



LAURA BUSH 21st CENTURY LIBRARIAN PROGRAM

Sample Application RE-259638-OLS-26
Project Category: National Implementation

LYRASIS

Amount awarded by IMLS:	\$299,995
Amount of cost share:	\$0

Lyrisis, in partnership with the San Diego Supercomputer Center and GO FAIR U.S., will build expertise among the U.S. academic and research library workforce with a focus on identifying and documenting research projects and activities. Through training on the Research Activity Identifier (RAiD) international standard, which fills a gap in documenting and describing research activities themselves, the project will help librarians integrate metadata and application programming interfaces (APIs) into library systems and workflows, apply RAiD data in research analytics and bibliometrics, and visualize research activity to better understand and communicate research project scope and impact in their communities. The project will produce a trained cohort of librarians and establish a national RAiD community of practice, improving standards-based tracking of research activity nationwide.

Attached are the following components excerpted from the original application.

- Narrative
- Schedule of Completion

When preparing an application for the next deadline, be sure to follow the instructions in the most recent Notice of Funding Opportunity for the grant program to which you are applying.

Library Workforce Development to Increase Transparency & Understand Impact in United States Research

Introduction

Lyrasis seeks \$299,995 in funding from the Laura Bush 21st Century Librarian Program for a National Implementation Project supporting the Program's Goal 2, Objective 2.1. Specifically, this project intends to strengthen and sustain the academic and research library workforce by developing targeted education, training, and shared resources that enable librarians to leverage RAiD (Research Activity Identifier), an open persistent identifier (PID) and international standard for identifying and documenting research projects and activities. These resources will help librarians better understand the scope, impact, and relationships between research activities within and across institutions. Academic librarians are increasingly responsible for stewarding, tracking, and assessing the impact of scientific research in support of researchers, administrators, and community stakeholders, yet they face ongoing challenges stemming from fragmented or siloed systems, inconsistent metadata practices, and limited interoperability across platforms. While open persistent identifiers for people (ORCID), research outputs (DOIs), and organizations (ROR) have improved the discoverability and interoperability of research information, until recently there has been no identifier or standard for documenting and describing research activities themselves: the projects and collaborations that link people, funding, organizations, infrastructure, and outputs over time in a broader context. As an internationally recognized standard (ISO 23527:2022), RAiD fills this critical gap by providing a structured, interoperable mechanism for representing research projects in a consistent, machine-readable, and machine-actionable way. Because RAiD is relatively new (established in 2022), leveraging the full value of RAiD in the United States (U.S.) depends on building awareness, expertise, and sustained adoption within U.S. libraries that support research activities. Developing librarian expertise in RAiD (including how to create and register RAiD records, map and contribute local metadata from institutional repositories and research information management systems, retrieve and aggregate RAiD linked data, and analyze and visualize research activity over time) will equip librarians with essential skills needed to better support the needs of their communities. With these skills, librarians will be equipped to more fully help researchers understand the scope and impact of their work, assess compliance with research security and research integrity requirements, inform institutional and community decision-making, reduce administrative burden, and communicate research impact to the public in more transparent and meaningful ways. Drawing on its proven role as a national hub for community-driven, open research infrastructure, including stewardship of open-source software communities such as DSpace and ArchivesSpace, and leadership of national consortia for ORCID and DataCite, Lyrasis will partner with the San Diego Supercomputer Center (SDSC) at the University of California at San Diego and the GO FAIR U.S. Office (recognized for accelerating adoption of the FAIR (Findable, Accessible, Interoperable, & Reusable) Principles through community-driven implementation networks and practical training) to deliver professional development programming and resources that equip librarians with the skills, confidence, and peer support

needed to understand and implement RAiD in practice. The intended outcome is an academic and research library workforce better positioned to curate, analyze, and communicate research activity and impact for their institutions and the broader U.S. research ecosystem.

Project Justification

Scholarly research infrastructure in the U.S. remains largely organized around publications, even though publications no longer represent the full scope or lifecycle of how research is conducted. Today's research projects generate data, software, protocols, workflows, and collaborative activity long before (and sometimes without) formal publication, and many research projects have broader societal impacts that cannot be inferred from publications alone. Research institutions, and the communities and stakeholders that comprise and support them, increasingly require a wider view of research activity to ensure transparency, accountability, public access, and research integrity; priorities reflected in recent U.S. federal directives for restoring gold standard science (EO 14303) and strengthening research security measures to prevent foreign government interference and exploitation (NSPM-33). Without sustainable infrastructure to persistently identify and connect overarching research projects and their many collaborators, funding streams, and outputs over time, librarians face significant challenges in understanding, evaluating, and advancing this new era of science.

