

SUSTAINABILITY STANDING COMMITTEE (SSC)

<http://sustain.comm.nsd.org/>

Sustainability Scenario Panel

Basic Questions:

1. How should STEM researchers, educators and administrators build, apply and sustain the NSDL over the long term for the benefit and progress of society at global to local scales?
2. What legal, accounting and administrative procedures in the NSDL program have been or should be established to implement partnerships with corporations, other government agencies or universities in a responsible and timely manner?
3. How should revenues be allocated to best facilitate the ongoing development, maintenance and evolution of individual projects (pathways, collections, and services) so that they can be sustained over the long term as part of the NSDL program?
4. What user-community assessment, outreach and engagement strategies will best promote the evolution of the NSDL in a sustainable manner?
5. What strategies will enable the NSDL to provide sustained leadership in developing and implementing visionary technologies that open doors for integrated access to information and user-defined knowledge discovery?

Open Remarks by Paul Berkman

1. How should STEM researchers, educators and administrators build and support the NSDL? The SSC has identified 4 complementary elements of sustainability (Table 1): program, project, user-community, and technical sustainability.
2. Sustainability involves support beyond NSDL funding. It will be necessary to identify, implement and embrace strategies to leverage funding. What other partnerships can we form with business and fed agencies?
3. We need to strengthen STEM education and integrate research with education as part of promoting collaborations between partners.
4. How to allocate revenues among many different projects with different target audiences? How do we account for additional revenue? What are the appropriate licensing and e-commerce solutions?
5. NSDL could provide infrastructure - educational standards, enhanced networks to be advertised as a premier brand.
6. NSDL is more than a research experiment. The NSDL represents a new way to educate. We need to think about broader impacts. What can the NSDL do the best in the world?

7. Programs need to bring in non-traditional sources of funding. This will involve cultural changes in our academic institutions as well as among scientists and educators.
8. *"Knowledge is the common wealth of humanity"* (quote from Mali Ambassador Adama Samassekou, Convener of the United Nations World Summit on the Information Society).

Project Sustainability Scenario

It is likely that each individual project must consider how it will sustain itself beyond the NSDL. One model is for a project to develop a presence on the e-commerce scene. How does one plan and develop a marketable product or service? How does one identify buyers? What benefits will buyers reap? How does one price a product or service? How can publishers and service providers learn from their competition? How will buyers be involved in new product/service development? What is the shelf-life of a digital product or service? How does one recognize success? How does one recognize and address challenges? **How can a project develop an e-commerce approach to project sustainability and thereby contribute to sustainability of the NSDL program?**

- a. *Sustainability Scenario 1* panelists
 - i. Linda Akli (American Association for the Advancement of Science)
 - ii. Amy Chang (BiosciEdNet, American Society for Microbiology)
 - iii. Susan Musante (American Institute of Biological Sciences)
- b. BEN project example
 - i. BEN (BiosciEdNET) portal is supported by the American Association for the Advancement of Science (<http://www.bioscienet.org/portal/>)
 - ii. What makes you unique?
 - iii. Necessary to identify
 - Users
 - Challenges
 - Uniqueness
 - How do you differ from the rest of the world?
 - Why would someone come visit your site?
 - For BEN - a collaboration of professional societies - content experts and the authors of the materials, also the reviewers of peer-reviewed resources. There are > 80 life science disciplines. BEN supports interdisciplinary and multidisciplinary support. Over 1000 years of combined publishing experience.
 - Contributors
 - How are they identified nationally and locally?
 - Contributor audience includes authors and reviewers that are identified through publications and events. Also face-to-face events that are forums to identify prospective contributors. Look in poster sessions.
 - For the American Society of Microbiology (<http://journals.asm.org/>) contributors are recognized nationally

- (in publications from ASM) and locally (send news releases to local universities after publication).
- Why publish with ASM? 52% national dissemination; add legitimacy (peer-reviewed); 45% no other way to publish these materials; 35% ease of publication and timeliness (review takes 2.5-3 mo to publish).
- It is hoped that tenure committees will recognize digital publications in review and promotion.
- Collaborators
 - Collaboration when return is greater than investment
 - Flexibility and inclusive across diverse types of collections
 - Operationally - management is distributed.
 - Partners are responsible for insuring the quality of their resources - scientific accuracy and educational value. Peer review practice at partner level.
 - Everyone is responsible for building, looking for gaps, looking for more submissions. Are you better off as a partner or trying to do it by yourself?

