An index of thoughts and comments from prior and current organizations

Organization
- From a program officer at NSF: “This year, 12 out of 200 proposals were about forming a collaborative network. What’s unique about what you plan?”
- Physical versus virtual presence of network: is there a need for both?
- Some organizations use logic modeling to develop goals and objectives, as well as to plan summit meetings
- Theme structure: the advantage of having four strong affiliated institutions with a weak center is that each PI brings a wealth of resources, making activities such as conferences possible, and provides the flexibility needed for responding to the field. The disadvantage is the lack of a central message, which could have a greater impact on the field; such focus should be contrasted with the ability to build bridges among themes, and to appeal to a wider segment of the research community.
- An unavoidable challenge identified with a distributed center model concerns inter-institutional contracting issues, for example an institution’s intellectual property policies.

Leadership
- Management of network vs. visionary leadership
- Formal processes for starting new projects, terminating unproductive projects, promoting collaborating juniors to full network investigators
- Appeals process for unsupported work
- Meaningful and regular interaction from advisory board
- Time frame for reevaluation of goals and objectives + feedback from membership
- Who synthesizes the impacts of project work?
- How is project matchmaking handled?
- “People who attempt to create open [organizations] might want to understand not only how people who participate feel, but also why some people choose not to participate.”
- “…the function of good leaders is to help develop new leaders.”

Making collaboration fundamental
- What are incentives for project collaboration with network by leaders, stakeholders, and students?
- Make it clear to all project leaders that they must reach out to at least one new 'friend' each year in order to receive the fullest funding
- Develop a 'best practices' and case studies guide for how to approach industry and the receptor community for partnerships and funding.
- Set up multiple regional networking events to bring together potential industry/receptor partners with investigators.
- Appoint a group to study productive and transformative transdisciplinary collaboration
- Tensions can exist when an organization’s emphasis is on collaborative research, with the opportunity to create innovative and diverse partnerships and build upon each other’s work, and the conflicting need for those seeking tenured positions to create a body of individual work.
Encouraging advancement of future researchers
• Does the time investment support the intended outcome of the plan (apprenticeships, fellowships)? One organization found it needed to change the plan in order to impact a greater number of individuals
• Opportunities for networking are essential
• “Postdoctoral scholars faced an important tension between their desire to work collaboratively and achieve the goals of [the organization] and their desire to develop an independent research program that would ensure their career success.”
• “Many national [organizations] do great work and “disseminate” it to the field, but they do not actively attempt to get others directly involved in the [organization’s] work.”

Field building
• To identify a field is a very long term proposition. Organization needs time together, commitment, and trust. It’s a challenge to create recognition, it’s a never ending process.

Corporate partnerships
• Time frame mismatch for projects
• Alignment of industry and research objectives
• Mutual incentives for researchers and corporate partners
• Ability for network to “enforce” or “broker” collaboration within projects
• R&D partnerships with corporate R&D, rather than with educational arm, seems to work better
• “Prior evaluations of productive partnerships between research and industry found that the most effective partnerships were based on a true collaboration model: the more effort that an industry partner puts into the partnership, the more benefits that partner will receive....[We] steered away from models that provided surface contact between industry and educational research, but without significant collaboration. Specifically, [we] stayed away from industry’s philanthropic institutions that do not influence corporate strategy.”
• There is need for mutual education in terms of goals, methods, and policies.

Blended partnerships
• Need to develop mechanisms to bring industry and other receptor communities (NGOs, Govt agencies, Non-profits, etc) to the table and into projects early, often, and in a way that provides real synergy
Three organizations devoted to collaborative, cross-disciplinary work were studied and summarized below.

Organization 1: Center for Advancement of Informal Science Education (CAISE)
http://caise.insci.org/

Description
Informal science education supports people of all ages and walks of life in exploring science, technology, engineering, and mathematics. The CAISE Network is a communication network that includes professional associations and organizations that represent and serve a wide spectrum of informal science education communities. All share a dedication to advancing and improving informal science education.

Founded in 2007 with support from the National Science Foundation (NSF), CAISE is a partnership among the Association of Science-Technology Centers (ASTC), Oregon State University (OSU), the University of Pittsburgh Center for Learning in Out-of-School Environments (UPCLOSE), and the Visitor Studies Association (VSA).