The need for a standardized and streamlined way to keep track of research project information has been identified through Lyrasis' work with hundreds of academic librarians from over 170 R1 institutions across the country since 2018 in support of ORCID (Open Researcher & Contributor Identifier) and DOIs (Digital Object Identifiers) as part of the ORCID US Community program (administered by Lyrasis) and the Lyrasis DataCite US Community consortium. While persistent identifiers for people (ORCID) and research outputs (DOIs) are now essential components of research infrastructure, they are insufficient on their own to capture the full context, relationships, and dynamic nature of research projects and activities themselves. The Research Activity Identifier (RAiD) addresses these challenges by linking people, organizations, funding, outputs, and other research project contributions and components in a single record where project information can be recorded once and reused across multiple systems over time. RAiD leverages existing persistent identifiers (PIDs), as well as local identifiers and stable URLs, to bring visibility to research projects as connective entities, creating an interoperable, machine-actionable record of research as it unfolds, rather than retroactively reconstructing research activity based on publications. This approach directly supports federal goals for improving research transparency, integrity, and security; accountability for public investment; and efficiency in the reuse of research information across agencies and institutions.

At scale, RAiD enables librarians to provide their communities with a clearer, more comprehensive and transparent view of research activity, showing who is working on what, with whom, and for what purpose, including early-stage and

ongoing projects. It also strengthens research assessment and strategic decision-making by enabling the aggregation, analysis, and visualization of research activity across departments, institutions, and time. Additionally, by embedding structured provenance, traceability, and citability for projects into research workflows, RAiD enables FAIR, actionable metadata that can better support trustworthy Artificial Intelligence (AI) systems and reproducible scholarship. Investing in RAiD training for librarians is therefore a strategic investment in the workforce and infrastructure needed to support collaborative, accountable, and reproducible science, or in short, gold standard science. Such investment ensures that research can be more effectively understood, evaluated, and reused for maximum public benefit, while positioning librarians to respond to emerging national research directives and to keep pace with parallel initiatives underway in other regions around the world.

Recent NSF-funded work has established the foundational conditions necessary for RAiD adoption in the U.S., creating a new opportunity to focus on workforce development and advanced modes of bibliometrics and data science practice. Through an EAGER award from the National Science Foundation (award #2434407), the San Diego Supercomputer Center, in partnership with Lyrasis, has led a time-limited U.S. RAiD Pilot focused on standing up core technical infrastructure, testing interoperability, and exploring RAiD use cases across a diverse set of research stakeholders. The pilot has demonstrated technical feasibility and institutional interest by engaging more than 25 pilot organizations and over 100 interested librarians representing more than 40 research libraries in the U.S. Critically, this early-stage technical validation has surfaced a distinct and unmet need: librarians require new, specialized skills and shared practices to operationalize RAiD across the research lifecycle. Pilot participants helped to identify gaps not in infrastructure, but in hands-on guidance for integrating RAiD into everyday workflows, such as creating and maintaining RAiD records, embedding RAiDs in institutional systems and reporting processes, interpreting and reusing RAiD linked data, and supporting researchers in using RAiDs consistently in interactions with funders, publishers, and collaborators. Addressing these gaps requires training and peer-learning structures that were beyond the scope of the NSF pilot. This LB21 National Implementation project responds to that need by introducing new professional development programming explicitly designed for academic and research librarians. The project will deliver structured training, workshops, practical documentation, and sustained communication channels that equip librarians with the skills to curate RAiD records, analyze RAiD linked data, and serve as local experts within their institutions. By centering librarians as facilitators of RAiD adoption, this work advances a new, scalable model for research activity stewardship in support of researchers, research administrators, funders, and the broader research community.