iv. Questions / observations:

- What does it mean to be part of the NSDL?
- What are the challenges? For example:
 - Content explosion (information base growing);
 - Digital explosion (the Internet has lots of resources)
 - Fragmented disciplines (e.g., biology consists of many societies);
 - Knowledge discovery based on user-defined objectives.

v. Question - Answer:

- Need to impose our will on the NSDL to insure its long-term survival.
- How is the BEN library supported in terms of its existence? Microbe library has several grants (about \$1M development; 40% from grants; 60% from ASM) Individual subscriptions. Plan to break even. AAAS-operation of BEN is built into the AAAS budget. STKE is also subscription (50% self-sustaining). Each partner has different ways to sustain.
- Is there any oversight by the NSDL over the content in these other member sites? There is a standing policy that NSDL does not write letters of recommendation when they apply for NSF grants. There are currently no records of who is going where for funds. What do you need to give up to be a corporate entity? Association with other professional societies has been a good way to promote BEN.
- As you develop a subscription log, are you in competition with the societies? No. The content is different in the different members. People might subscribe to different libraries. They do differentiate a member/non-member site. BEN is just the portal where the metadata resides. The object resides in Microbe Library. BEN is not selling

subscriptions. MicrobeLibrary is. Does BEN have long-term permanent support from AAAS? Yes.

- One of the strengths of BEN is that you've brought together all the sub-disciplines. If every society starts charging, don't you defeat the purpose of the portal? I don't think so. Most are free, some are subscription based. Enough free items and enough of a mix (items are identified as free or not). Regular users know what is for-fee. You can see the first item you find on BEN free at MicrobeLibrary. But if you want to see other things, you'll have to subscribe. You can launch the object at BEN portal, but as soon as you go deeper into MicrobeLibrary, there will be a requirement for a subscription. Use it as marketing.
- Primarily BEN provides marketing support. BEN does not receive referral money from members that use subscriptions. BEN is one of several programs offered by AAAS. Revenues from membership in AAAS and Science are supporting BEN. Some NSDL money. Typical of societies - subscribed journals and membership base. It is cross-subsidized.
- This issue of quality and who is the guarantor of quality. Who is answering that question and how do we know? NSDL is putting a great deal of faith in the disciplinary societies and the organizations that know that sector. There is no discussion that the one around the guarantee of quality. There is a basic faith in the intellectual community in the give and take of its activities. There will e horrific moments. There was a creationist document on the NSF web site, not by the intention of NSF. There will always be uncertainty - we can't guarantee perfection. Put up the peer review guidelines on the front of your site. One of the challenges we've heard, people have the expectation that everything is accurate and up-to-date. They expect a guarantee of quality, especially at the K-12 level.

Program Sustainability Scenario

Major computer companies like Apple® and Dell® have broad distribution networks for bringing their systems into K-16 education environments. However, such companies lack specific expert content that could be introduced on their systems and that would provide them with a competitive advantage in the marketplace. Conversely, NSDL has expert content but lacks the distribution networking to broadly introduce the collections and services into K-16 education environments. There may be ideal partnerships between a large computer company and the NSDL. **How should the NSDL respond to an opportunity to partner with a large computer company to take advantage of additional revenue streams and broad networking that such a partnership would provide?**

c. Sustainability Scenario 2 panelists

- i. Howard Burrows (Chair, Policy Committee)
- ii. Kaye Howe (Chair, Core Integration)
- iii. John Moore (Co-Chair, Sustainability Standing Committee)

- d. Questions / issues to resolved:
 - i. Revenue sharing
 - Revenue receipts from partners and sponsors
 - Revenue allocations to projects, services, committees, etc.
 - ii. Decision making
 - How are decisions made by the policy committee and core integration?
 - UCAR can sign contracts
 - iii. Value assessment for contributions
 - iv. Budgetary allocations
 - Marketing to create NSDL “brand” recognition
 - v. Liability

- e. Value from NSDL program to projects
 - i. Metadata repository
 - ii. Branding
 - iii. Opportunities for collaboration
 - iv. Standards
 - v. Technical expertise and tools

- f. Value from NSDL projects to program
 - i. Content
 - ii. Creative contributors
 - iii. Peer review and quality control
 - iv. Creation and collection of metadata
 - v. Publicity – large user community
 - vi. Collaboration with other projects
 - vii. Staff effort and expertise
 - viii. Links to professional organizations
 - ix. Volunteers

- g. Sustainability Standing Committee
 - i. Can be less conventional than Core Integration to suggest alternatives approaches for sustainability, whereas Core Integration must stay the course
 - ii. Important role in communication to membership

- h. What is the glue that holds projects and the NSDL together?

