

# Memorandum of Understanding between NSDL Core Integration and Pathways Projects

“Through its distributed digital library building strategy, the NSDL program is fostering the creation and development of a comprehensive cyberlearning infrastructure.”

*- from the 2005 NSF-NSDL Solicitation*

## 1. Introduction

The National Science Digital Library (NSDL) mission, as defined by the National Science Foundation, provides a clear focus on education and the need to encourage and sustain continual improvements in the quality of STEM education. To be a successful catalyst for education, NSDL must address two basic priorities. As a library, the first is discovering and organizing the most useful resources for STEM education. To support learning, the second is giving users a coherent learning environment and set of tools that help meet specific educational goals.

This Memorandum of Understanding (MOU) between NSDL Core Integration (CI) and the Pathways Projects seeks to clarify the administrative and development activities needed to support a successful partnership in building the NSDL. The CI group has been charged by NSF to work with new and existing projects to develop technical standards, infrastructure, and organizational processes, and, in general, best practices for integrating collections and services into NSDL. CI's role is to support the Pathways with tools and services that will reduce infrastructure costs, enhance collaboration in order to leverage resources, help increase usage, and permit the Pathways to focus their resources on their stewardship responsibilities. In partnership with CI, the Pathways' role is to provide stewardship for the educational content and services needed by a broad community of learners, provide leadership in fostering use of NSDL and Pathways, and participate in NSDL development.

NSF details Pathways' stewardship responsibilities as follows:

- Maintain criteria and mechanisms to identify, select and annotate high-quality and relevant digital content as it continues to be available, and to generate appropriate metadata for such content
- Provide all item-level metadata to the central NSDL data repository
- Sustain the currency of aggregated educational resources, either by acquiring/linking or deaccessioning
- Make best efforts to archive in a way that preserves the usability of digital content as the underlying technology systems evolve
- Anticipate and provide value-added services that may be specific to the targeted learning community

The Pathways strategy is a key element to NSDL success through their focused efforts to organize a specific domain area and provide users the environment needed to meet their

educational goals. Each Pathway project has specific community needs to meet, so CI and the Pathways must ensure that combined development outcomes are integrated to not only meet the NSDL mission, but also create a library that appears to be coherent, organized and coordinated for the broader NSDL user community.

The collaboration between the Pathways Projects and CI constitutes the primary means by which we will achieve a comprehensive, recognized, and trusted on-line science, technology, engineering and mathematics (STEM) library to serve learners at all levels of education. NSF charges this collaboration with continuing to build the NSDL organization that will sustain NSDL into the future.

## **2.0 General Responsibilities**

CI staff is responsible for coordinating and managing the core library, main library portal at NSDL.org and underlying technical infrastructure. This includes the metadata repository architecture and metadata services, search, authentication services, archiving, and the main portal. CI also adopts and supports standard protocols and technologies in response to CI and community needs. In addition to technical responsibilities, CI coordinates and engages the NSDL community, which includes library developers, educators, and users of the library, through an overall NSDL Outreach and Communications Plan. CI staff also support the NSDL governance process and run the NSDL Annual Meeting.

As laid out in the NSDL solicitation, the Pathways Projects are responsible for maintaining criteria and mechanisms to identify, select, annotate, and generate metadata for high-quality and relevant digital content as it continues to become available; providing all item-level metadata to the NSDL core metadata repository; sustaining the currency of the project resources, either by acquiring/linking or deaccessioning; active archiving that preserves the usability of digital content as the underlying information technology systems evolve; and anticipating and providing value-added services that may be specific to the targeted learning community.

The Pathway Projects are being funded with NSF support and their primary obligation is to deliver the products to which they are committed by the terms of their project descriptions. The CI and the Pathway Projects will give priority to fulfilling the conditions of this MOU within their time resources and budgetary constraints.

## **3.0 Collaborative Activities**

This MOU concentrates on the high-level areas of collaboration. Because the Pathways' focus on serving specific audience needs, the focus of this MOU defines collaborative areas of work, including technical infrastructure, outreach, policies, and procedures, which will be required to support a coherent, coordinated library for all NSDL users. Because the Pathways Projects are at different levels of maturity, specific development tasks and deliverables for CI and individual Pathways Projects will be outlined and

tracked in a separate Pathways Work Tracker document. The following outline lists the key areas of collaboration required to sustain an operational NSDL.

