equinox Open Library Initiative.

Are any of the committing organizations for-profit entities?

Yes there are a small number.

Appendix D: OSS Program Survey Results

Evergreen (continued)

How do you cultivate/organize the coding community?

The developers encourage individuals to install evergreen and begin by fixing small bugs. These small bugs are labeled as such in the bug tracking software. There is also an IRC channel where developers can ask questions and hackaway events to for developers to gather and organize to address specific problems with the software.

Describe your onboarding strategy for new contributors or include link to info if online.

Most of the information is posted here <https://evergreen-ils.org/involvement/>

Does the program have paid staff? If so, how many FTE?

No

What is the current annual budget for the project/program?

Up to \$50,000

How is the program currently being funded?

Evergreen users fund development. There is an annual conference that has generated a small amount of income along with some merchandise that is sold.

How many stakeholders contribute financially?

At least 15 organizations regularly contribute to development. Most also send staff to the conference.

How many stakeholders contribute developer resources? Among stakeholders who contribute developer resources, what is the average contribution?

At least 15 organizations regularly contribute to development with staff. It is difficult to calculate the developer FTE for the project but there are at least 7 FTEs dedicated to development among Evergreen users.

What is the next major milestone for the project? How do you plan to fund that effort?

The two areas are to improve search and fully complete the web client. This is funded by organizations using Evergreen.

What was the source and funding for initial development of the software?

Georgia Pines Library Service.

How long did initial development and testing take before the software was released for community adoption?

3 years.

Are there competing products, either proprietary or open source?

Yes, there are many.

What are your aspirations for the OSS?

Provide a robust integrated library system for consortia and libraries. This system gives control to libraries over their integrated library system.

What are specific challenges faced by stakeholders in support of this OSS?

The challenge has been to maintain enough developers to contribute and improve Evergreen.

What are specific challenges faced by developers?

Some developers work in organizations where there time is pulled to provide systems support in addition to doing development. The other challenge can be negotiating competing approaches between developers.

What are specific challenges faced by target audience?

Maintain a software package that can compete with proprietary systems.

Do you have service providers that help you or the community? If so, with what?

Development; Hosting; Implementation; Maintenance; Migration; Training.

What, if any, is the financial arrangement between the project and these service providers?

It varies. Some are paid as consultants and other sell service and support plans including turnkey solutions that are fully hosted by the vendor.

Program wiki

<https://wiki.evergreen-ils.org/doku.php>

Program website

<https://evergreen-ils.org/>

Program social media

<https://www.facebook.com/EvergreenILS/>

Program mailing lists

<https://evergreen-ils.org/communicate/mailling-lists/>

Program code repository

<http://git.evergreen-ils.org/>

Program meeting opportunities

<https://evergreen-ils.org/conference/>

Is there anything else you want to tell us?

The Evergreen community is very open which makes it difficult to track who is using it.

What would you want to get out of the conference?

Learn how other projects are dealing with problems associated with development and strategy for the future of the software.

Appendix D: OSS Program Survey Results

Fedora

What is the high level purpose of the OSS?

Fedora is a robust, modular, open source repository system for the management and dissemination of digital content. It is especially suited for digital libraries and archives, both for access and preservation. It is also used to provide specialized access to very large and complex digital collections of historic and cultural materials as well as scientific data.

Who is your target audience?

Primarily academic and cultural heritage organizations, universities, research institutions, university libraries, national libraries, and government agencies.

How would you categorize your program's current stage of development?

Early Production - initial core of community supporters but in early stage of adoption/growth cycle.

Is your program affiliated with an organization that provides organizational infrastructure and support? If yes, please indicate the name of the organization and the type of support it provides.

Yes; DuraSpace: fiscal, HR, outreach, marketing.

What is the license for the software?

Apache-2.0

Is there any formal governance of the OSS?

Yes

If yes to previous question, does the governance extend beyond the originating institution/entity that created the product?

Yes

If yes, please describe how representatives are chosen through election or other processes.

Representatives come from institutions that contribute at approved funding/in-kind effort levels, as well as through elections: <http://fedorarepository.org/governance>.

How are major and minor decisions made?

Minor technical decisions are made through discussions amongst the project committers and the broader technical community. Weekly technical calls are open to anyone, as are the public mailing lists, where issues are often discussed. These issues are sometimes raised with the project governance group, as are major issues. These are discussed and, if necessary, voted on by members of the project governance group.

How many organizations are using the OSS?

Over 400, though as with most OSS it is difficult to get an exact number since anyone can download and use the software without notifying us.

What percentage of users are outside of the USA?

25%-50%

In what ways do institutions contribute to the project?

Code contributions; Documentation; Domain expertise; Financial contribution; Leadership; Outreach/advocacy; Peer support.

What is the rough percentage of institutions contributing to the software?

25%-50%

Are your communication platforms, software development tools, and documentation openly available to all?

Yes

Please describe restrictions, if any.

The committers, governance groups, and code of conduct committee have private listservs.

What was the date of the first release and/or when did the project start?

The original Fedora paper was published in 1997, and the first software release was in 2003.

What was the date of the latest major release?

Nov. 1, 2016 (4.7.0).

Is integration/compatibility with another system essential to your project's success or value proposition?

Yes; Fedora provides a defined set of services via a RESTful API framework, and it also supports message-based architectures. Fedora is fundamentally a middleware platform designed to integrate with other applications and services. Islandora and Samvera (previously Hydra) are two well-known examples.

Does the project/program have a technology roadmap?

Yes

If yes, how is it produced and how often is it updated?

The project roadmap is developed collaboratively amongst the technical team and project governance, with the Technical Lead taking a leadership role. It is updated annually.

Approximately how many developers have contributed to the project to date?

More than 50

Approximately how many code committers and committing organizations are actively contributing?

25 code committers from 20 organizations have committed code to a Fedora release within the last year.

Appendix D: OSS Program Survey Results

Fedora (continued)

Is there a dominant organization that provides committers?

No, committers are distributed across many organizations.

Are any of the committing organizations for-profit entities?

No.

How do you cultivate/organize the coding community?

The Technical Lead works to create an open, collegial coding community based on mentorship, collaboration, and support. The Product Manager facilitates workshops, user group meetings, and delivers presentations encouraging new contributors to join the community. Taken together, these efforts help foster and sustain the coding community. We also recently introduced and enforced a code of conduct in order to maintain an open and welcoming community.

Contributions are organized by the Technical Lead and committers group through weekly meetings, discussions on the mailing list, IRC, JIRA, and GitHub, and through dedicating code sprints focused on particular topics.

Describe your onboarding strategy for new contributors or include link to info if online.

In addition to more ad hoc mentorship and encouragement, we have a detailed guide for new contributors: <https://wiki.duraspace.org/display/FF/Guide+for+New+Developers>.

Does the program have paid staff? If so, how many FTE?

Yes; 2

What is the current annual budget for the project/program?

\$500,001-\$1 million

How is the program currently being funded?

Membership and in-kind contributions.

How many stakeholders contribute financially?

74 institutions as of 2016.

How many stakeholders contribute developer resources? Among stakeholders who contribute developer resources, what is the average contribution?

20 institutions have contributed developer resources within the last year. On average institutions contribute 0.05 FTE annually.

What is the next major milestone for the project? How do you plan to fund that effort?

The next major milestone is to complete the API specification effort (<http://fedora.info/spec>) and foster alternate back-end implementations beneath the API. This effort won't require more funding per se, but it will require more developer effort to achieve these goals. This will be accomplished primarily through in-kind contributions from stakeholder institutions, which we solicit by articulating the need and why it will be beneficial for Fedora users both now and in the future.

What was the source and funding for initial development of the software?

A Mellon grant.

How long did initial development and testing take before the software was released for community adoption?

3 years.

Are there competing products, either proprietary or open source?

Yes, there are a few.

What are your aspirations for the OSS?

We want Fedora to be a key component of repository and linked data infrastructure that underlies a wide variety of systems and services.

What are specific challenges faced by stakeholders in support of this OSS?

As middleware, Fedora is often used as part of a larger framework, such as Islandora or Samvera. These frameworks require technical resources to support and maintain, or funding to hire service companies to do the work. Additionally, Fedora went through a major version upgrade to Fedora 4 in 2014 which requires a data migration for existing stakeholders.

What are specific challenges faced by developers?

Fedora is a Java project and not all developers have Java expertise. Making changes to components often requires a broader understanding of the software stack, which can be daunting.

What are specific challenges faced by target audience?

Institutions need to support increasingly complex data models, and larger file sizes. They also need to integrate their repository with other institutional systems, which often doesn't work out of the box.

Do you have service providers that help you or the community? If so, with what?

Development; Hosting; Implementation; Maintenance; Migration; Training.

What, if any, is the financial arrangement between the project and these service providers?

DuraSpace offers a Registered Service Provider program: http://duraspace.org/service_providers

Program wiki

<https://wiki.duraspace.org/display/FF>

Program website

<http://fedorarepository.org>

Program social media

<https://twitter.com/fedorarepo>

Appendix D: OSS Program Survey Results

Fedora (continued)

Program mailing lists

<https://wiki.duraspace.org/display/FF/Mailing+Lists+etc>

Program training

<https://wiki.duraspace.org/display/FF/Training>

Program code repository

<https://github.com/fcrepo4>

Program news and updates

<https://wiki.duraspace.org/display/FF/Fedora+Newsletter>

Program meeting opportunities

<https://wiki.duraspace.org/display/FF/Conferences>

What would you want to get out of the conference?

I am eager to hear about the sustainability practices of other open source communities to help feed back into our practices with the Fedora project.

Islandora

What is the high level purpose of the OSS?

General-purpose digital assets management system (DAMS).

Who is your target audience?

GLAMs (galleries, libraries, archives, and museums) seeking a DAMS.

How would you categorize your program's current stage of development?

Maintenance – in production, supported, potential transition to a new focus/version.

Is your program affiliated with an organization that provides organizational infrastructure and support? If yes, please indicate the name of the organization and the type of support it provides.

Yes; Islandora Foundation, providing organizational home, community building, and core staff.

What is the license for the software?

GPL-3.0

Is there any formal governance of the OSS?

Yes

If yes to previous question, does the governance extend beyond the originating institution/entity that created the product?

Yes

If yes, please describe how representatives are chosen through election or other processes.

Islandora Foundation provides three tiers of membership (Partner, Collaborator, Member); Board is comprised of one representative from each Partner; Roadmap Committee is comprised of one representative from each Partner and Collaborator).

How are major and minor decisions made?

Via the Islandora Foundation Board, Roadmap Committee, and consultation with user community.

How many organizations are using the OSS?

More than 150 production installations.

What percentage of users are outside of the USA?

25%-50%

In what ways do institutions contribute to the project?

Code contributions; Documentation; Domain expertise; Financial contribution; Leadership; Outreach/advocacy; Peer support.

What is the rough percentage of institutions contributing to the software?

25%-50%

Are your communication platforms, software development tools, and documentation openly available to all?

Yes

What was the date of the first release and/or when did the project start?

2006.

What was the date of the latest major release?