The current CAISE initiatives, which constitute the core work for Years 4 and 5 of the project, were developed through an iterative process with the National Science Foundation 'CAISE Working Group' of program officers. These initiatives integrate feedback and lessons learned from the 2010 PI Summit and NSF Reverse Site Visit.

Going forward, CAISE’s refined focus will be on supporting current and potential principal investigators of NSF ISE-funded work: “We also remain committed to our role as a “listener, convener, connector and synthesizer” for the informal science education field by providing a dynamic resource and nexus point for all ISE sectors, including science centers and museums, media producers, science journalists, after-school, out-of-school-time and community-based programs, and cyber-enabled projects. In addition to the ongoing initiatives, in the coming months CAISE will be supporting a series of small workshops on themes and topics drawn from the NSF ISE portfolio, designed to inform the 2012 CAISE Summit.”

Elements

CAISE Inquiry Group Reports
CAISE Inquiry Group reports are intended to strengthen and connect the ISE community by catalyzing conversations across the field around issues and topics of common concern.

Articles from the Visitor Studies Association
An ongoing series of articles that synthesize findings from research and evaluation, provide evidence of the contributions of informal science education, and provide information and guidance to ISE practitioners in carrying out their work.

Other
Tools and resources for evaluating project impacts.
Reports from NSF-funded conferences and workshops
More about informal science education
Reports, conferences, and resources developed with support from the National Science Foundation's Informal Science Education program.
Working with National Science Foundation support
Stories from the field
Evidence for the value of ISE comes from rigorous research, careful case studies—and sometimes, anecdotes. Anecdotes can steer us toward promising new fields for inquiry, help shape research and evaluation questions, and provide memorable illustrations of research findings.

Projects under development

- Core initiatives with a 5-year timeline that center on evaluation of ISE projects
- Wiki for ISE evidence
- Evaluation framework study
- Media impact evaluation
- ISE timeline (interactive)
- Informal commons, entree for increased awareness of CAISE and ISE field to other audiences

Summits

The broad goal of ISE Summits is to mobilize, energize, and empower the informal science education community—including film and broadcast media, science centers and museums, zoos and aquariums, botanical gardens and nature centers, digital media and gaming, science journalism, and youth, community, and after-school programs. Participants include principal investigators of NSF grants and others who take an active interest in broad strategic issues that cut across the informal science education field.

Online Discussions

CAISE hosts online discussions with a focus on topics investigated by CAISE Inquiry Groups and NSF-sponsored informal science education workshops and conferences. Topics of previous discussions have included “Public Participation in Scientific Research,” “Longevity Revolution,” “Science Identity for Learners in Informal Environments,” and “Bringing ISE and the Learning Sciences Together.”

Entrée Program (Former “Fellows” Program)

The Entrée Program will increase awareness of CAISE and the broader informal science education (ISE) field to a variety of audiences, including those from current and future National Science Foundation-funded programs, the science research community, and ISE organizations. Through a number of strategies, including live presentations, direct contact, and web tools, Entrée will communicate to its audiences about points of access to the resources of CAISE, the NSF ISE portfolio, and the general ISE field. The program particularly seeks to serve historically under-served/under-represented audiences, connecting them to professional resources and career opportunities within the ISE field.

In Year 4, Entrée has initiated a dialogue with all current NSF ISE Principal Investigators, collecting input about project reach and disseminating information about new tools, web-based or otherwise, including a dynamic live presentation that outlines and describes the various sectors of the ISE field. For more information about the Entrée Program, contact Ben Dickow and John Falk at Oregon State University.

Informal Commons

CAISE is developing an “Informal Commons” web infrastructure that will provide a service layer and cross-connections to allow enhanced use across a suite of informal science education web sites. This infrastructure includes a shared social media widget that collects data about use from multiple sites and makes it available for analysis for any site in the Informal Commons. The Informal Commons site will aggregate the data collected and this information will be available as
separate (and shareable) widgets that make up a dashboard display. A universal search engine will produce faceted results across a suite of ISE sites, and users will be able to set up individual email alerts based on custom keywords and/or specific sites through an “agent” and alert system. In addition, the Commons will ultimately include an iPhone application will allow users to integrate content from the full set of collaborating ISE sites using mobile devices.