### **3.1 Keep barriers to NSDL users as low as possible**

- 3.1.1 Work towards implementing a single NSDL sign-on
  - Develop an approach or policy to achieve goal
  - For those Pathways with existing logins, determine appropriate integration path consistent with policy
- 3.1.2 Share collection development policies online
  - Post collection development policies for all collections under each Pathway
  - Annotate policy with appropriate definitions/descriptions of important features, such as resource quality or how resources are selected
- 3.1.3 Create and implement plans for resource persistence
  - Include clear definition of what is saved, for how long, plans for migration
- 3.1.4 Define issues surrounding modification of resources
  - Define user requirements that allow for successful modification, including rights management
  - Define granularity of resources required
- 3.1.5 Commit to usability and accessibility standards
  - Follow industry best practices
    - See AccessNSDL.org, <http://ncam.wgbh.org/accesslinks.html>, [http://www.imslobal.org/accessibility/accmdv1p0/imsaccmd\\_oviewv1p0.html](http://www.imslobal.org/accessibility/accmdv1p0/imsaccmd_oviewv1p0.html)
  - Implement usability studies, focus groups, user testing, etc

### **3.2 Improve NSDL**

- 3.2.1 Share resource centric information, such as metadata, annotations, and related content
  - Define common set of resource-centric features for Pathways
  - Submit metadata to the NSDL Data Repository (NDR)
  - Define potential issues surrounding metadata and sustainability beyond the period of NSF funding
  - Define and develop web services for expressing resource-centric information and relationships across collections and the NDR
- 3.2.2 Provide resource recommendations

- Make recommendations where materials are out of individual collection scope, but within the broader NSDL scope
- 3.2.3. Participate as testbeds for library services, tools, and emerging technologies, where possible and appropriate.

### **3.3 Adopt standards and policies**

3.3.1 Adopt NSDL best practices with the understanding that those practices, while not required, are likely to become the NSDL norm. Priority will be given to technical and policy support for these best practices and for contributors adopting them.

3.3.2 Adhere to the NSDL Metadata Policy

- Online at <http://comm.nsd.org/download.php/83/PC3Final.pdf>

3.3.3 Participate in defining necessary policies on IP and rights management

3.3.4 Post privacy policy on portal site

- Help define minimum elements required for consistency across all sites
- Meet COPPA guidelines, where required

3.3.5 Use and share defined vocabularies and taxonomies, such as subject classifications, audience, and grade level

- Develop agreed-upon shared vocabularies
- Post vocabularies centrally

3.3.6 Use NSDL-wide services and information, where possible and appropriate, e.g.:

- Achievement Standards Network, for education standards
- Content Alignment Tool for standards alignment

3.3.7 Adhere to NSDL co-branding guidelines (*formerly section 3.4.1*)

- Appropriately use NSDL graphical and textual references in web-based interfaces, printed materials, and other instances
- Appropriately credit NSF and NSDL in Pathways printed materials, press coverage, and other related instances

### **3.4 Strategic Partnerships**

3.4.1 Participate in partnership building activities including meetings, presentations, and planning efforts

3.4.2 Share resource links, annotations, tools, and services for inclusion in packaged sets of NSDL resources provided to external partners (e.g., textbook publishers or state departments of education)

3.4.3 Share information about partnerships developed outside of NSDL in order to appropriately address potential areas of overlap, conflict, and synergy.