April 2017.

Is integration/compatibility with another system essential to your project's success or value proposition?

Yes, Fedora and Drupal.

Does the project/program have a technology roadmap?

No

Approximately how many developers have contributed to the project to date?

More than 50

Approximately how many code committers and committing organizations are actively contributing?

140+.

Is there a dominant organization that provides committers?

No.

Are any of the committing organizations for-profit entities?

Yes.

How do you cultivate/organize the coding community?

Via biweekly committers calls and by using GitHub as a development platform.

Appendix D: OSS Program Survey Results

Islandora (continued)

Describe your onboarding strategy for new contributors or include link to info if online.

A CONTRIBUTING.MD file is present in all GitHub repositories (example: <https://github.com/Islandora/islandora/blob/7.x/CONTRIBUTING.md>), outlining how to contribute. Additionally, select official Committers have responsibility to mentor and guide new contributors, as outlined here: <https://github.com/Islandora/islandora/wiki/Islandora-Committers>. A pull request template is also in place to guide new code contributors (example; https://github.com/Islandora/islandora/blob/7.x/.github/PULL_REQUEST_TEMPLATE.md)

Does the program have paid staff? If so, how many FTE?

Yes; 2

What is the current annual budget for the project/program?

\$50,001- \$250,000

How is the program currently being funded?

Membership.

How many stakeholders contribute financially?

38.

How many stakeholders contribute developer resources? Among stakeholders who contribute developer resources, what is the average contribution?

Two official contributions of less than 0.5 FTE, many unofficial contributions of time, often associated with internal projects.

What is the next major milestone for the project? How do you plan to fund that effort?

Develop the next generation (currently called CLAW) to be production ready. Increase membership and community participation.

What was the source and funding for initial development of the software?

Internal funding from founding institution (UPEI), and Atlantic Innovation Fund grant.

How long did initial development and testing take before the software was released for community adoption?

1-2 years.

Are there competing products, either proprietary or open source?

Yes, there are a few.

What are your aspirations for the OSS?

To become a functional, flexible, and sustainable platform for managing digital assets.

What are specific challenges faced by stakeholders in support of this OSS?

Continuation of financial support.

What are specific challenges faced by developers?

Working in an open, collaborative community while achieving their organization's/clients' goals.

What are specific challenges faced by target audience?

Installation, maintenance, and customization of the platform with limited developer and system administrator resources.

Do you have service providers that help you or the community? If so, with what?

Development; Hosting; Implementation; Maintenance; Migration; Training.

What, if any, is the financial arrangement between the project and these service providers?

Some are Islandora Foundation partners, collaborators, or members. The Islandora Foundation's relationship with service providers is the same as it is for galleries, libraries, archives, and library members.

Program wiki

<https://wiki.duraspace.org/display/ISLANDORA/Islandora>

Program website

<http://islandora.ca>

Program social media

<https://twitter.com/islandora>

Program mailing lists

<http://islandora.ca/community>

Program training

<http://islandora.ca/events>

Program code repository

<http://islandora.ca/github>

Program news and updates

<https://islandora.ca/newsletter>

Program meeting opportunities

http://islandora.ca/search/site/?ff0=im_field_type_event%3A29

What would you want to get out of the conference?

To learn about other OSS communities and their governance, and to discuss opportunities for collaboration.

Koha

What is the high level purpose of the OSS?

Runs a library (both physical and electronic).

Who is your target audience?

Any organisation that has a library. So pretty much every organisation over about 50 people.

Libraries of all shapes and sizes: Public, Academic, Schools, Special, Corporate, Government, etc.

How would you categorize your program's current stage of development?

Self-sustaining – project has sufficient resources to continue ongoing development, community support, etc.

Appendix D: OSS Program Survey Results

Koha (continued)

Is your program affiliated with an organization that provides organizational infrastructure and support? If yes, please indicate the name of the organization and the type of support it provides.

No.

What is the license for the software?

GPL-3.0

Is there any formal governance of the OSS?

Yes

If yes to previous question, does the governance extend beyond the originating institution/entity that created the product?

Yes

If yes, please describe how representatives are chosen through election or other processes.

There is more of a management structure than a pure governance one, release teams are elected by the wider community for each release.

How are major and minor decisions made?

Voting and consensus making. Major decisions are voted on, minor ones we work to reach a consensus.

How many organizations are using the OSS?

Approximately 15,000.

What percentage of users are outside of the USA?

More than 50%

In what ways do institutions contribute to the project?

Code contributions; Documentation; Domain expertise; Financial contribution; Outreach/advocacy; Peer support.

What is the rough percentage of institutions contributing to the software?

Less than 25%

Are your communication platforms, software development tools, and documentation openly available to all?

Yes

Please describe restrictions, if any.

Everything is in the open.

What was the date of the first release and/or when did the project start?

Code went into production January 3 2000, first release of the software for download/contributions was June 2000.

What was the date of the latest major release?

May 27, 2017.

Is integration/compatibility with another system essential to your project's success or value proposition?

Library systems need to integrate with a vast array of 3rd party systems, no one is critical but combined they would be.

Does the project/program have a technology roadmap?

Yes

If yes, how is it produced and how often is it updated?

It is updated in monthly developer meetings.

Approximately how many developers have contributed to the project to date?

More than 50

Approximately how many code committers and committing organizations are actively contributing?

51 individuals from about 22 organisations have had code accepted into Koha to date in 2017

There were 91 in 2016 and 92 in 2015.

Is there a dominant organization that provides committers?

There is no one dominant organisation, but there are 3 or 4 that provide the bulk of commits (not committers).

Are any of the committing organizations for-profit entities?

Yes.

How do you cultivate/organize the coding community?

Mailing lists, wiki and development meetings on irc. We communicate and document everything in the open and keep the bar as low as possible for new committers.

Describe your onboarding strategy for new contributors or include link to info if online.

https://wiki.koha-community.org/wiki/Getting_involved

Does the program have paid staff? If so, how many FTE?

Yes; 1

What is the current annual budget for the project/program?

\$50,001- \$250,000

How is the program currently being funded?

Sponsorship.

How many stakeholders contribute financially?

This depends entirely on what you mean by a financial contribution, if you mean purely giving money, then 4 regularly, more for conferences.

How many stakeholders contribute developer resources? Among stakeholders who contribute developer resources, what is the average contribution?

20 organisations, the average would be .2 FTE ... but some of those orgs have 2 or 3 FTE dedicated.

Appendix D: OSS Program Survey Results

Koha (continued)

What is the next major milestone for the project? How do you plan to fund that effort?

Further integration with ERMS systems. As with pretty much every feature in Koha, this will come from users spec'ing and paying for it to be developed. We run as a bottom up, not top down project.

What was the source and funding for initial development of the software?

Katipo communications was contracted to write it by the Te Horowhenua Library trust. It was work for hire.

How long did initial development and testing take before the software was released for community adoption?

Initial development took 3 months, code was in production after 3 months. Wider release took a further 6 months.

Are there competing products, either proprietary or open source?

Yes, there are many.

What are your aspirations for the OSS?

To continue to grow, and become the choice for all freedom respecting organisations.

What are specific challenges faced by stakeholders in support of this OSS?

Libraries themselves are in a continuous state of flux, and the proprietary vendors are not above blatantly lying about the abilities of their software and/or the 'flaws' of OSS. Basically unscrupulous vendors and naive libraries are the biggest challenges we face.

What are specific challenges faced by developers?

As always, interfacing with poorly document proprietary systems is the hardest part.

For example, I spend way too much time having to explain to 3rd party vendors that no, they can't send Koha passwords in the clear. There are so many systems that a library system needs to interact with, authentication systems, financial systems, ERMS, DRM vendors (overdrive, wheelers, oneclick digital etc), student management systems. Building and maintaining those integration points are always the most challenging. Standards sometimes exist, but it is very rare that they are ever followed.

What are specific challenges faced by target audience?

Funding, libraries are facing funding cuts the world over. So they are under continuous pressure to offer the same (or higher) level of service at lower cost.

Do you have service providers that help you or the community? If so, with what?

Development; Implementation; Maintenance; Migration; Training.

What, if any, is the financial arrangement between the project and these service providers?

There aren't any formal arrangements.

Program wiki

https://wiki.koha-community.org/wiki/Main_Page

Program website

<https://koha-community.org/>

Program mailing lists

<https://koha-community.org/support/koha-mailing-lists/>

Program training

<https://koha-community.org/documentation/>

Program code repository

<http://git.koha-community.org/gitweb/>

Program news and updates

<https://koha-community.org/category/koha-newsletter/>

Program meeting opportunities

<https://koha-community.org/kohacon/>

What would you want to get out of the conference?

It is always good to talk to others about how they are working, and share ideas and learn from each other.

Library Simplified/SimplyE

What is the high level purpose of the OSS?

Simplify the borrowing of eBooks from various library ebook content providers in a single unified application. The app provides a unified catalog of content, a transactionally simple, anonymous, secure collection borrowing experience, and an advanced reading environment that is compatible with native screen readers and assistive technologies.

Who is your target audience?

Readers.

How would you categorize your program's current stage of development?

Early Production – initial core of community supporters but in early stage of adoption/growth cycle.

Is your program affiliated with an organization that provides organizational infrastructure and support? If yes, please indicate the name of the organization and the type of support it provides.

Yes.

What is the license for the software?

Apache-2.0

Appendix D: OSS Program Survey Results

Library Simplified/SimplyE (continued)

Is there any formal governance of the OSS?

Yes

If yes to previous question, does the governance extend beyond the originating institution/entity that created the product?

No

How are major and minor decisions made?

Previously it was cultivated by the product owner and engineering team who acted as community managers. However, its current institutional support is in question due to new leadership and leadership priorities.

How many organizations are using the OSS?

5.

What percentage of users are outside of the USA?

Less than 25%

In what ways do institutions contribute to the project?

Code contributions; Financial contribution; Outreach/advocacy; Peer support.

What is the rough percentage of institutions contributing to the software?

25%-50%

Are your communication platforms, software development tools, and documentation openly available to all?

Yes

Please describe restrictions, if any.

The application must use DRM software that makes it compatible with third party content providers. That DRM is under commercial license.

What was the date of the first release and/or when did the project start?

Feb 2016 was the first release of the Software under the Open Ebooks initiative for the White House's Connect Ed program. The second was for NYPL's own instance.

What was the date of the latest major release?

Version 2.0 was released in March 2017.

Is integration/compatibility with another system essential to your project's success or value proposition?

Yes. It must be compatible with mobile platforms, DRM providers and content host providers such as Bibliotheca, Overdrive and Baker and Taylor Access 360.

Does the project/program have a technology roadmap?

Yes

If yes, how is it produced and how often is it updated?

It is produced in collaboration with the community of interested libraries and the product owner, community contributors.

Approximately how many developers have contributed to the project to date?

11-25

Approximately how many code committers and committing organizations are actively contributing?

5 Organizations, 12 Individuals.

Is there a dominant organization that provides committers?

The New York Public Library.

Are any of the committing organizations for-profit entities?