- i. Example of symphonies that survive because professional development personnel solicit support
 - i. Analogous situation of non-profitability may exist for Core Integration
 - ii. Activity for the public good

- j. Noted that everything cannot be sustained
 - i. Darwinian
 - ii. Reviews required with defined outcomes for specified results

- k. Howard Burrows’ comments:
 - i. Policy is very loose. If Core Integration (which handles NSDL money) received a fortune, policy committee would have a voice in that money and it

would go to the NSDL community. We've given money and time and added value as we've helped build NSDL.

- ii. Need to have an algorithm to decide what value any project or individual has - that would determine where the money would go. NSF supports the program differently than the projects.
- iii. If we become a not-for-profit, how will that work? What are the liabilities?
- iv. What's to stop me from negotiating with Apple or IBM? Projects need to get interested and bring ideas to the sustainability standing committee, where sustainability policies need to be worked out. We need to have some of this worked out on paper ahead of time.
- v. NSDL needs to start doing marketing. We need to analyze of our products and services in terms of how they will benefit defined audiences? If we start to sell goods or services to someone, who will make money on it? What are our costs?

I. Kaye Howe's comments:

- i. Core Integration is a collaboration between Cornell, Columbia and UCAR.
- ii. CI can sign contracts and is a legal entity through a cooperative agreement with NSF.
- iii. IF someone donates \$50M, we have a way to handle this. They are starting to looking at (in a year or two, using focus groups) to develop a program approach. How will this work? What will it take?
- iv. This year we'll start working with corporations and foundations. Corporations give money for some purpose. So the gifts are very structured. The level of structure is increasing. The gifts will include a structure and an allocation.
- v. CI will be working with corporations and other federal agencies (e.g., Environmental Protection Agency and National Institutes of Health).
- vi. We have a system of distribution and a community. It is an educational utility. An organization of governors met to bring together practitioners and policy makers.
- vii. American Chemical Society (ACS) has information and database on states, policies and standards. We will be trying to provide access to that material over NSDL. It will be valuable to so many projects.
- viii. NSDL gives access to a broad range of materials who are not experts. This will be good for politicians. The goal is to build focused partnerships and an approach: how can we be helpful as an educational community? What is the quid pro quo for that? What opportunities will return to us for that? This is about benefiting the public good.
- ix. The government provides important support for things that don't turn a profit, like symphony orchestras, universities. Our conversation will continue to find ways that NSDL can disseminate materials. We think there should be core federal support for core activities of NSDL. Hope to create that with federal agencies to build a base of support and identify break even or for-profit activities we can spin off.
- x. We can look into less conventional possibilities as sustainability committee. Core integration needs to take a more conservative, methodical, practical approach. What novel ideas can we follow up on through the sustainability committee?

m. John Moore's comments:

- i. Referred to contents in Table 1
- ii. Sustainability is crucial for the NSDL.
- iii. Would like to see more and better communication throughout the NSDL about sustainability. Everyone should know what's going on.
- iv. *Journal of Chemical Education* (<http://jchemed.chem.wisc.edu/>)
 - Sustainability issues are inter-related.
 - Came in with significant resources. Built on a disciplinary organization and a subscriber base. 5700 reviewers; 5600 authors in the last 10 yrs; 4600 unsuccessful authors; 70 column editors; 15 paid staff; lots of student workers.
 - Sustained by subscription fees and advertising.
 - Sustained by strong user community
 - Connections to the American Chemical Society
 - 81 years of publishing experience
 - There are interactions between NSDL and individuals (Refer to Table 2 for mutual benefits between NSDL and JCE)

From NSDL to Projects	From Projects to NSDL
Metadata repository	Content
Publicity	Creative contributors
Opportunities for collaborations	Peer review and quality control
Standards	Publicity - large user community
Technical Expertise and tools	Collaboration with other projects
	Creation and collection of metadata
	Staff effort and expertise
	Links to professional organizations
	Volunteer efforts

n. Questions – Answer Session:

- i. One issue is revenue. There are limited resources at the NSF. That will end. Some of our projects have long-term potential. If generated, how will the revenue be shared?
- ii. You compare symphony orchestras and the CI as non-profit. Symphony orchestras survive by hiring professional development people. The symphony people have no expertise in raising funds, so they hire experts. The CI needs to hire professional development people. Whenever I went to a foundation, a development person went with me. CI has developed a theoretical framework for needed support. Now you have to work on the practical aspects of sustainability.
- iii. We have started that effort (Kay Howe). We will need professional expertise.
- iv. One of the first things a development officer, they will tell minions who they can and cannot contact. You don't want to pester an organization. You need to have a group representative. There have to be rules for this.