Project Work Plan

Our work will begin with establishing a leadership group to advise on project plans and assist with networking, outreach, and dissemination of project activities and materials. The leadership group will consist of the core project team, plus 3-5 senior representatives from research libraries across the U.S that will be selected by the core project team. The core project team includes:

- Sheila Rabun <https://orcid.org/0000-0002-1196-6279>, Lead Strategist for Research Infrastructure Programs at Lyrasis. With 15 years of experience working in digital libraries and eight years of experience at Lyrasis consulting with research libraries and librarians across the U.S. in support of PID adoption (for ORCID and DataCite DOIs), Sheila is an expert in community engagement and will serve as the project manager and will lead community engagement, working closely with project partners and the leadership group to plan, implement, and manage the project to completion; Sheila will also lead the development and delivery of training materials related to foundational RAiD concepts, RAiD in libraries, and RAiD metadata
- Chris Erdmann <https://orcid.org/0000-0003-2554-180X>, has over 15 years of experience in multiple library, data science, and open science roles, most recently as the Computational and Data Science Research Specialist at the San Diego Supercomputer Center (SDSC), University of California San Diego (UCSD), Co-Founder of GO FAIR U.S., and Open Science Advisor for SciLifeLab; Chris will assist with project management, and lead the development and delivery of training materials related to bibliometrics, data science, data analysis, and data visualization
- Christine Kirkpatrick <https://orcid.org/0000-0002-4451-8042>, Division Director for Research Data Services at the San Diego Supercomputer Center (SDSC), University of California San Diego (UCSD), and the Head of GO FAIR U.S., Christine will provide oversight, advise on overarching strategy, and assist with networking and outreach. Christine is an expert in research data management and high performance computing, with a PhD in computer science and over 18 years of experience working in director roles and support open science data best practices.
- Julie Christopher <https://orcid.org/0009-0006-4290-1810>, Technical Project Manager at the San Diego Supercomputer Center (SDSC), University of California San Diego (UCSD), will assist with project coordination and logistics; Julie has over five years of experience managing projects and logistics at the SDSC, including a Scrum Master certification for agile project management.

Once established, the leadership group will put out a call for librarians to serve as liaisons and assist with the development and delivery of training sessions and materials, including drafting, seeking community feedback, revising, and dissemination. With the goal of identifying one librarian to advise on each training session (six librarian liaisons total), liaisons will be selected by the leadership group to represent libraries of different sizes and from various regions in the U.S., based on their relevant experience, area(s) of expertise, and schedule availability. The selected liaisons will be considered “RAiD ambassadors” and will receive a stipend for their contributions. Each liaison will be expected to attend one conference each, where they will present materials from the trainings that they were involved in. Liaisons will also be expected to attend the dedicated project event in Seattle in 2028 (see below). Costs for travel and conference registration will be provided to support the liaisons’ professional development and bolster their RAiD expertise. All liaisons will be publicly recognized as project contributors on the Lyrasis website, with their professional service added to their ORCID record by Lyrasis through the ORCID Affiliation Manager tool.

With the leadership group and RAiD ambassadors established, we will focus on iterative development of six training sessions to be delivered sequentially over the course of two years. For each training topic, we will define a set of learning objectives and outcomes that will be used to guide the creation of training materials and assess the effectiveness and impact of each training. Each training will include a written guide with graphics to illustrate specific concepts, a virtual webinar training session, and a virtual discussion session, through which feedback on the written guide and training materials will be collected and used to inform the creation of publicly accessible resources and assets to be used by librarians, such as LibGuides, template slide decks, and Jupyter Notebooks. To disseminate these trainings, we will promote them with announcements on various library listservs, Lyrasis listservs, and professional networking platforms such as LinkedIn. We will also coordinate with library science programs across the U.S. to include library science students in our outreach efforts. We will collect formative evaluation data through surveys and polls before, during, and after training sessions to gather feedback for refining the programming and resources. While conference presentations will depend on the acceptance of our conference proposals, we will plan to attend and share our work and resources at national library conferences such as Electronic Resources & Libraries (ER&L), the Research Analytics Summit, the Digital Library Federation (DLF) Forum, Coalition for Networked Information (CNI), Research Data Access & Preservation (RDAP) Summit, the Association of Research Libraries (ARL) Summit, the Charleston Conference, Code4Lib, and the Association for College and Research Libraries (ACRL) conference. Depending on timing, conference sessions would be geared toward sharing summaries of any training and materials developed to date, and gathering feedback from participants to inform and refine our approach moving forward. We have identified the Association of Research Libraries' (ARL) "IMPACT: Research Library Summit" (July 31-Aug. 3, 2028) as a key venue for convening stakeholders and providing in-person training. As such, we will plan to host a co-located event with this Summit regardless of conference proposal acceptance here.

To evaluate and demonstrate the impact of this project, we will conduct summative evaluation at the end of each training session, annually, and at the conclusion of the project, measuring changes in librarian knowledge and confidence, adoption/use of RAiD and related practices, and perceived benefits to libraries, researchers, and institutions. We will also assess the total number of individuals reached through webinar registrations, in-person attendance, written feedback received, and number of views on recordings. Based on the history of strong participation in similar trainings offered by Lyrasis, we anticipate that each virtual training engagement will draw at least 200–300 librarians and library science students. Across all sessions, this would engage an estimated 1,200–1,800 library professionals in real time, with an additional 40-50 participants expected to be reached at each in-person session (size will vary depending on the venue) and more over time as the training materials continue to be reused beyond the grant period.