Sony DADC is contributing integration of their DRM. Datalogics in contributing integration with ebook content hosts. Odillo has committed to also contributing an integration into its content services.

How do you cultivate/organize the coding community?

We work through the Radium Foundation and the Library Community.

Describe your onboarding strategy for new contributors or include link to info if online.

We invite folks to participate in our weekly sprints and to participate on our IRC / Slack channel. That way, folks can learn about the code base and ask questions, seek guidance from developers.

Does the program have paid staff? If so, how many FTE?

Yes

What is the current annual budget for the project/program?

\$250,001-\$500,000

How is the program currently being funded?

It is primarily being funded through grants but some staff have transitioned to full time staff that may be reallocated if the project loses support for operating as part of an open source project.

How many stakeholders contribute financially?

4 - The Institute of Museum and Library Services, The New York Public Library, Minitex, and the State Library of Connecticut.

How many stakeholders contribute developer resources? Among stakeholders who contribute developer resources, what is the average contribution?

2 FTE from Minitex, 7 FTE from NYPL and various levels as need for specific project from the broader community.

What is the next major milestone for the project? How do you plan to fund that effort?

The next major milestone will be audiobook integration, DRM and Rendering engine (ebook rendering technology). This is currently supported by institutional donors.

Appendix D: OSS Program Survey Results

Library Simplified/SimplyE (continued)

What was the source and funding for initial development of the software?

The Institute of Museum and Library Services.

How long did initial development and testing take before the software was released for community adoption?

18 Months.

Are there competing products, either proprietary or open source?

Yes, there are many.

What are your aspirations for the OSS?

To improve access to Library eBooks and industry adoption of accessible, interoperable and open technologies.

What are specific challenges faced by stakeholders in support of this OSS?

Institutional priorities for resources for internal projects.

What are specific challenges faced by developers?

Dealing with incumbent technologies and supporting maintenance of existing applications.

What are specific challenges faced by target audience?

The current challenges for the target audience is the complexity of the current commercial solutions and lack of features with this projects current offering.

Do you have service providers that help you or the community? If so, with what?

Development; Implementation.

What, if any, is the financial arrangement between the project and these service providers?

None.

Program website

www.librarysimplified.org

Program social media

[@LibSimple@twitter.com](https://twitter.com/LibSimple)

Program code repository

<https://github.com/NYPL-Simplified>

Program meeting opportunities

ALA, Code4 Lib, PLA, DPLAFest, Write/Speak/Code, RestFest.

Is there anything else you want to tell us?

We are looking for foundational and commercial financial sponsors. We hope to create a world in which user once again thinks of libraries first when looking to find a good book to read. We hope to help libraries establish themselves in the Digital Era and as an equal partner in promoting a love of books in the Publishing Industry.

What would you want to get out of the conference?

New participation and interest by other institutions and developers who feel the project could be of value to them and their motivations.

Lots of Copies Keep Stuff Safe (LOCKSS)

What is the high level purpose of the OSS?

The LOCKSS software provides decentralized, peer-reviewed, peer-to-peer, resilient digital preservation for all types of content.

Who is your target audience?

Our partners are communities who have a shared interest in the preservation of particular content. Principally, though not exclusively, these are communities of memory organizations. We are interested in expanding our partnerships among existing and to new audiences to broadly facilitate better digital preservation for more content.

How would you categorize your program's current stage of development?

Maintenance – in production, supported, potential transition to a new focus/version.

Is your program affiliated with an organization that provides organizational infrastructure and support? If yes, please indicate the name of the organization and the type of support it provides.

Yes; The LOCKSS Program is an Auxiliary Unit of Stanford Libraries. As such, it is administratively part of Stanford University but supports itself wholly through external funding. We recently moved into the Digital Library Systems and Services group, which is providing opportunities for potential cost efficiencies.

What is the license for the software?

BSD-3-Clause

Is there any formal governance of the OSS?

No

How many organizations are using the OSS?

We don't have precise numbers, in part because the software is open source and available to anyone for free. A plausible estimate for the number of organizations running the LOCKSS software would be a few hundred.

What percentage of users are outside of the USA?

Less than 25%

In what ways do institutions contribute to the project?

Code contributions; Documentation; Domain expertise; Financial contribution; Leadership; Outreach/ advocacy; Peer support.

What is the rough percentage of institutions contributing to the software?

Less than 25%

Appendix D: OSS Program Survey Results

Lots of Copies Keep Stuff Safe (LOCKSS) (continued)

Are your communication platforms, software development tools, and documentation openly available to all?

Yes

Please describe restrictions, if any.

Our code and some documentation are currently open to all. We are working on making other aspects of our software development more externally transparent and accessible.

What was the date of the first release and/or when did the project start?

The LOCKSS Program started in 1999, and the first production release of the LOCKSS software came in 2004. More details about the history of the LOCKSS Program can be found here: <https://www.lockss.org/about/history/>.

What was the date of the latest major release?

The latest release of the LOCKSS software was in June 2017. The next anticipated release will be July 2017.

Is integration/compatibility with another system essential to your project's success or value proposition?

Yes, increasingly so. We are in the midst of a major software re-architecture that will result in the major components of the LOCKSS software becoming available for integration into other platforms as standalone web services. We hope that they may find application in other digital preservation or web archiving systems. In addition, we are working to simplify the hand-off of data between repository systems and LOCKSS networks.

Does the project/program have a technology roadmap?

Yes

If yes, how is it produced and how often is it updated?

Our current technology roadmap is closely coupled with deliverables for a grant from the Andrew W. Mellon Foundation. To date, major projected milestones and work areas have been shared informally via public presentations. We are working on channels to share the roadmap and the state of ongoing work on a more regular and persistent basis.

Approximately how many developers have contributed to the project to date?

26-50

Approximately how many code committers and committing organizations are actively contributing?

At least four organizations cumulatively with half a dozen developers are either contributing code to the LOCKSS software or maintain software specifically designed to interoperate with the LOCKSS software.

Is there a dominant organization that provides committers?

It is difficult to compare the weight of the organizations' relative contributions.

Are any of the committing organizations for-profit entities?

No.

How do you cultivate/organize the coding community?

We are actively investing in a stronger community orientation for LOCKSS software development. We are starting by making our current activities more transparent: publicly sharing our roadmap, planned work cycles, and development progress on an ongoing basis. We hope to build on these efforts by better documenting our code repositories, creating a developer portal, and engaging more directly with proximate technical communities.

Describe your onboarding strategy for new contributors or include link to info if online.

We are not yet far enough along to have a well-established onboarding strategy but believe this is a worthwhile goal.

Does the program have paid staff? If so, how many FTE?

Yes; 13

What is the current annual budget for the project/program?

More than \$1 million

How is the program currently being funded?

The LOCKSS Program is funded by charging for services and support (i.e., the Red Hat business model: https://en.wikipedia.org/wiki/Red_Hat#Business_model) as well as occasional grants.

How many stakeholders contribute financially?

Several hundred organizations fund the LOCKSS Program through payments for services and support.

How many stakeholders contribute developer resources? Among stakeholders who contribute developer resources, what is the average contribution?

At least four stakeholders contribute code or conduct independent development on software that interoperates with the LOCKSS software, but it is difficult for us to estimate the level of effort.

What is the next major milestone for the project? How do you plan to fund that effort?

We have major software development milestones for the LOCKSS software planned on six-month intervals (June, December) from now through June 2018. This work is generously supported by a grant from the Andrew W. Mellon Foundation.

Appendix D: OSS Program Survey Results

Lots of Copies Keep Stuff Safe (LOCKSS) (continued)

What was the source and funding for initial development of the software?

The initial software development and research effort was supported by funding from the National Science Foundation and Sun Microsystems.

How long did initial development and testing take before the software was released for community adoption?

Initial development and testing took approximately five years before the first production release was made available.

Are there competing products, either proprietary or open source?

Yes, there are a few.

What are your aspirations for the OSS?

With its foundation in peer-reviewed research, articulated threat model, decentralized architecture, and years of reliable operation for heterogeneous use cases, the LOCKSS software provides digital preservation capabilities that are unmatched by other existing systems. By unbundling its functionality and enabling its integration into new contexts, LOCKSS will be poised to improve the preservation conditions or more and more different kinds of content.

What are specific challenges faced by stakeholders in support of this OSS?

As is often the case for open-source software, the LOCKSS software is not as well documented as we would like. We are making major improvements on this front in the course of the software re-architecture effort.

What are specific challenges faced by developers?

Apart from the documentation gap, we have not yet provided guidance on how developers could most effectively plug into or build upon our work.

What are specific challenges faced by target audience?

It is difficult to generalize since the contexts in and use cases for which the LOCKSS software is used vary. Changes in the local IT environments of a subset of our partners is making it increasingly challenging to effectively operate and manage their LOCKSS systems.

Program wiki

<https://plnwiki.lockss.org/>

Program website

<https://www.lockss.org/>

Program code repository

<https://github.com/lockss>

Program meeting opportunities

<https://plnwiki.lockss.org/index.php?search=pln+community+meeting&qo=Go>

Is there anything else you want to tell us?

Thank you for the opportunity to participate in this project!

What would you want to get out of the conference?

We are interested to learn more about strategies that other projects have adopted to support sustainability and engender community engagement. We hope to contribute to and hear more about other projects' best practices for open-source software sustainability.

MetaArchive LOCKSS

What is the high level purpose of the OSS?

MetaArchive uses the free open source LOCKSS archiving software to operate a network of preservation servers. Due to the low cost participation it is affordable for libraries of all sizes. LOCKSS is an ACM award winning digital preservation technology which preserves all formats and genres of web-published content from full-fledged web sites to simple web hosted directories.

Content is stored in and restored to its original format. Participating institutions identify valuable digital assets that they wish to preserve safely. They make the corresponding digital content accessible to MetaArchive network servers, so-called LOCKSS caches, which are configured to copy content, update it to its latest versions on a regular basis, and ensure its integrity over time.

All content is stored in multiple copies on multiple caches at geographically dispersed locations. The MetaArchive network manages the number of replication so that a loss of all copies becomes extremely unlikely. If an institution loses preserved content for whatever reason its content is restored in its original form.

Who is your target audience?

Any institution seeking a digital preservation storage solution, including but not limited to libraries, archives, museums, and other cultural heritage institutions.

How would you categorize your program's current stage of development?

Maintenance – in production, supported, potential transition to a new focus/version.

Appendix D: OSS Program Survey Results

MetaArchive LOCKSS (continued)

Is your program affiliated with an organization that provides organizational infrastructure and support? If yes, please indicate the name of the organization and the type of support it provides.

Yes; The MetaArchive Cooperative is an affiliated community of the Educopia Institute which provides organizational infrastructure and support.

What is the license for the software?

BSD-3-Clause

Is there any formal governance of the OSS?

Yes

If yes to previous question, does the governance extend beyond the originating institution/entity that created the product?

Yes

If yes, please describe how representatives are chosen through election or other processes.

MetaArchive's implementation of LOCKSS is governed by the Steering Committee leadership group.

How are major and minor decisions made?