3.4.4 Collaborate with CI to develop working agreements on issues like intellectual property, rights management, and revenue sharing

### **3.5 Coordinate outreach and communications activities**

3.5.1 Participate in co-branding NSDL and Pathways

- Web sites, promotional materials, press coverage and other related documents

3.5.2 Coordinate workshops and other user training opportunities

3.5.3 Coordinate conference presentations and exhibits

3.5.4 Facilitate networking and partnership building between NSDL and Pathways' target audiences

3.5.5 Share original content and domain expertise

- Current events, articles, reports, and papers through On Ramp
- News feeds, blogs, and other RSS feeds

3.5.6 Contribute to NSDL reports, briefings, and other presentations

### **3.6 Contribute to the overall evaluation of NSDL**

3.6.1 Participate in web metrics evaluation efforts

- Install Omniture tracking software, or other software as provided by CI
- Provide regular summary reports, once installed

3.6.2 Participate in the larger NSDL program evaluation effort

- Define yearly benchmarks and metrics
- Provide metrics as defined above

### **3.7 Support NSDL operations**

3.7.1 Identify primary contacts and backups

- Contacts for daily operational questions, and emergency outage contact
- Contacts for user questions and support
- Contacts for educational outreach, marketing, and evaluation

3.7.2 Meet site availability targets and provide contingencies for downtimes

- Determine targets for each site

3.7.3 Perform routine checks and repairs for broken links

### **3.8 Enable collaboration**

3.8.1 Provide web service interfaces for broadly applicable services

- Participate in defining core central services, such as search, NDR access, and archiving
- Identify and provide other agreed upon Pathways-enabled services

3.8.2 Set and manage co-development priorities through

- Regular meetings
- Document and project management
- Clear schedules, deliverables and responsibilities
- Document the impacts of collaboration in time and resources
  - Share lessons learned

### **3.9 Administration**

Locus of collaborative planning and decision-making will be a group of the CI PIs, CI senior staff, Pathways PIs (or PI-designates) and designated principals. Implementation of those plans will be detailed to work groups of CI and Pathways staff as required by the nature of the work. CI and Pathways PIs (or PI-designates) will meet via monthly conference calls to discuss work progress and make decisions with regards to priorities, and agendas will be prepared by CI staff at UCAR. CI and Pathways PIs (or PI-designates) will meet face-to-face twice yearly. The first meeting will be held, usually in August, as soon as possible after the selection of new Pathways by NSF. At that meeting, the CI and Pathways group will agree on major collaborative priorities for the coming year. The second meeting will take place at the NSDL Annual Meeting in the late fall.

As first point of contact, Eileen McIlvain will be the CI liaison to Pathways Projects, and Karen Henry will produce and track Pathways Work Tracker. Both will coordinate development activities by working with the primary contact listed for each task in the Pathways Work Tracker. Any project management issues (missed deadlines, conflicting priorities, etc) will be brought to the CI and Pathways PIs (or PI-designates) for resolution. CI will maintain a private workspace to manage email lists, the work tracker, common documents and other communications required by this group. Work groups will establish their own processes, workspaces, and meeting schedules according to need.

A 2/3 majority of the Pathways PIs (one per Pathway) and the Core Integration PIs (one per CI institution), is necessary to adopt an NSDL/Pathways best practice or standard. That number is currently nine (9).

Three or more of the Pathways/CI Principal Investigators group may call for the question in regard to a best practice or standard at any time. Two of the three must be Pathways PIs.

#### **4.0 Relationship to NSDL Governance**

There are two governance bodies of importance to the CI/Pathways collaboration. The National Visiting Committee is appointed by the National Science Foundation to provide high-level strategic advice to CI, and continuing evaluation of the project to NSF. The committee also serves as an advocate of the library to the larger public. The Policy Committee advises the CI team, other NSDL grantees, and NSF on operational strategies, policies and implementation priorities for NSDL. CI will be the primary liaison to these committees and will ask the Pathways Projects to provide briefings from time-to-time.

Pathways and CI staff will consult with the Policy Committee about policy and standards issues coming out of this joint work, such as Privacy Policy changes necessitated by the identity management work. All groups will be expected to participate in Standing Committee meetings as necessary.

#### **5.0 MOU Updates and Revisions**

Updates and revisions to the MOU may be proposed by any of the CI/Pathways partners and must be agreed to by a consensus of that group. Records of the updates and revisions will be kept by the CI staff at UCAR and posted to the Pathways workspace (<http://pathways.comm.nsd.org>).

This revised MOU, of March 14, 2007, replaces:

- the 2004 agreement, dated October 18, 2004
- the 2005 agreement, dated August 30, 2005
- the 2006 agreement, dated August 4, 2006