- v. It is better to have one person ask a corporation for money. But it is better to have the company come to you. We have tremendous buying power. NSDL could set up pre-negotiated contracts and reduce overall costs. That would entice corporations to come in (no competition on a pre-existing contract).
 - vi. Working with faculty at universities, they hesitate about corporate support and advertising. "Working with a publisher is like selling your soul." NPR does individual fund raising and begs for money on the air. I'm not a faculty member, but we need to be careful about bringing corporations into the NSDL.
 - vii. Is it efficient and practical and effective to send individual projects out for fundraising? I don't think it makes sense. They will reinvent the wheel. We need to have a collective approach in one place (CI?) with at least guidance, coordination and support. NSDL should provide for the projects, rather than asking projects to give a portion of solicited funds to NSDL.
 - viii. You can sell a good and you can sell a service. A project can sell different things that what the NSDL program can sell.
 - ix. Collectively we are NSDL and each project has unique strengths, but even that needs to be coordinated and collaborated, to make sure that the tentacles go out in a coordinated way. It should be recorded in a database. Hopefully NSDL as a whole is more than the projects.
 - x. We need to realize that this is an opportunistic process. We don't have to go to everyone or everywhere. Fedora needs to have user services built. Many NSDL members may be able to develop user services for Fedora (MELON). Will Melon provide funding for that? Including the NSDL journal. We need to identify targets or opportunity. NSF gives grants for projects and hopes that it turns out. Some project flourish. Some don't. Not everything will be sustained, even if funding is available. Collections will probably be sustained, but services and research may not be sustained. We need to insure that we know what the outcomes of the projects have been. What parts have we learned and what is valuable?
 - xi. NSDL is not like other NSF programs. There is a product and a goal. Things need to be evaluated in terms of how they contribute to the specific goal of NSF.
 - xii. NSF: right now, NSDL is a hybrid. Many separate projects. But umbrella support for CI. Hope that projects will collaborate, but can't force that. NSF needs a policy for individuals representing NSDL - this would be a mistake. CI should represent NSDL as a whole. Individual projects have to find ways to keep themselves afloat. NSF will not stop groups from getting foundation support. NSDL (NSF) is a powerful endorsement in seeking other support.
 - xiii. Sense of urgency to think about develop. Consider this model - investment banker has a buyer for NSDL who can solve all your problems. They have the money and the organization. If I can do that, would you be willing to go along with that? What are the terms of control that concern you most? What is your own individual agenda and how does that reflect on the clients we serve (students and teachers).
 - xiv. We should collect stories on how we have succeeded in leveraging NSDL funding to get further support.
- o. Comment handed in on 3X5 Card after the panel discussions:

- i. *"I want as a part of NSDL to know the 4-5 description and 30-second elevator presentation of NSDL. I feel inadequate to speak on behalf of NSDL as a whole. Where do I get these two very important "marketing" pieces?"*

- p. Comment handed in on 3X5 Card after the panel discussions:
 - i. *"Is it efficient and / or effective to put the burden of fund raising on each individual project? Shouldn't the NSDL "institution" at least coordinate and give guidance?"*

SUSTAINABILITY SCENARIO PANEL - PARTICIPANTS

Paul Berkman
Howard Burrows
Wade Ellis, Jr.
Yan Han
Karen Dennison
Aaron Krowne
Kaye Howe
Kate Wittenberg
Susan Musante
Boots Cassel
Linda Akli
Cindy Larue
Christine Walker
John Huffman
Katy Ginger
Chris Klaus
Hal Richtol
Jon Holmes
Dennis Pearl
Liz Liddy
Colin Thomas
Javed Khan
Laura Bartolo
Dave McArthur
Wendy Parfrey
Jack Bradbury
David Millman
Lang Moore
Scott Lathrop
Joe Clark
Steve Weimar
John Moore