MetaArchive's Steering Committee group is responsible for making all decisions related to technological infrastructure including the implementation of LOCKSS.

How many organizations are using the OSS?

MetaArchive has over 60 member institutions that are using its implementation of LOCKSS.

What percentage of users are outside of the USA?

Less than 25%

In what ways do institutions contribute to the project?

Code contributions; Documentation; Domain expertise.

What is the rough percentage of institutions contributing to the software?

Less than 25%

Are your communication platforms, software development tools, and documentation openly available to all?

No

Please describe restrictions, if any.

Restricted to members only

What are specific challenges faced by target audience?

Libraries, archives, museums and other cultural heritage institutions need an easy to use, low-cost digital preservation storage solution. Academic institutions are facing increased fees for utilizing campus data center storage solutions. Small organizations have limited resources in terms of finances and staff time to prepare content for ingest and long-term preservation.

Program website

<https://metaarchive.org/>

Program social media

@metaarchive

Program code repository

<https://github.com/MetaArchive>

Is there anything else you want to tell us?

I skipped a number of questions as these were more relevant to the primary LOCKSS team at Stanford University.

What would you want to get out of the conference?

Contribute to the conversation and strategizing for developing community-based sustainability strategies for open source software projects in the cultural heritage community.

OLE – Open Library Environment

What is the high level purpose of the OSS?

OLE is an active community of academic and research libraries collaborating to build open source, extensible, and service-driven library management tools. The OLE Partners share a common vision to empower librarians and libraries by pooling our resources and directing our expertise and insights. OLE provides the infrastructure and governance for effective collaboration between institutions with shared interests in developing, using and extending open source library management tools for the global library community. Our focus is on developing strong community organization and vision that drives our activities that include software development, feature specification, and innovation in practice and use of library management tools.

Who is your target audience?

Academic and research librarians and libraries.

How would you categorize your program's current stage of development?

Maintenance – in production, supported, potential transition to a new focus/version.

Is your program affiliated with an organization that provides organizational infrastructure and support? If yes, please indicate the name of the organization and the type of support it provides.

Yes; Open Library Foundation – fiscal, legal, organizational infrastructure.

What is the license for the software?

ECL-2.0; Apache-2.0

Is there any formal governance of the OSS?

Yes

Appendix D: OSS Program Survey Results

OLE – Open Library Environment (continued)

If yes to previous question, does the governance extend beyond the originating institution/entity that created the product?

Yes

If yes, please describe how representatives are chosen through election or other processes.

OLE has a membership model that lets new institutions join and gain seats in governance. An OLE Partner is guaranteed a seat on the Board of Directors, but other roles are elected based on interest, experience, and availability.

How are major and minor decisions made?

Major decisions are made by the OLE Board. OLE has a Steering Committee that researches and prepares issues for decision by the Board. These issues are strategic and directional – budgeting, grant writing, new partners, collaborative opportunities, and overall scope.

Minor decisions are made by appropriate structures within OLE. The Project Manager will make decisions about support and coding. The Product Council will make decisions about desired functional scope. The Managing Director will make decisions about Community operations and obligations, as well as, the strategic agenda for OLE.

How many organizations are using the OSS?

Three libraries.

What percentage of users are outside of the USA?

25%-50%

In what ways do institutions contribute to the project?

Code contributions; Documentation; Domain expertise; Financial contribution; Leadership; Outreach/advocacy; Peer support. Collaborative infrastructure – i.e. web conferencing, code repository, wiki, shared files, etc.

What is the rough percentage of institutions contributing to the software?

More than 50%

Are your communication platforms, software development tools, and documentation openly available to all?

Yes

Please describe restrictions, if any.

There may be some documents related to operations, like budgeting and hiring documents, that are restricted.

What was the date of the first release and/or when did the project start?

OLE organized in 2010 to develop software for library management, and our first code release was in 2010. We released code every 6 months until we released production code in 2014. The original OLE effort to determine direction and participation from the library community (not a software build effort) was in 2009 – 2010.

What was the date of the latest major release?

The latest release, OLE 3.0, was released in May 2017.

Is integration/compatibility with another system essential to your project's success or value proposition?

Yes. Library management software must integrate with a wide and diverse range of other systems. These include vendor systems for purchasing or licensing library materials, vendor metadata production services, bibliographic utilities, license management systems, campus identity management systems, learning management systems, interlibrary loan systems, reading room management systems, storage management systems, and information discovery systems.

Without these integrations, OLE would not be capable of serving as a functioning library management system, and so, would not be under consideration by libraries for use.

Does the project/program have a technology roadmap?

Yes

If yes, how is it produced and how often is it updated?

It is informed by goals established by the OLE Board, and in collaboration with the Product Council. This is guided by the Managing Director. The scope of the technology roadmap is the product of the OLE Steering Committee.

Approximately how many developers have contributed to the project to date?

3-10

Approximately how many code committers and committing organizations are actively contributing?

We currently have 6 active committers, and all of the OLE Partners are contributing to this effort either by providing developers who are committing code, or by funding shared developers hired by OLE to commit code.

Appendix D: OSS Program Survey Results

OLE – Open Library Environment (continued)

Is there a dominant organization that provides committers?

We have, in the past, had a commercial software development firm as the dominant developers. We are pivoting away from this model towards a community contribution model.

Are any of the committing organizations for-profit entities?

Yes there are. Initially all software development for OLE was done through contracted commercial developers. We have changed this model in favor of contributed resources (cash or staff) that let us build our developers as local resources to our Partners. We find that this is more effective since these developers are much more familiar with library operations and ecosystems, and more engaging for the OLE Partners since they have developers on staff that are deeply embedded in shared code development.

How do you cultivate/organize the coding community?

We have a Project Manager who oversees and coordinates the activities of OLE developers. We deploy senior developers who operate with deep experience, but almost as importantly, operation like a product manager in taking care that the code output not only meets the specifications, but conforms to community expectations. We take time to on board developers and inculcate them into the open source ethos of approach, coding standards, and personal responsibility. We are developing a mentoring approach for new developers that will pair them with current developers that are well versed in the community.

Describe your onboarding strategy for new contributors or include link to info if online.

We stratify our community into developers and subject matter experts. For each cohort, we do have on boarding approaches that focus on expectations for participation and contribution, wayfinding around project documentation, project organization and personnel, and shared communications and development tools. We are currently working on online documentation of these processes.

Does the program have paid staff? If so, how many FTE?

Yes; 4

What is the current annual budget for the project/program?

\$500,001-\$1 million

How is the program currently being funded?

Funding comes from Partner membership dues. We have had significant grant funding from the Mellon Foundation. And partners contribute significant staff resources, and in some cases, tools or facilities.

How many stakeholders contribute financially?

Currently we have 12 stakeholders.

How many stakeholders contribute developer resources? Among stakeholders who contribute developer resources, what is the average contribution?

4 stakeholders contribute developers. The typical commitment is 0.5 FTE, although we do have one developer that is a full time commitment.

What is the next major milestone for the project? How do you plan to fund that effort?

We are investing in the FOLIO project (<http://folio.org>) now and the next major milestone is a v1 release slated for midyear 2018. We are funding our substantial contribution to FOLIO with our own resources – staff, cash, grant funds.

What was the source and funding for initial development of the software?

Self funded with matching Andrew W Mellon Foundation funds.

How long did initial development and testing take before the software was released for community adoption?

3 years.

Are there competing products, either proprietary or open source?

Yes, there are a few.

What are your aspirations for the OSS?

To provide an ecosystem that breaks down the proprietary single-source solution product lines that expect libraries to adopt a suite of software from a single vendor. What we are looking to do is provide infrastructure that lowers technical barriers of entry for smaller software development efforts, both proprietary and open source, that can address compartmentalized solutions that fit into a working platform that coordinates data, functionality and interface across many contributed pieces of software. The analogy would be like a smart phone that can incorporate “apps” from many different providers with different business models that can share a single implementation, share data, and other infrastructural affordances.

What are specific challenges faced by stakeholders in support of this OSS?

Sustaining investment and human effort over the course of several years. Finding sustaining organization that works across institutional boundaries and is welcoming of supply chain vendors as peers.

What are specific challenges faced by developers?

Developing an architecture that is built to provide solutions to other developers trying to solve issues in library automation. The architecture must be flexible, make as few assumptions as possible to improve innovative opportunities for “apps.”

Appendix D: OSS Program Survey Results

OLE – Open Library Environment (continued)

What are specific challenges faced by target audience?

There is less and less competition, rigid pricing model, and a lack innovation. The challenge of libraries comes from the changing nature of the scholarly record moving to embrace a more diverse medium for transmission and preservation. And a growing set of expectations from parent institutions for managing new forms of scholarly output, discovery and reuse.

Do you have service providers that help you or the community? If so, with what?

Development; Hosting; Implementation; Maintenance; Migration; Training. Strategic alignment of supply chain with libraries and campuses.

What, if any, is the financial arrangement between the project and these service providers?

They are providing substantial investment and bringing commercial management paradigm to our sustaining investments and community management model.

Program wiki

<http://wiki.folio.org>

Program website

<http://folio.org>

Program social media

@folio_lsp

Program mailing lists

<http://ole-lists.openlibraryfoundation.org>

Program code repository

<https://github.com/folio-org>

Is there anything else you want to tell us?

OLE is undergoing substantial change after 8 years of existence as a partnership. We are opening up our community to encourage wider participation and partnering in new ways to increase the capability, capacity and innovation of our community. We embrace commercial participation that supports the open source ecosystem, and seek to balance the commercial needs for return on investment with the needs of libraries for products that target new engagements and relevancy on campus.

What would you want to get out of the conference?

Deeper insight into how open source communities are organizing themselves to sustain efforts, increase velocity of development, and engaging with the supply chain. Also looking for how to build a bias for openness in libraries and across our vendors.

Omeka

What is the high level purpose of the OSS?

Web publishing platform for sharing and displaying collections and for creating online narratives (exhibits).

Who is your target audience?

Librarians, archivists, museum professionals, scholars, educators and their students, history enthusiasts and collectors.

How would you categorize your program's current stage of development?

Self-sustaining – project has sufficient resources to continue ongoing development, community support, etc.

Is your program affiliated with an organization that provides

organizational infrastructure and support? If yes, please indicate the name of the organization and the type of support it provides.

Yes; Roy Rosenzweig Center for History and New Media at George Mason University (facilities, HR) and the Corporation for Digital Scholarship (fiscal).

What is the license for the software?

GPL-3.0

Is there any formal governance of the OSS?

Yes

If yes to previous question, does the governance extend beyond the originating institution/entity that created the product?

No

How are major and minor decisions made?

During Omeka team sprint planning and review sessions, and then at other planned meeting times when necessary.

How many organizations are using the OSS?

Impossible to tell by organization; Omeka.net has over 45,000 users; the software has been downloaded more than 150,000 times.

What percentage of users are outside of the USA?

Less than 25%

In what ways do institutions contribute to the project?

Code contributions; Financial contribution; Outreach/advocacy; Peer support.

