

Open Source Software Sustainability in Practice

LYRASIS proposes a 30-month collaborative project to pilot a flexible suite of tools to plan and manage sustainability for open source software (OSS) initiatives serving cultural and scientific heritage organizations. The OSS sustainability tools will be designed around the [It Takes A Village \(ITAV\) Guidebook](#), a framework for assessment and planning created through an IMLS-supported national forum (LG-73-17-0005-17). \$245,000 is requested to produce the suite of tools, test them with a variety of OSS organizations, and evaluate effectiveness and impact. The project addresses IMLS's goal to "Build Capacity" by strengthening the ability of organizations to sustain community-supported OSS programs, which are critical to managing and growing national digital infrastructures and initiatives.

Statement of National Need: OSS supports heritage organizations in mission-critical functions to manage and provide access to content, information, and services. Often evolving from grants and supported by dispersed communities of users and volunteers, OSS initiatives rarely plan for or document sustainability. Sustainability was an overarching theme of the [2017 National Digital Platform at Three Forum](#) (June 2018), where "everyone agreed that sustainability (the maintenance of technology systems for as long as they are needed) remains one of the greatest challenges libraries face" (p. 12).

In October 2017, LYRASIS hosted the "It Takes a Village: Open Source Software Sustainability Models" national forum, which convened 49 stakeholders from 27 OSS programs to develop a framework to strengthen planning for and assessment of sustainability. In looking at their own OSS programs, participants discovered that sustainability is not a linear process with specific starting and end points. They defined OSS sustainability as evolving across phases and facets. The 3 phases speak to where an OSS program or facet is in its lifecycle: *getting started*, *growing*, or *stable but not static*. The 4 facets describe the major components of sustainability -- *governance*, *technology*, *resources*, and *community engagement*. Each facet is equally critical but may be in a different phase and have different timelines, goals, and needs. In addition to providing OSS stakeholders with a method to evaluate the health of their programs and assess risks, the *ITAV Guidebook* offers paths to identify opportunities for program growth and collaboration.

Since its release in February 2018, the *ITAV Guidebook* has been viewed by 1,521 unique users. Webinars and presentations about the *Guidebook* have attracted nearly 300 attendees and included national and international events hosted by CNI, DLF, Europeana Tech, LYRASIS, and the Society of American Archivists. *Guidebook* readers have expressed appreciation, one noting that: "This has helped us assess where we are and how best to move forward." LYRASIS has been validating the framework through application to its DuraSpace Community Supported Programs Division (DCSP), which provides organizational homes for five OSS programs at different stages of maturity. LYRASIS also facilitated a [session](#) in 2019 at the University of Michigan to apply the *Guidebook* to its open source publishing platform, Fulcrum, and is using the *Guidebook* for several in-process consultations with other organizations.

Communities supporting OSS are complex and diverse, so use of the framework will be unique to each, limiting applicability of general training. Consultations are better adapted to the uniqueness of programs, but are expensive and time consuming, limiting agile adaptation of plans as programs evolve. To provide practical support that can be freely adopted and have widespread impact, LYRASIS proposes development of a suite of tools to aid sustainability assessment and planning through a structured approach that is flexible for local adaptation and agile for managing complexity. While the forum and *Guidebook* supported exploration to define the OSS sustainability framework, the proposed tools project will pilot the framework for 7 programs, providing evidence of feasibility and value as well as resources to broaden adoption.

No existing planning resources (strategic, business or sustainability-related) include all 4 ITAV facets, a focus on OSS as central to a program's mission, community as a key aspect of operating and governing models, and the context of software within heritage institutions. Existing resources that can assist with individual facets are already included in the *ITAV Guidebook* and others will be reviewed as part of the proposed project, such as software preservation best practices for OSS that is sunsetting (e.g., [Software Preservation Network](#)) and community engagement models (e.g., Educopia's [Community Cultivation Field Guide](#)).