Version 1.0 of the Informal Commons, available by summer, 2011, will be a dashboard/aggregator site that will enable ISE professionals to connect with popular content across the suite of ISE sites. The site will allow users to see articles or documents from the ISE sites that their colleagues access and use. For more information about the Informal Commons, contact James Spadaccini, Ideum, and Kevin Crowley, UPCLOSE.

**Partner organizations and individuals**

CAISE continues to learn and evolve in Year 4 of the project. The CAISE team at the Association of Science-Technology Centers (ASTC) has grown to include Margaret Glass as Communications Manager, Wendy Hancock as Project/Meeting Manager and as of April 1, Trevor Nesbit, former CAISE fellow, as Web Strategist—all working with Jamie Bell, Project Director since October 2010, and now Principal Investigator. A new CAISE Senior Advisors group includes Museum of Life and Science CEO Barry Van Deman, Science Museum of Minnesota's Chair of Museum Leadership Julie Johnson, ASTC CEO Bud Rock, Consultant for Museum Development and Science Communication Alan Friedman, and KQED QUEST Executive Producer Sue Ellen McCann. Learn more about the current CAISE initiatives and our [plans for moving forward](#).

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**Interview, Alphonse DeSena, NSF ISE Program Director**

*Can you describe your role with respect to CAISE?*

Dr. DeSena inherited it from the former program officer in 2005. He helps build “coherence”—to build a field that’s not a field at all (rather, many disparate parts). He helps PIs with technical expertise; professional development; synthesis work. His role is to ask what is being learned across dissemination and analysis, as well as what funded awards add up to in terms of broader impacts.

*How did CAISE get started?*

Out of a formal call for proposals by NSF in a competitive process. In 2006 there was an RFP to establish an ISE resource center. Some participating organizations were The Association of Science and Technical Centers, Washington, DC; The University of Pittsburgh; Oregon State University, and The Visual Studies Association.

Originally there were 3 objectives with respect to CAISE:
1. Professionalize the field and strengthen it
2. Build a knowledge base and resources
3. Build a scientific engine for evaluators and educators

CAISE supports an educational infrastructure. People gather for certain things and then dissipate.

CAISE has an evaluation team tasked with process and progress; the bigger picture; as a consortium generating knowledge that can help others.

In its 5th year now, CAISE is up for formal review. It was initially funded at 1 million per year over 5 years.
In the ISE portfolio this year, 12 out of 200 proposals were about forming a network. What’s unique about what you plan? One should look at the professional field for any overlap; organize workshops around pieces of the portfolio to discuss what learning and theoretical bases there are; plan on monitoring outcomes. Is there an “emergent” process to self-aggregate?

Relative to ISE, the NSF funded 2 conferences recently for art+science: March 2011, “Art as a Way of Knowing,” Exploratorium “Art and Science of Learning” 3 workshops in DC, Chicago, San Diego

*What are mechanisms for encouraging a broader community and how effective are they to date?*

CAISE has changed a lot over time. It didn’t start with “Entree” as an activity. The PIs are being responsive to NSF’s call for inclusion. The “Informal Commons” includes a number of sites and tools developed with different professional audiences. There’s no easy way to connect the dots. For June 2010, a year 5 goal was to focus on web based tools to improve the level and quality of interaction.

There’s a need to “force and encourage” open interaction among different communities connected to the practice. People involved with evaluation need to talk to others. IC’s web based search engine helps find people (matchmaking). Dr. DeSena is involved in matchmaking and brokering as well. Entree (the old “CAISE fellows’ program—see Bell, below on this) helps different domains learn about ISE & helps them get to people and resources; helps build awareness and capacity. Emphasis is on scientific research communities, public understanding of science, and tools to help one learn about the practice.

CAISE is undergoing significant changes this year.

*How well does the online presence function to serve collaborative initiatives, versus face to face interactions? Is a physical location necessary for an organization’s identity?*

One can’t weight one over the other (physical, virtual). CAISE has a physical location in DC, a couple of offices. The online presence serves awareness of CAISE as an entity and where it might go.

There isn’t one big annual gathering, but lots of small ones. Dr. DeSena helps organize the annual PI meeting—really an NSF+PI meeting, not a CAISE meeting. It’s important to have a full time PI with some part-time coPIs. It’s different if it’s all part time.