What is the rough percentage of institutions contributing to the software?

Less than 25%

Appendix D: OSS Program Survey Results

Omeka (continued)

Are your communication platforms, software development tools, and documentation openly available to all?

Yes

What was the date of the first release and/or when did the project start?

February 2008, first funded officially as “Omeka” in October 2007.

What was the date of the latest major release?

2.5 released in February 2017, and 2.5.1 will be released next week.

Is integration/compatibility with another system essential to your project’s success or value proposition?

Yes, Omeka’s output formats, API, import capabilities, and structured metadata requirements enables this across multiple systems.

Does the project/program have a technology roadmap?

Yes

If yes, how is it produced and how often is it updated?

It is updated every 6 months, to a year.

Approximately how many developers have contributed to the project to date?

More than 50

Approximately how many code committers and committing organizations are actively contributing?

Since we moved to GitHub, there are 43 people committing to the Omeka Classic and Omeka S core code, plus there are many plugin contributors (who have actually submitted to the Omeka AddOns directory) numbering over 25.

Is there a dominant organization that provides committers?

This varies, mostly by project needs, from universities to libraries.

Are any of the committing organizations for-profit entities?

Not that we are aware of.

How do you cultivate/organize the coding community?

We worked very hard cultivate a community of users through making our code available in public and for creating documentation in an editable Wiki (which we had to close because of excessive spam and few actual editors outside of the project team).

From a 2010 report on Omeka:

<http://omeka.org/about/project/>

Describe your onboarding strategy for new contributors or include link to info if online.

We provide documentation for end users and developers. All of the design and developer documentation for version 2.0 and higher can be found on Omeka’s Read the Docs site: <http://omeka.readthedocs.io/en/latest/>.

Does the program have paid staff? If so, how many FTE?

Yes; 5

What is the current annual budget for the project/program?

\$50,001- \$250,000

How is the program currently being funded?

Grants for software-specific development; grants for digital projects that use Omeka; contract web design and development work; support income from [Omeka.net](http://omeka.net) paid plans; and donations.

How many stakeholders contribute financially?

0.

How many stakeholders contribute developer resources? Among stakeholders who contribute developer resources, what is the average contribution?

None, but it would be nice!

What is the next major milestone for the project? How do you plan to fund that effort?

Omeka S 1.0 and major module release will come by fall 2017, and those are funded through existing grants and support from CDS.

What was the source and funding for initial development of the software?

Alfred P. Sloan Foundation and the Institute of Museum and Library Services.

How long did initial development and testing take before the software was released for community adoption?

6 months.

Are there competing products, either proprietary or open source?

Yes, there are a few.

What are your aspirations for Omeka.net the OSS?

That it continues to serve the needs of our community, and that it will be supported by our institution and through Omeka.net subscriptions.

What are specific challenges faced by developers?

Continued funding to work on the project.

What are specific challenges faced by target audience?

Omeka users want a reliable and supported web publishing software that will continue to offer new themes and plugins/modules.

Program wiki

<http://omeka.org/codex/Documentation>

Appendix D: OSS Program Survey Results

Omeka (continued)

Program website

<http://omeka.org/>

Program social media

@omeka

<https://www.facebook.com/OmekaRRCHNM/>

Program mailing lists

<https://forum.omeka.org/>

Program training

These happen all over and people don't necessarily coordinate with us.

Program code repository

<https://github.com/omeka>

Program news and updates

<http://omeka.org/blog/>

Program meeting opportunities

Depends on the year.

Is there anything else you want to tell us?

We are approaching our 10th anniversary as a digital humanities FOSS project, and we have reached a point where we have gotten so reliable that our support is taken for granted. We need help from our user base to tell us when they are applying for funding to build something new, and to offer some monetary compensation that represents and respects the labor the Omeka team now donates to the success of multiple DH projects.

Sakai (an Apereo Project)

What is the high level purpose of the OSS?

Collaboration and Learning Environment – essentially, the functionality of a Learning Management System, with additional functionality to enable less structured collaboration.

Who is your target audience?

Higher Education.

How would you categorize your program's current stage of development?

Self-sustaining – project has sufficient resources to continue ongoing development, community support, etc.

Is your program affiliated with an organization that provides organizational infrastructure and support? If yes, please indicate the name of the organization and the type of support it provides.

Yes; Apereo Foundation. Nonprofit registered in New Jersey to provide umbrella support for projects serving the educational mission.

What is the license for the software?

ECL-2.0

Is there any formal governance of the OSS?

Yes

If yes to previous question, does the governance extend beyond the originating institution/entity that created the product?

Yes

If yes, please describe how representatives are chosen through election or other processes.

Sakai Project Management Committee periodically proposes extension of its membership based on merit.

How are major and minor decisions made?

Largely by vote on public list or at face to face meeting. Very occasionally by private list.

How many organizations are using the OSS?

300+ (estimate).

What percentage of users are outside of the USA?

25%-50%

In what ways do institutions contribute to the project?

Code contributions; Documentation; Domain expertise; Financial contribution; Leadership; Outreach/advocacy; Peer support.

What is the rough percentage of institutions contributing to the software?

25%-50%

Are your communication platforms, software development tools, and documentation openly available to all?

Yes

What was the date of the first release and/or when did the project start?

Project start 2004. v1.0 release December 2004. first "mature" release" June 15th, 2005.

What was the date of the latest major release?

Sakai 11.00 23 July 2016. 4 subsequent point releases – last Sakai 11.4 02 June 2017.

Is integration/compatibility with another system essential to your project's success or value proposition?

Yes. Backend integration with Student Information Systems, front end integration with specialist learning tools via (a) internal Sakai API's, (b) IMS LTI.

Does the project/program have a technology roadmap?

Yes

If yes, how is it produced and how often is it updated?

Produced and maintained by Sakai PMC and Community Coordinator.

Approximately how many developers have contributed to the project to date?

More than 50

Appendix D: OSS Program Survey Results

Sakai (an Aperio Project) (continued)

Approximately how many code committers and committing organizations are actively contributing?

30-40 committing organisations at any one time.

Is there a dominant organization that provides committers?

No.

Are any of the committing organizations for-profit entities?

Yes. Aperio Commercial Partners with an interest in Sakai make contributions.

How do you cultivate/organize the coding community?

Recognition programs, engagement by a community coordinator, coordination of specific areas of activity – internationalisation, accessibility. Listservs, webinars, open online meetings, face to face meetings at the Open Aperio Conference, annual Sakai Camp.

Describe your onboarding strategy for new contributors or include link to info if online.

No overall formal process, different strategies for different roles – QA, new testers documentation. New contributors need to complete contributor agreements, core team informal mentoring and feedback via Github and lists.

Does the program have paid staff? If so, how many FTE?

Yes; 3.7

What is the current annual budget for the project/program?

\$50,001- \$250,000

How is the program currently being funded?

Supporting subscription, “crowdfunding” special projects (small donations from institutions for specific work), in kind contributions, sponsorship of events.

How many stakeholders contribute financially?

80+.

How many stakeholders contribute developer resources? Among stakeholders who contribute developer resources, what is the average contribution?

30-40. Not possible to quantify in detail in terms of FTE – significant variance.

What is the next major milestone for the project? How do you plan to fund that effort?

Sakai 12 release. Resource raising goes beyond “funding,” main resource raising contributions in kind. Crowdfunded accessibility work, institutions paying commercial affiliates for specific features which are contributed to main codebase.

What was the source and funding for initial development of the software?

Grant + matched funding from 6 institutions.

How long did initial development and testing take before the software was released for community adoption?

12 months.

Are there competing products, either proprietary or open source?

Yes, there are many.

What are your aspirations for the OSS?

Broadly speaking, to continue to support educational institutions, lead standards based flexibility, and to help transform the somewhat rigid LMS into a more flexible environment to support learning, teaching and research.

What are specific challenges faced by stakeholders in support of this OSS?

Lack of understanding of OSS in higher ed, strong commercial-proprietary competition (promoting own software, spreading FUD re OSS), significantly distributed international community. Funded by institutions, so almost zero formal marketing effort.

Do you have service providers that help you or the community? If so, with what?

Development; Hosting; Implementation; Maintenance; Migration; Training.

What, if any, is the financial arrangement between the project and these service providers?

None.

Program wiki

<https://confluence.sakaiproject.org/display/CONF/Welcome+to+the+Sakai+wiki>

Program website

<https://www.sakaiproject.org/>

Program social media

<https://www.facebook.com/apereo/@sakaiproject>

Program mailing lists

<https://www.apereo.org/content/contact-and-mail-lists>

Program training

<https://www.youtube.com/user/SakaiCLE>

Program code repository

<https://github.com/sakaiproject>

Program meeting opportunities

<https://www.apereo.org/conferences/open-apereo-2017>

Appendix D: OSS Program Survey Results

Samvera

What is the high level purpose of the OSS?

Samvera offers value to any organization needing to manage and preserve digital assets. Samvera software was conceived as an open source repository framework. That is to say that we set out to create a series of free-to-use software “building blocks” that could put together in various combinations to achieve the repository system that an institution needed – as opposed to building a “one size fits all” solution.

Who is your target audience?

The audience includes experts in technology leadership, project managers, service owners, software developers, dev ops, metadata, data management, digital preservation, etc.

How would you categorize your program’s current stage of development?

Self-sustaining – project has sufficient resources to continue ongoing development, community support, etc.

Is your program affiliated with an organization that provides organizational infrastructure and support? If yes, please indicate the name of the organization and the type of support it provides.

Yes; DuraSpace – fiscal and legal support.

What is the license for the software?

Apache-2.0

Is there any formal governance of the OSS?

Yes

If yes to previous question, does the governance extend beyond the originating institution/entity that created the product?

Yes

If yes, please describe how representatives are chosen through election or other processes.

Samvera governance consists of Community Partners and a small Steering Group (SG). Community Partners work to set the community and technical direction in addition to other contributions. An SG advisor solicits a potential Partner to formally join, following nomination by at least one existing Partner and consensus from Steering. SG votes to admit the new Partner upon receipt of a signed Letter of Agreement and a Letter of Intent. The Steering Group acts as a secretariat for the Community and manages its legal, financial, identity and communication concerns. SG serves as a formal representative for the Community, and the ultimate point of escalation, when either is needed. SG consists of representatives from the founding institutions who have expanded the group to no less than 5 voting members. SG members must be supported by a Partner institution. New members are nominated by at least one SG member and admitted by a majority vote of SG. If a SG member leaves the supporting institution, they are entitled to continue participation within the SG as a non-voting advisory member subject to a majority vote of SG. Each institution represented has only one vote.

How are major and minor decisions made?

Both major and minor decisions are made in accordance with role responsibilities of Steering, Partners, Working Groups, Interest Groups, projects and the core code committers. Every member of the community is encouraged to contribute their skills, voice their ideas, and concerns. Groups may specify lazy consensus at the time of a vote but otherwise leverage the Apache style of vote expression with a +1 as agreement, a -1 as disagreement and in some cases a veto, and a 0 as neutral or undecided. If a decision cannot be made, it is escalated.