Our general work plan is outlined below; please note that conferences are tentative as our attendance would be contingent upon proposal acceptance, and we anticipate that some flexibility may be necessary as we incorporate feedback from the leadership group and RAiD Ambassadors to finalize the structure:

- **Project initiation** (Sept. 2026 - Dec. 2026)
 - Leadership group established, recruit librarian liaisons, establish communication channels
- **Training 1 - Intro to RAiD** (Jan. 2027 - March 2027)
 - Topics include: What is RAiD, Why was RAiD created, What does a RAiD record contain, Who is responsible for creating and managing RAiDs, and where RAiD fits in the wider research ecosystem
- *Conference: ER&L - Topic: Intro to RAiD (March 2027)*
- *Conference: Research Analytics Summit - Topic: Intro to RAiD (April 2027)*
- *Conference: ACRL - Topic: Intro to RAiD (April 2027)*
- **Training 2 - RAiD in Libraries** (April 2027 - July 2027)
 - Topics include: the specifics of where and how RAiD can be used in library workflows such as open access publishing, institutional repositories, and research analytics, and how libraries can support their researchers in understanding and using RAiD
- **Training 3 - Working with RAiD Metadata** (Aug. 2027 - Nov. 2027)
 - Topics include: in-depth exploration of the RAiD Graphical User Interface and metadata schema; tips, tricks, and tools for getting metadata into RAiD records in an efficient, automated way; investigating the other PIDs, standards, and vocabularies that are/could be leveraged in RAiD, and the ability to add U.S.-specific metadata fields to the schema for use by U.S. RAiD service points
- *Conference: DLF Forum - Summary of Topics: Intro to RAiD, RAiD in Libraries, & Working with RAiD metadata (Oct. 2027)*
- *Conference: Charleston Conference - Topics: Intro to RAiD, RAiD in Libraries, & Working with RAiD metadata (Nov. 2027)*
- **Review/Assessment** - Reflect on the year and lessons learned from Modules 1-3 (Dec. 2027)
- *Conference: CNI - Summary of Topics: Intro to RAiD, RAiD in Libraries, & Working with RAiD metadata (Dec. 2027)*
- **Training 4 - Implementing the RAiD Application Programming Interface (API)** (Jan. 2028 - April 2028)
 - Topics include: core API concepts, authentication, key endpoints, and step-by-step, hands-on guidance for using the RAiD API to create, update, and manage RAiD records programmatically; participants will work in a sandbox environment to understand requirements and logistics for integrating RAiD into local systems such as repositories, research administration platforms, and project tracking tools
- *Conference: RDAP Summit - Summary of Topics: Intro to RAiD, RAiD in Libraries, Working with RAiD metadata, & Implementing the RAiD API (March 2028)*

- *Conference: Research Analytics Summit - Summary of Topics: Intro to RAiD, RAiD in Libraries, Working with RAiD metadata, & Implementing the RAiD API (April 2028)*
- **Training 5 - RAiD & Bibliometrics** (May 2028 - July 2028)
 - Topics include: responsible use of RAiD data for reporting, trend analysis, and strategic understanding of research activity; participants will learn how to retrieve and analyze RAiD metadata to support research analytics, examine collaboration patterns, and evaluate impact
- **In-Person Meeting, Co-Located with Conference: Association of Research Libraries' (ARL) "IMPACT: Research Library Summit"** (July 31-Aug. 3, 2028)
 - U.S. RAiD in-person meeting and training in conjunction with the Association of Research Libraries' (ARL) "IMPACT: Research Library Summit" event in Seattle, Washington (July 31 - Aug. 3, 2028)
 - For this co-located in-person event, we will use the resources created from modules 1-5 to conduct an informative meeting, hands-on training, and community-building opportunity for librarians
- **Training 6 - RAiD Data Visualization** (Aug. 2028 - Nov. 2028)
 - Topics include: step-by-step, hands-on tutorial for exploring RAiD metadata through common data visualization approaches using tools such as Jupyter Notebooks, R, Open Refine, and Shiny, to help illustrate the relationships between entities in the research and scholarly communication ecosystem
- **Review/Assessment** - Reflect on the year and lessons learned from Modules 4-6 (Dec. 2028)
- **Gather evidence & Wrap-Up** (Jan. 2029 - April 2029)
 - Collect and publish case studies highlighting how RAiD-enabled skills improved research support services
 - Host a virtual showcase where participants share lessons learned, challenges, and successes
 - Publish best-practice guidance informed by community experience
- *Conference: Code4Lib - Summary of Topics with a focus on Implementing the RAiD API (March 2029)*
- *Conference: ACRL - Summary of Topics: Intro to RAiD, RAiD in Libraries, Working with RAiD metadata, Implementing the RAiD API, RAiD & Bibliometrics, & RAiD Data Visualization (April 2029)*
- *Conference: Research Analytics Summit - Summary of Topics with a focus on RAiD & Bibliometrics, & RAiD Data Visualization (April 2029)*
- **Future Plans** (May 2029 - Aug. 2029)
 - Assess impact, using community feedback to determine a sustainability plan, and position the work for long-term adoption beyond the grant