Project Design: The goal is to create, test, evaluate, and publish a dynamic suite of tools for practical use in planning and managing sustainability for OSS initiatives. LYRASIS proposes a collaborative approach, engaging forum participants and others in the OSS community in design, testing, and evaluation. The LYRASIS co-leads will be the same individuals who led creation of the *ITAV Guidebook*, Laurie Arp (DCSP Division Director) and Megan Forbes (Program Manager). The ITAV Advisory Group (AG) will continue to contribute expertise: Rob Cartolano (Columbia), Tom Cramer (Stanford), Mercè Crosas (Harvard), Michele Kimpton (DPLA), Katherine Skinner (Educopia) and Ann Baird Whiteside (Harvard).

The proposed suite of tools, titled *ITAV in Practice*, will be designed to enable stakeholders in OSS programs to collectively assess facets, determine current and desired phases, then apply tools (templates, exercises, checklists, etc.) and resources (case studies, models, readings, etc.) to identify sustainability strategies, develop plans, and measure results. *ITAV in Practice* will be flexible to accommodate diverse OSS programs; agile to enable programs to set priorities within and among facets; easy to use and share within a community-based planning process; and approachable to make sustainability planning easier start and maintain, with outputs that are clear. *ITAV in Practice* will be accessible via a wiki under a Creative Commons license.

The plan of work is designed around individual facets in an iterative process that incorporates collaborative planning, tools testing, short and mid-term evaluation, and community feedback. What is learned from the group designing and applying tools for the first facet will be incorporated into meeting structure, tool design, testing methodologies, and evaluation strategies for the second facet and so on. Development of tools for each facet will begin with a facilitated meeting, hosted by an AG member, with 9 invited OSS field representatives with relevant expertise. Diversity will be sought among participants regarding OSS program, phase, and focus as well as gender and ethnicity. The focus of each meeting will be to take the *Guidebook* recommendations for moving from one phase to the next within a given facet and determine how to turn them into tools that *ITAV in Practice* adopters can use. For example, a recommendation for moving from Phase 2 to 3 of Governance is to evaluate all aspects of existing governance. This evaluation could be done by an exercise currently under development called “Catastrophizing,” which asks OSS program staff to brainstorm a list of worst-case scenarios and then evaluate how well their governance structure would handle the problem. Following each facet meeting, an instructional designer will work with the co-leads to create and/or improve on tools conceived during the meeting, which will then be reviewed by meeting participants and tested by 2 OSS programs for immediate evaluation. One program will test all 4 draft tool sets, the second program will vary for each facet. The tools will be revised prior to release in beta form for others to use. In addition, there will be a second evaluation by all OSS test programs 6 months after using the tools to assess longer-term value. The same meeting, development, testing, and evaluation process will be followed for all 4 facets, using feedback gathered from participants and OSS test programs to adjust approaches and designs where needed.

After beta release of tools for the fourth facet (about 20 months into the 30-month project), the AG will select 2 additional OSS programs to assess *ITAV in Practice* across all 4 facets simultaneously. While some may use *ITAV in Practice* for only one facet at a time, others will want to use all 4 in a planning effort. Co-leads will provide onsite consultations with the 2 selected OSS programs to facilitate use, identify how and where tools may cross facets when combined in use, and assess effectiveness. Evaluations will occur immediately after each consultation and 6 months later to assess longer-term value. Programs that have indicated interest in testing include [ePADD](#), [Specify](#), [Vega](#), and [VIVO](#).

Once *ITAV in Practice* is publicly available, it will be promoted through 3 free webinars and 3 conference presentations. At project completion, the AG will use *ITAV in Practice* to develop a community-based sustainability strategy for the suite of tools. Evaluations will include surveys, interviews, wiki user feedback, and a final project assessment involving all participants.

National Impact: *ITAV in Practice* will assist OSS programs and users in making best use of limited resources sustain up-to-date local and national digital infrastructures that incorporate evolving OSS components in stable systems supporting cultural and scientific heritage.

Budget: The total budget and amount requested from IMLS is \$245,000. Funds will support salaries (50%) and benefits (11%) for staff; travel for meetings, consultations, and presentations (20%); facilitation, instructional design and graphic design consultants (16%); and meeting expenses (3%).