How many organizations are using the OSS?

Individual organizations we can identify is 62.

What percentage of users are outside of the USA?

25%-50%

In what ways do institutions contribute to the project?

Code contributions; Documentation; Domain expertise; Financial contribution; Leadership; Outreach/advocacy; Peer support.

What is the rough percentage of institutions contributing to the software?

Less than 25%

Are your communication platforms, software development tools, and documentation openly available to all?

Yes

Please describe restrictions, if any.

The Steering Group secures sensitive information. Institutions adopting software may also secure their modifications if the end result has organization restrictions or sensitive data. The mailing lists are restricted to the function such as partners, steering or project work. The community list is open.

What was the date of the first release and/or when did the project start?

The project was initiated in September 2008 at a meeting at the University of Virginia between Virginia, the University of Hull, Stanford University and Fedora Commons (which became DuraSpace). The early meetings focused on understanding the area we came together to explore, how to enable flexible repository solutions based on a series of building blocks. Software development did not start until 2010, with the first commit on 2nd May of that year. Partners made use of these components in different ways for their own needs initially. A formal release of the software that others could access via GitHub took place in November 2011.

Appendix D: OSS Program Survey Results

Samvera (continued)

What was the date of the latest major release?

The latest release of the core component for Samvera was January 4th 2017 (version 10.4). Note that this is the hydra-head gem, and that implementations will need to make use of a combination of other gems available through the project's GitHub site, or use a package of these such as Hyrax (latest release version 1.02 on June 30th 2017, a recent innovation building on previous packages like Sufia and Curation Concerns).

Is integration/compatibility with another system essential to your project's success or value proposition?

The combination of gems and dependencies between these is essential to the successful use of Samvera. This can be managed locally or through use of the package of gems made available (Hyrax). There is no other integration/compatibility required. Samvera is a solution set built on the Fedora digital repository system, and thus is bound to developments of that system. Also, Solr is leveraged for indexing. However, the system is designed to manage these links loosely to avoid over-dependence.

Does the project/program have a technology roadmap?

No

Approximately how many developers have contributed to the project to date?

More than 50

Approximately how many code committers and committing organizations are actively contributing?

There have been >50 active contributors in the last 12 months, from across the pool of 63 organisations that have registered a CLA to contribute.

Is there a dominant organization that provides committers?

Stanford University.

Are any of the committing organizations for-profit entities?

Data Curation Experts is a consultancy that both supports institutions in creating their repository solutions and contributes to the project as a whole.

How do you cultivate/organize the coding community?

Though a variety of communication channels and principles of practice – see <https://wiki.duraspace.org/display/samvera/Developers>.

Describe your onboarding strategy for new contributors or include link to info if online.

See <https://github.com/samvera/hydra/blob/master/CONTRIBUTING.md>

Does the program have paid staff? If so, how many FTE?

No

What is the current annual budget for the project/program?

\$50,001- \$250,000

How is the program currently being funded?

Grants, in kind contributions and donations from the Partners.

How many stakeholders contribute financially?

If limited to financial donations, approximately 33%.

How many stakeholders contribute developer resources? Among stakeholders who contribute developer resources, what is the average contribution?

We have individual CLAs for staff at all Partners in the initiative (plus others not yet participating as Partners). Active contributions are made by about 33% (often tied to those contributing financially), a combination of software development and other contributions. The average level of contribution in FTE has not been calculated, though.

What is the next major milestone for the project? How do you plan to fund that effort?

A key recent focus has been on solutions built using Samvera, e.g., Hyku. Major milestones thus include the launch and support for this and then a re-visit of the core components to ensure they remain refreshed and up-to-date. These activities are funded through Partner contributions in kind. Organizationally we are looking to establish better community working practices and have instigated an annual fundraising initiative to support this.

What was the source and funding for initial development of the software?

Donations from the founding partners.

How long did initial development and testing take before the software was released for community adoption?

Approximately 18 months.

Are there competing products, either proprietary or open source?

Yes, there are a few.

What are your aspirations for the OSS?

We seek to expand and diversify membership through courting international partners, gaining more adopters as hosted solutions emerge and deepening value to museums, archives and small cultural heritage organizations.

What are specific challenges faced by stakeholders in support of this OSS?

Challenges include limited availability or intense competition for grants and local resource constraints at individual institutions with competing demands. Establishing use of an OSS solution which does not fit into a commercial purchasing culture can be difficult.

What are specific challenges faced by developers?

Gaining sufficient support and time to contribute.

Appendix D: OSS Program Survey Results

Samvera (continued)

What are specific challenges faced by target audience?

Selling the value and sustainability of OSS within their institution can be a challenge. The turnover of staff at all levels of member institutions challenges value of and continuity of commitment. Highlighting the value of managing digital assets for the long-term, a service-oriented rather than software-oriented issue, can also be a challenge.

Do you have service providers that help you or the community? If so, with what?

Development; Hosting; Implementation; Maintenance; Migration; Training.

Program wiki

<http://wiki.duraspace.org/display/samvera>

Program website

<http://www.samvera.org>

Program social media

<http://twitter.com/SamveraRepo>

Program mailing lists

See: <https://wiki.duraspace.org/pages/viewpage.action?pageId=87460391> for details of lists available.

Program training

We run workshops and other sessions at an annual Samvera Connect event, and also at other relevant conferences, e.g., Open Repositories, code4lib, DLF Forum, etc. We also now run an annual Virtual Connect event, with online presentations delivered through Webex. There is online training for developers available, plus Samvera Camps, 3-5 day events providing a deep dive into the software and how to get going. A recent addition is an Advanced Samvera Camp for developers looking to expand their use.

Program code repository

<http://github.com/samvera>

Program news and updates

We do not produce a regular newsletter. However, we published an annual report earlier this year – <http://samvera.org/2017/05/01/hydra-2016-annual-report/>. We also hold a monthly Partners call to keep Partners up-to-date and foster sharing of activity.

Program meeting opportunities

See list of events at <https://wiki.duraspace.org/display/samvera/Events%2C+presentations+and+articles>. Samvera holds an annual event, Samvera Connect.

Is there anything else you want to tell us?

Samvera as a framework serves as a solution or a foundation for specialized applications. Avalon for audio & video is a perfect example as is Hyku which provides a polished, feature-full cloud based repository application. The answers we have provided have been focused on the core software for the most part, not these solutions that the framework has enabled. If it would be useful to garner responses for the different solutions alongside the framework please let us know.

What would you want to get out of the conference?

We have developed an approach to making an open source community effort sustainable and engaging. We are conscious that there are other models, and also that we have much to learn as we continue to evolve as an organisation as well as a community. To that end, hearing from and understanding what has worked well for others will be of value. Whether there is a blueprint for future projects we are not sure as every situation is slightly different, but there is certainly much valuable experience that can be tapped to guide others looking to achieve similar goals. We are also interested in exploring how open source communities best interact with each other, so as to foster a broader goal rather than sit too independently of each other.

Specify Software Project

What is the high level purpose of the OSS?

The Specify platform is a database cataloging application focused on the specimen holdings of natural history collections, including plants, birds, fish, herps, mammals, insects, other invertebrates, and tissue and DNA samples derived from museum specimens.

Who is your target audience?

Natural History Museums and Biodiversity Repositories, worldwide.

How would you categorize your program's current stage of development?

Maintenance – in production, supported, potential transition to a new focus/version.

Is your program affiliated with an organization that provides organizational infrastructure and support? If yes, please indicate the name of the organization and the type of support it provides.

Yes; University of Kansas, Space, HVAC, Equipment. Some salaries, Local Domain (Biology) Expertise.

What is the license for the software?

GPL-2.0

Is there any formal governance of the OSS?

No

How are major and minor decisions made?

In weekly project meetings and quarterly planning meetings with staff. The Director has ultimate oversight and responsibility for technical priorities as PI on grant funding that currently supports the project. We are moving to a non-profit, organizational structure with a board and advisory committees who will then determine priorities.

Appendix D: OSS Program Survey Results

Specify Software Project (continued)

How many organizations are using the OSS?

About 150 museum institutions, and within them about 450 individual natural history collections.

What percentage of users are outside of the USA?

25%-50%

In what ways do institutions contribute to the project?

Code contributions; Domain expertise; Peer support.

What is the rough percentage of institutions contributing to the software?

Less than 25%

Are your communication platforms, software development tools, and documentation openly available to all?

Yes

What was the date of the first release and/or when did the project start?

The Specify Project is a descendant of the MUSE software project which was another natural history museum cataloging application. MUSE was launched in 1987 and was last updated in 1993. Specify began in 1996, 21 years ago, we have been active since then.

What was the date of the latest major release?

We released a wholly-new platform, Specify 7, for the web in January 2015. Our latest major update release for Specify 7 was in April 2017. Specify 6 our thick-client's last major release was in November 2016.

Is integration/compatibility with another system essential to your project's success or value proposition?

Somewhat, we embed modules which connect to web services provide by other projects. In late 2017 we will move to a Shibboleth-based authentication systems which will make us compatible with campus identity servers.

Does the project/program have a technology roadmap?

No

If yes, how is it produced and how often is it updated?

Not formal roadmap. But we put forward project technology visions every 2-3 years in grant proposals, then we identify and titrate smaller development priorities during the grant periods. This has worked satisfactorily in the past but as we move to more formal organizational structures, we'll need more explicit planning documentation.

Approximately how many developers have contributed to the project to date?

3-10

Approximately how many code committers and committing organizations are actively contributing?

One.

Is there a dominant organization that provides committers?

University of Kansas.

Are any of the committing organizations for-profit entities?

No.

How do you cultivate/organize the coding community?

Word of mouth, invitations at meetings, peer to peer.

Describe your onboarding strategy for new contributors. (Or include link to info if online)

No formal strategy, yet.

Does the program have paid staff? If so, how many FTE?

Yes; 3.5

What is the current annual budget for the project/program?

\$50,001- \$250,000

How is the program currently being funded?

National Science Foundation grants; salary contributions from the State of Kansas.

How many stakeholders contribute financially?

Two.

How many stakeholders contribute developer resources? Among stakeholders who contribute developer resources, what is the average contribution?

Limited external developer contributions to date, 2-3 small modules over the last 6 years.

What is the next major milestone for the project? How do you plan to fund that effort?

Monetizing the project and creating a sustaining source of revenue to support it. NSF is funding us to develop a revenue and business model.

What was the source and funding for initial development of the software?

National Science Foundation.

How long did initial development and testing take before the software was released for community adoption?

Two years.

Are there competing products, either proprietary or open source?

Yes, there are a few.

Appendix D: OSS Program Survey Results

Specify Software Project (continued)

What are your aspirations for the OSS?

Sustaining the initiative through a consortium of natural history museums, based on membership fees.

What are specific challenges faced by stakeholders in support of this OSS?

For NSF as the major funding stakeholder to date, they would like us to demonstrate that our user institutions actually value their 30-year investment by having us demonstrate a viable financial model for community-based fee support. The NSF thinks of us as the 30-year old in the basement who they have just told to leave and find a job.