Project Results

Leveraging Lyrasis's leadership in the national library landscape, and in close collaboration with research library leaders and practitioners across the U.S., our plans to develop and disseminate trainings for librarians, produce educational materials that librarians can re-use in their own contexts, and establish communication channels for librarians to stay

informed and continue to learn about best practices for managing research activity information within and across institutions, will directly address the identified need for building a library workforce adept at using coordinated, standards-based approaches to tracking and assessing research activity through Research Activity Identifiers (RAiD). As a result, this project will produce a trained cohort of librarians and library school students with demonstrated RAiD competencies and an established national RAiD community of practice that provides space for ongoing discussion, workflow exchange, and continued peer-learning. Because research activities span all academic disciplines and are stewarded by librarians with diverse functional roles, the project is intentionally designed to influence practice across multiple library specialties including research data management and data stewardship; institutional and data repositories and metadata management; scholarly communication and bibliometrics; and user support and research consultation. Ultimately, engaging the U.S. library community in RAiD adoption will build national capacity for AI-ready research infrastructure and practices grounded in transparency, interoperability, and trust.

Deliverables will include recommended best practices for librarian-led RAiD adoption, educational guides (e.g., LibGuides and reusable LibGuide templates), webinar recordings, practical implementation guides, step-by-step tutorials, workflow templates, reusable slide decks and fliers, Jupyter Notebooks and data visualization tools, and documented case studies that illustrate examples from different types of institutions. To ensure that project materials are readily adaptable, generalizable, and usable by a wide range of institutions, we will seek iterative community feedback to inform final project materials, and the materials will be versioned, include customizable templates and scalable workflows, and openly available online with creative commons licenses. For the more technical training, we will provide step-by-step instructions on how to run scripts to gather data and create data visualizations. Since the training materials are modular, librarians can choose to mix and match resources to meet their needs, based on the type of institution they are serving and their role in the library. Additional deliverables for this project include interim evaluation reports, a final evaluation and impact report, and a sustainability and continuation plan.

Dissemination of training and project materials will occur through a multi-channel strategy designed to reach intended beneficiaries including librarians, library administrators, and library science students and educators. We will share webinar recordings via YouTube and announce the availability of new resources and upcoming sessions through established listservs (such as DLF Announce, ALA ScholComm, LyrOpen, etc.), Slack teams (including GO FAIR U.S., RDAP, and Friends of ORCID), and social media platforms (such as LinkedIn, Bluesky, Mastodon, etc.). We will present on the trainings at national and regional conferences (as described above) and publish case studies and evaluation findings in the Lyrasis blog, as well as other relevant blog venues such as ACRL Insider and the Scholarly Kitchen. We will also plan to publish one or more articles in peer-reviewed journals, such as the *Journal of Librarianship and Scholarly Communication* or *Information Services and Use*.

To sustain the benefits of the project beyond the period of performance, we will formalize a sustainability and continuation plan anchored by Lyrasis' existing consortial infrastructure. This includes developing a cost-sharing model that enables libraries to collectively support ongoing RAiD implementation and maintenance, lowering barriers to entry and distributing long-term stewardship responsibilities. The trained cohort and community of practice will continue to function as a self-sustaining network of expertise, supported by ongoing programming and resource updates facilitated by Lyrasis. By aligning with our consortial support model and embedding RAiD competencies into professional development pathways and library workflows, the project's impact will extend well beyond the grant period, strengthening and sustaining national capacity for persistent, standards-based documentation of research activity.

Schedule of Completion

