## New Heights for Hyrax

The Indiana University (IU) Libraries, in partnership with the libraries of Emory University, Cornell University, Northwestern University, University of Notre Dame, and University of California Santa Barbara (UCSB), together with the GBH Archives, request \$866,563 from IMLS for a two-year National Digital Infrastructures and Initiatives grant to support development of new features for the open source Hyrax digital repository toolkit and to modernize Hyrax's technical underpinnings to enable new modes of interoperability with other tools and platforms in the digital repository ecosystem. This funding request is accompanied by \$907,270 in cost sharing by the project's partners.

<u>Statement of National Need:</u> Digital repositories represent critical infrastructure for libraries to serve their user communities with online access to and preservation of research, digitized special collections, born-digital archival collections, and other resources. This need has proven to be even more critical during the current COVID-19 pandemic, during which physical access to collections has been greatly restricted and user demand for online access to collections for purposes of remote learning and research has increased. Additionally, open digital access to collections and research improves equity for scholars, students, and lifelong learners in a variety of individual and institutional settings.

Multiple options for digital repository platforms exist in the library community, both commercial and open source, with some focused more on institutional repository use cases around research publications, presentations, and data, and others focused more on digital collections use cases around digitized and born-digital special collections and archives: textual, image-based, and audiovisual. Due to vendor consolidation in the digital repository marketplace, in several cases involving consolidation with publishers, we have seen an increased interest in open source options from both large and small institutions.

Hyrax is a leading open source software toolkit built on the Ruby-on-Rails-based Samvera technology framework that uniquely allows institutions and service providers to implement effective digital repository front-end applications supporting both institutional repository and digital collections use cases. To date, Hyrax has been implemented at several dozen institutions, ranging from large academic libraries to smaller, more specialized archives. Hyrax also serves as the main underpinning for the Hyku multi-tenant digital repository application, used by multiple commercial service providers and consortia to offer turnkey repository services to institutions both large and small. Hyrax will also serve in the near future as the new underlying technology basis for Avalon Media System, an audiovisual digital repository solution originally developed by IU and Northwestern and now used by over a dozen other institutions.

While Hyrax has been successful, many of its current implementers—both direct implementers and users of Hyku and Avalon—are looking for new functionality and additional interoperability options, and this project would serve to catalyze development of these new features to continue to position Hyrax as a best-in-class repository solution for a wide range of users.

<u>Project Design</u>: To date, Hyrax has both been developed by the Samvera Community, a partnership of 32 institutions and service providers committed to working together to share expertise and to develop best-in-class software solutions for repositories and digital collections. This development has taken place over time with significant in-kind contributions of librarian, software developer, and financial resources from Samvera partner institutions, and this project intends to continue that model with additional resources for project coordination and software development provided by IMLS.

The project partners, in collaboration with the Samvera Community, will work over the course of two years to accomplish the following goals: 1) implement a comprehensive set of external APIs for Hyrax, to include content and metadata deposit, export, and search; 2) add new features to meet community and prospective adopter needs,

including (a) expanded user interface support for journals, audiovisual resources, research datasets, and geospatial data; (b) user-configurable deposit workflows; (c) robust permissions handling; and (d) improved compliance with current accessibility standards and guidelines; 3) simplify infrastructure and deployment patterns, broaden support for persistence layers (Postgresql, Fedora 6), and update the Samvera stack for cloud-native environments; and 4) integrate the outputs of other focused grant-funded initiatives with Hyrax, including <u>Open Impact: Developing Robust Analytics</u> <u>for Open Source Solution Bundle Hyrax</u> (IMLS; University of Oregon and Oregon State University), <u>Advancing Hyku</u> (Arcadia Fund; University of Virginia, British Library, Ubiquity Press), and <u>Fedora Migration Pathways</u> (IMLS; Lyrasis).

This work will be carried out through cost-shared in-kind staff contributions from the project's partner institutions, along with grant-funded contracted development time from one or more service providers in the Samvera community. A new grant-funded Technical Project Manager will be hired at Emory University to work with the existing part-time Hyrax Technical Lead at UC Santa Barbara, Tom Johnson, to oversee technical design and direction, collaborating with Samvera Community Manager Heather Greer Klein (also based at Emory); Jon Dunn, Project Director for the grant at IU; and project coordinators at each partner institution to provide overall grant management and coordination.

Software development work of the project's distributed team will follow a Scrum Agile process, used successfully by multiple projects within the Samvera community. Julie Hardesty, Hyrax Product Owner based at IU, will work closely with Samvera's Hyrax Interest Group and other appropriate interest and working groups within the Samvera community to get input on and synthesize priorities for development work.

While most of the work of the project team will take place virtually, the project team will get together four times over the course of the two-year project for 2-3 day *developer congresses*, intensive in-person work sessions to make progress on specific design and development tasks, a model that has proven successful for past development efforts within the Samvera Community.

Project success will be measured by uptake of Hyrax and Hyku by adopters within and outside of the Samvera Community and by engagement of additional Samvera community members beyond the grant project partners in the development work as it unfolds.

<u>Diversity Plan:</u> Hyrax, both on its own and via Hyku, has been implemented at a wide range of institutions from community colleges to large research universities, and improving ease of implementation will continue to grow adoption amongst diverse institutions. In addition, expanding Hyrax's feature set, including offering improved support for accessibility, will allow institutions to more easily provide access to diverse cultural heritage and research collections to an expanded audience.

National Impact: The features and technical improvements to Hyrax supported by this project will enhance the potential for Hyrax and Hyku to be adopted by libraries and archives at both large and small institutions to support access to collections and research. All code will be made available under an Apache 2.0 open source license via Github.com, with links from the Samvera Community website, and documentation will be made available under a Creative Commons CC-BY license. We expect that the in-kind commitment model established through this project will continue past the end of the grant to continue to provide ongoing support for Hyrax development and enhancement, supplemented by the Samvera Community's financial contribution model, which will provide sustained support for the Samvera Community Manager, with a goal of growing by the end of the grant period to be able to continue to support the Technical Project manager as well.

Budget detail removed from public version of preproposal.