What are specific challenges faced by developers?

The usual learning curves with new software requirements and understanding those requirements particularly as they relate to the UI and UX.

What are specific challenges faced by target audience?

Understanding how they conceptualize their own data and how those concepts map into Specify's 300 table database schema. Also putting up with our limitations as they perceive them for their specific work flows and project goals.

Do you have service providers that help you or the community? If so, with what?

Hosting.

What, if any, is the financial arrangement between the project and these service providers?

We pay their monthly fees.

Program website

www.specifysoftware.org

Program mailing lists

specifynews@mailman.nhm.ku.edu

Program training

On demand and archived videos

Program code repository

<https://github.com/specify>

Program news and updates

Blog on web site

Program meeting opportunities

We attend museum discipline professional conferences each year.

What would you want to get out of the conference?

How to survive by successfully convincing major museum stakeholders that (1) we offer a good value proposition and (2) that by investing in the long-term governance and participation in a non-profit software consortium, that they will not only be better off themselves but by investing in community-sponsored cyberinfrastructure, (3) but they will raise the tide for all the smaller collections (including collections at many at state universities) who have little or no budgets for software licenses, and thereby help sustain the research collections community, and its education and research future.

The Public Knowledge Project (PKP) is responsible for the ongoing development and support of an OSS suite consisting of Open Journal Systems (OJS); Open Monograph Press (OMP); Open Conference Systems (OCS); and Open Harvester System (OHS)

What is the high level purpose of the OSS?

PKP's software is primarily intended to support scholarly publishing and related communications activities.

Who is your target audience?

Academic researchers, scholars, and students; editors and publishers of scholarly journals and monographs; publishers and university presses; conference conveners.

How would you categorize your program's current stage of development?

Self-sustaining – project has sufficient resources to continue ongoing development, community support, etc.

Is your program affiliated with an organization that provides organizational infrastructure and support? If yes, please indicate the name of the organization and the type of support it provides.

Yes; The SFU Library has been the home base for PKP since 2005. Simon Fraser University provides a full range of administrative support – HR, financial, procurement, research services, legal.

What is the license for the software?

GPL-2.0

Is there any formal governance of the OSS?

Yes

Appendix D: OSS Program Survey Results

The Public Knowledge Project (PKP) is responsible for the ongoing development and support of an OSS suite consisting of Open Journal Systems (OJS); Open Monograph Press (OMP); Open Conference Systems (OCS); and Open Harvester System (OHS) (continued)

If yes to previous question, does the governance extend beyond the originating institution/entity that created the product?

Yes

If yes, please describe how representatives are chosen through election or other processes.

PKP's current governance structure is somewhere between informal and formal. Since 2012, PKP has had three community based committees – Advisory, Technical, Members. Most of the members are chosen from PKP's major development partners and sponsors, with periodic calls for volunteers to address turnover. The Advisory Committee is the closest equivalent to a Board or Steering Committee for PKP with a representative from each major development partner (currently OCUL, SFU Library, Stanford University, University of Alberta Library, University of British Columbia Library, University of Pittsburgh Library). Representatives from the wider PKP community are also invited to participate on the Technical and Members committees.

How are major and minor decisions made?

Operational decisions are made collectively by the PKP Directors. Larger strategic planning and related decision making is done in conjunction with the three community based committees, in particular the Advisory Committee.

How many organizations are using the OSS?

PKP does not have any registration requirements to download and use the software, so we have no precise way to track users. We have developed some tools to regularly identify currently active (i.e. published at least 10 articles in the most current year) OJS installations on an annual basis – in 2015 we identified over 10,500 OJS instances.

What percentage of users are outside of the USA?

More than 50%

In what ways do institutions contribute to the project?

Code contributions; Documentation; Domain expertise; Financial contribution; Leadership; Outreach/advocacy; Peer support.

What is the rough percentage of institutions contributing to the software?

Less than 25%

Are your communication platforms, software development tools, and documentation openly available to all?

Yes

What was the date of the first release and/or when did the project start?

PKP was founded by John Willinsky in 1998 when he was a professor in the Faculty of Education at the University of British Columbia. The first releases of OJS and OCS appeared in late 2001/early 2002.

What was the date of the latest major release?

OJS 3.0 was released in September 2016 and was a major rewrite of the software. There have been several incremental releases since then with OJS 3.1 scheduled for release in the Summer 2017.

Is integration/compatibility with another system essential to your project's success or value proposition?

PKP is committed to ensuring its OSS is compatible with other systems and services that intersect with scholarly publishing. This includes repository platforms such as DSpace and Dataverse; discovery services such as Google Scholar; persistent ID providers such as Crossref and Orcid; campus authentication systems; and so on.

Does the project/program have a technology roadmap?

Yes

If yes, how is it produced and how often is it updated?

It is tracked in GitHub, and is updated regularly: <https://github.com/pkp/pkp-lib/milestones>.

Approximately how many developers have contributed to the project to date?

11-25

Approximately how many code committers and committing organizations are actively contributing?

GitHub lists 55 contributors to OJS: <https://github.com/pkp/ojs>.

Is there a dominant organization that provides committers?

Outside of SFU, the University of Pittsburgh (a PKP development partner).

Are any of the committing organizations for-profit entities?

Yes, but very few, e.g. Lepidus, for very specific purposes.

Appendix D: OSS Program Survey Results

The Public Knowledge Project (PKP) is responsible for the ongoing development and support of an OSS suite consisting of Open Journal Systems (OJS); Open Monograph Press (OMP); Open Conference Systems (OCS); and Open Harvester System (OHS) (continued)

How do you cultivate/organize the coding community?

The PKP Technical Committee provides an ongoing forum for developers. PKP has also been hosting sprints every 6-8 months for the past three years that bring together developers and other community members for a two day F2F event where specific tasks are identified and worked on collectively.

Describe your onboarding strategy for new contributors or include link to info if online.

We direct them to contributor documentation, hold an onboarding hangout, and assign a couple of training-wheels tasks. They're allowed into the team Slack channel for Q&A and discussions, and occasionally into weekly teleconferences. Then we check with them after a few weeks to a month to find out what their progress is like. As they finish the training wheels tasks we perform code review and give feedback.

Does the program have paid staff? If so, how many FTE?

Yes; PKP has between 8-10 fete staff at any given time, although the total head count is typically between 15-20 as many staff are part-time or working on a contract basis. The staff consist of technical specialists, librarians, and academics.

What is the current annual budget for the project/program?

More than \$1 million

How is the program currently being funded?

PKP relies upon a combination of three revenue sources: hosting/publishing services (approx. 50%); grant funding (30%); and community support through sponsorships, etc. (20%).

How many stakeholders contribute financially?

PKP currently has 4 major development partners who provide annual financial support ranging from \$15K to \$60K, and another 10-12 sponsors who provide between \$1K to \$10K annually.

How many stakeholders contribute developer resources? Among stakeholders who contribute developer resources, what is the average contribution?

PKP's 4 development partners also provide in-kind support roughly equivalent to their financial contribution. Initially, the intent had been to focus on development work but we realized it was often more appropriate for these partners to provide a more diverse range of support, e.g. coordinating projects, participating on the support forum, providing translations, preparing and revising documentation, participating in testing, etc.

What is the next major milestone for the project? How do you plan to fund that effort?

PKP will be implementing a major new service – Open Typesetting Stack (OTS) – in the next 12-18 months. OTS is a central software platform that provides an automated XML rendering service along with new web-based tools to edit the resulting output. Providing a centrally based service is a new area for PKP and we are still evaluating the most appropriate “business model” that will be an appropriate sustainability strategy for a software platform that will also be released as open source.

What was the source and funding for initial development of the software?

A Social Sciences and Humanities Research Council (SSHRC) grant provided by the Canadian government in the early 2000's was the first funding source for PKP's software development.

How long did initial development and testing take before the software was released for community adoption?

The first versions of OJS and OCS were developed over an 18-24 month period and then released for community use. Initial uptake was slow, but by 2005 there were already several hundred journals using OJS. After that, uptake increased dramatically, in large part driven by the interest in open access publishing models.

Are there competing products, either proprietary or open source?

Yes, there are many.

What are your aspirations for the OSS?

PKP wants to provide an open source alternative to the more proprietary commercial platforms while also: 1) advancing the adoption of open access publishing; 2) helping to increase the quality of OA publishing; and 3) democratizing access to tools for scholarly publishing to expand participation globally in the “scholarly conversation.”

What are specific challenges faced by stakeholders in support of this OSS?

Many stakeholders have limited budgets and technical expertise, especially the large numbers located in the developing world. Consequently, PKP has identified non-technical areas, e.g. language translations, where stakeholders can support the project.

What are specific challenges faced by developers?

PKP does not have a large developer community, as many of our users are not coders.

Appendix D: OSS Program Survey Results

The Public Knowledge Project (PKP) is responsible for the ongoing development and support of an OSS suite consisting of Open Journal Systems (OJS); Open Monograph Press (OMP); Open Conference Systems (OCS); and Open Harvester System (OHS) (continued)

What are specific challenges faced by target audience?

Many members of our target audience have minimal technical expertise, so making customizations to code for local needs or even performing upgrades can be a challenge.

Do you have service providers that help you or the community? If so, with what?

Hosting; Implementation; Implementation. At PKP, we make use of a commercial ISP service for some of our hosting. The vast majority of our software users work with other third party service providers for installation, hosting, updating, and training. Most of these are libraries, but some are other academic units or private companies.

What, if any, is the financial arrangement between the project and these service providers?

Only our development partners and sponsors provide any financial support back to the project.

Program wiki

<https://pkp.sfu.ca/wiki/>

Program website

<https://pkp.sfu.ca/>

Program social media

<https://twitter.com/pkp>

<https://www.facebook.com/publicknowledgeproject/>

<https://www.youtube.com/user/PublicKnowledgeProj>

Program mailing lists

<http://forum.pkp.sfu.ca/>

Program training

<http://pkpschool.sfu.ca/>

Program code repository

<https://github.com/pkp/>

Program news and updates

<https://pkp.sfu.ca/category/news/>
<http://us9.campaign-archive2.com/home/?u=c77872e5151e785e8d77ddcfb&id=0b562838b0>

Program meeting opportunities

<https://pkp.sfu.ca/conferences>

Is there anything else you want to tell us?

A successful OSS project isn't exclusively about developers and code contributions. PKP relies on a wide variety of support and contributions from our user community and many of them do not have a high technical requirement. For example, OJS is available in about 25 different languages and all of the translation contributions come from the community. Similarly, PKP's activities have expanded beyond software to include a number of key services such as the PKP Private LOCKSS Network and the PKP Index. These also have support and sustainability issues.

What would you want to get out of the conference?

We expect the conference will be a great opportunity to compare and discuss sustainability strategies for OSS and hope to come away with some additional ideas and strategies.

Vega

What is the high level purpose of the OSS?

It is an authoring and editorial management platform for creating open-access publishing venues, particularly those with high multimedia components.

Who is your target audience?

People who publish academic research: Publishers, librarians, editors, authors.

How would you categorize your program's current stage of development?

Pre-release Testing.

Is your program affiliated with an organization that provides organizational infrastructure and support? If yes, please indicate the name of the organization and the type of support it provides.

Yes; West Virginia University.

What is the license for the software?

MIT

Is there any formal governance of the OSS?

No

How are major and minor decisions made?

Through discussion between project PI and developers as well as with local library and university staff.

In what ways do institutions contribute to the project?

Financial contribution; Leadership; Course re-assignment for PI; Grad student assistance; Administrative assistance; In-kind time of staff.

Are your communication platforms, software development tools, and documentation openly available to all?

Yes

Please describe restrictions, if any.

Some in-staff communication tools (Slack) are not open to the public because they cover a lot of different projects.

What was the date of the first release and/or when did the project start?

The project started January 1, 2015. We have not released yet.

Appendix D: OSS Program Survey Results

Vega (continued)

What was the date of the latest major release?

We conducted initial user testing on part of the system on June 1, 2017.

Is integration/compatibility with another system essential to your project's success or value proposition?

Yes. It has to connect with local authentication programs, archival systems, etc. in a way that Vega can be flexible enough for local devs to build APIs between their systems and ours. Vega also relies on two OS systems that the developers have already created: Gradient (content store) and Sanity (CMS), both of which ship seamlessly with Vega.

Does the project/program have a technology roadmap?

Yes

If yes, how is it produced and how often is it updated?

Program developers have a timeline that gets updated on a weekly basis, and reviewed with PI and amended every 6-8 months.

Approximately how many developers have contributed to the project to date?

3-10

How do you cultivate/organize the coding community?

We are developing a plan for the next phase.

Does the program have paid staff? If so, how many FTE?

No

What is the current annual budget for the project/program?

None

How is the program currently being funded?

Grant, plus minimal in-kind contribution from institution in terms of PI and staff time commitments. The next phase will be about creating a sustainable business plan.

How many stakeholders contribute financially?

Two: the Mellon Foundation, in its initial funding of the project, and WVU through its in-kind time of the PI and key staff (technology librarians).

How many stakeholders contribute developer resources? Among stakeholders who contribute developer resources, what is the average contribution?

None, besides the dev team, which is getting paid from the initial grant. In phase two, WVU Libraries will have a half-time dev ops person dedicated to Vega.

What is the next major milestone for the project? How do you plan to fund that effort?

Hiring staff who can support the creation of a sustainable business plan. This is planned for early 2018, when Vega is released publicly, and our plan is to seek grant funds to help with initial support for hiring the additional staff until the business plan generates revenue in 3-5 years' time.

What was the source and funding for initial development of the software?

Mellon Foundation.

How long did initial development and testing take before the software was released for community adoption?

It will have been 3 years when it is released later this fall.

Are there competing products, either proprietary or open source?

Yes, there are a few.

What are your aspirations for the OSS?

To compete with Open Journal Systems and be an industry standard for multimedia scholarly publishing.

What are specific challenges faced by developers?

The difficulty of building real-time multimedia editing and annotation features.

What are specific challenges faced by target audience?

For publishers/editors: Knowing about the platform. Not having staff to adopt the platform (our phase II grant request intends to ameliorate this in part). Not wanting to go OA. (We have not build a non-OA version yet. Perhaps that becomes part of phase II.) Knowing how to incorporate/edit born-digital scholarship (also a phase II project).

For authors: Knowing about the platform. Knowing how to author multimedia scholarship (something we're already working on through NEH IATDH funded workshops and will continue as part of phase II). Getting access to the platform (something either publishers and/or the developers can offer). Getting over "tenure" bugaboos in terms of digital scholarship.

Do you have service providers that help you or the community? If so, with what?

No. We plan on doing that ourselves.

Program wiki

<https://sanity.io/docs/quickstart>

Program website

<http://vegapublish.com>

Program mailing lists

Listserv available on the website

Program training

<http://kairos.camp>

What would you want to get out of the conference?

Learning from others who've been doing this longer.

Appendix D: OSS Program Survey Results

VuFind

What is the high level purpose of the OSS?

VuFind is a discovery layer that can be easily used as a library OPAC but is also adaptable to many other search applications. It provides abstractions on top of multiple search services and integrated library systems and includes a flexible mechanism for “Bento-style” searching.

Who is your target audience?

Libraries and other cultural heritage organizations are a primary audience, but the software can be easily adapted to search almost anything.

How would you categorize your program’s current stage of development?

Self-sustaining – project has sufficient resources to continue ongoing development, community support, etc.

Is your program affiliated with an organization that provides organizational infrastructure and support? If yes, please indicate the name of the organization and the type of support it provides.

Yes; Villanova, through Falvey Memorial Library, supports the development of VuFind by employing staff to work on the project and using the VuFind tools for our collections.

What is the license for the software?

GPL-2.0

Is there any formal governance of the OSS?

No

If yes to previous question, does the governance extend beyond the originating institution/entity that created the product?

Yes

How are major and minor decisions made?

Issues and feature requests are most often reported by our community. For minor issues, the lead developers of the project decide on and take a course of action, publishing to the master branch on GitHub. Major changes are brought up with the larger community via email mailing lists and a bi-weekly, open, online developers’ call. Major changes are publicly developed as GitHub pull requests and announced when merged. All version releases are scheduled and documented with the help of the community. The direction of the project is also largely roadmapped at annual conferences, attended by our international community.

How many organizations are using the OSS?

VuFind has 193 voluntarily listed installations worldwide.

What percentage of users are outside of the USA?

More than 50%

In what ways do institutions contribute to the project?

Code contributions; Documentation; Domain expertise; Financial contribution; Leadership; Outreach/advocacy.

What is the rough percentage of institutions contributing to the software?

25%-50%

Are your communication platforms, software development tools, and documentation openly available to all?

Yes

Please describe restrictions, if any.

We are using the free version of Slack which is not easily configured for free signup. An invitation is required but we provide access to all who request.

What was the date of the first release and/or when did the project start?

2007.

What was the date of the latest major release?

Version 3.1.3 was released on March 10th, 2017. Upcoming release this summer (4.0).

Is integration/compatibility with another system essential to your project’s success or value proposition?

VuFind depends heavily on Solr, which is openly-available, widely-used, and included in our package. Some users run VuFind on top of a third-party web-scale discovery API in place of Solr. When being used as a library OPAC, the software also needs to interact with an integrated library system (ILS). The ILS provides functionality for users to request/renew books, login, and determine real-time availability status for the results VuFind presents. Not all users use ILS systems, but our support for a large range of systems makes VuFind an appealing and helpful choice.

Does the project/program have a technology roadmap?

Yes

If yes, how is it produced and how often is it updated?

Our roadmap is always discussed with the community and is decided on annually at our Developers Summit. The roadmap is visible in our wiki and (to an extent) on our GitHub page. The technical requirements for running VuFind are decided on at each major release and maintained until the next major release.

Approximately how many developers have contributed to the project to date?

More than 50

Appendix D: OSS Program Survey Results

VuFind (continued)

Approximately how many code committers and committing organizations are actively contributing?

Two fulltime contributors with anywhere between 3 and 10 active community contributors depending on the current scope of development. Each year, over 20 community developers contribute at least some code.

Is there a dominant organization that provides committers?

Changes are proposed via GitHub and are developed with the two lead developers and ultimately approved and merged by the two leads. Historically, the lead developers have always been hosted by Villanova.

Are any of the committing organizations for-profit entities?

There has been some interaction with for-profit entities (for example, EBSCO, which supported the product's EBSCO Discovery Service integration), but most of our users and contributors are academic institutions and libraries.

How do you cultivate/organize the coding community?

We use the open-source project website GitHub to organize code changes and intention. Our wiki provides open documentation, maintained with the community. We have a JIRA instance for issues. Travis and Jenkins run continuous integration testing on the project and potential contributions.

Describe your onboarding strategy for new contributors or include link to info if online.

Potential contributors frequently arrive on the vufind-tech mailing list, where community support enables them to learn how to implement changes in the software. When changes are ready to be contributed back to the main project, code reviews in GitHub pull requests are used to help refine and polish contributions and to provide feedback and guidance to developers.

Does the program have paid staff? If so, how many FTE?

Yes; Two contributors employed by Villanova University, providing approximately 1.5 FTE to the project.

What is the current annual budget for the project/program?

None

How is the program currently being funded?

The project is sustained largely through dedication of staff time rather than specifically budgeted money. Events such as the Developers Summit are designed to be self-funding through registration fees. Historically, the project has received several grants and donations from appreciative organizations, but it does not rely on these for ongoing operations.

How many stakeholders contribute financially?

There are no specific stakeholders committed to ongoing contributions to the project (apart from staff time); however, the project typically receives one or two financial contributions each year from varying organizations.

How many stakeholders contribute developer resources? Among stakeholders who contribute developer resources, what is the average contribution?

As noted above, Villanova devotes approximately 1.5 FTE to the project. Several European libraries dedicate significant ongoing resources to VuFind development, though their exact FTE investment is not known. Additionally, as noted above, many smaller contributions (a few hours per year) from different organizations are also made. This is difficult to estimate since most contributions to VuFind come from customizations users initially make for their own instances and adapt for sharing later.

What is the next major milestone for the project? How do you plan to fund that effort?

No major milestones requiring additional efforts are planned; at this stage, support of the software largely consists of keeping dependencies up to date, adding support for new external systems, and ensuring that the user interface does not become stale.

What was the source and funding for initial development of the software?

VuFind was originally a project specifically for the Villanova library that was later adapted into an open-source project.

How long did initial development and testing take before the software was released for community adoption?

VuFind was first put in source control under SVN and published to SourceForge in 2007. In 2012, the project transitioned to GitHub.

Are there competing products, either proprietary or open source?

Yes, there are many.

What are your aspirations for the OSS?

Provide a free and flexible discovery layer solution that excels in configurability, customization, community, and support.

What are specific challenges faced by developers?

At this stage, some of the main challenges facing the project are simply keeping up to date as the technology landscape continually changes, and maintaining a robust testing infrastructure.

Appendix D: OSS Program Survey Results

VuFind (continued)

What are specific challenges faced by target audience?

The software ecosystem seems to become ever more complex, with more tools and more dependencies. VuFind aims to be as easy to install and maintain as possible, but over the years, it has become more complex to keep up with common development best practices.

Do you have service providers that help you or the community? If so, with what?

Development; Hosting; Implementation; Maintenance; Migration.

What, if any, is the financial arrangement between the project and these service providers?

There is no formal arrangement between VuFind and any of the companies that commercially support it; however, some have made voluntary contributions in the past.

Program wiki

<https://vufind.org/wiki>

Program website

<https://vufind.org>

Program social media

<https://twitter.com/vufind> (not active)

Program mailing lists

<https://sourceforge.net/p/vufind/mailman>

Program code repository

<https://github.com/vufind-org/vufind>

Program meeting opportunities

<https://vufind.org/wiki/community:conferences>

What would you want to get out of the conference?

We hope to share our experience with other communities and potentially find points of collaboration and interoperability.