There are lots of pods, not one big group. All have different foci: media, measurement, etc. Some are more cohesive, ie “hands on science” has a long history of support. The media world is not so cohesive and there are few opportunities to meet together. Museums & media hardly ever meet. Some come and go over time. *Q) Is there a need to manage that?* – There’s a need to create a context for stronger bonds without forcing things. At one time it was too top down, heavy last year. Now CAISE is working more bottom-up so people get involved in deciding what’s important.

CAISE isn’t primarily dominated by higher education, but by entrepreneurial, smaller organizations. Consider what it means when it’s more higher education based: there is a focus on tenure, hoops to jump through, less of a need to change.
Interview with James Bell, Association of Science and Technical Centers (Lead organization for CAISE) and full time PI this past year

Can you describe your role with respect to CAISE?
James wasn’t involved until year 3 through 5.

How did CAISE get started?
It was NSF-driven, from a number of proposals that came in at the same time; NSF encouraged people making these proposals to get together. James helps ensure CAISE’s resource center establishes a field.

CAISE is comprised of sectors with knowledge leaders in each field who have demonstrated success and accomplishments:
Science, museum, technical centers
Media (mass, broadcast, outside school)
Science writing
Journalism
Out of school time or in-school museum visitors (school or Boys & Girls Clubs, 4H, etc.)
Gaming
Cyberlearning

CAISE’s audience is comprised of those with current NSF-funded ISE projects (about 200 people)

Day to day PI activities:
“Convene, connect, synthesize:”
Convene: workshops on topic of interest
Connect for networking and professional development; people across sectors; PI meetings
Synthesize aspects of the website; policy; school access; inclusion, events

Physical organization
• Project Director, James Bell, full time
• Web Strategist, full time
• Program Manager, 80% time (meetings, content)
• Half time person on meeting logistics
• 3 coPIs with some staff, 1-1.5 persons each
• Work with Ideum, a website developer
• Subcontract Informal commons search engine across many sites with Lawrence Hall of Science, Berkeley
• Evaluator, Inverness Research, CA
• 5 Senior Advisors representative of sectors, on a monthly retainer to advise on plans and progress
• Steering/advisory committee: individuals in academics, public TV, independent researchers relative to sectors, science museums, private corporations

There are a lot of stakeholders. CAISE is in its 3rd iteration since it started 5 years ago.

To identify an entity as a field is a very long term proposition. The organizational team needs time together, commitment, and trust. It’s a challenge to create recognition, it’s a never ending process.
What strategies do you use for goals?
We use logic modeling for major initiatives; goals; activities; and audience. Logic modeling now serves long term goals—in the past they weren’t adhered to. At the bi-annual conference we set major goals and do logic models on the meetings beforehand. NSF needs PIs to know the latest reporting procedures, other projects (there is a lot of NSF communication at meetings, and they need to network with each other also as well as to agree on how to do field building).

Inclusivity
PIs are also helping generate a new cadre of potential PIs for resources. PIs invite likely candidates to PI meetings biannually for networking. It’s an apprenticeship model: there is no technical assistance but an emphasis on connecting on a personal level. The “fellows” program was in effect an exercise in practice writing a proposal. *Q) Why did it go away?* It could only handle about a dozen fellows per year, so it was not accessing enough people; it was too much time investment for the outcome.

“Entree” led by Oregon State is now about conference attendance to make people aware of ISE as a career option for scientists, educators, career changers. Interactions are mostly on the web and there is less intense one-on-one contact.

Organization 2: Graphisme, Animation et Nouveaux Médias (GRAND NCE)

www.grand-nce.ca/
Abby Goodrum, Director, Social Sciences & Humanities Research, GRAND NCE

Organization
This Canadian Network of Centres of Excellence was formed in 2009 with a vision of training the next generation of talent and encouraging a robust policy environment to support Canada’s National Digital Economy Strategy.

Initiatives are designed to integrate policy and practice in the digital media sector, focus efforts towards solution-driven products and services, facilitate research by linking expertise across domains, develop opportunities for research and partnering, and mentor the next generation of innovators.

Led by a board of directors incorporating a steering committee and a financial committee, a Research Management Committee (RMC) makes funding recommendations to the Board and oversees the research of five subgroups addressing overlapping themes: new media, games and interactive simulation; animation and other forms of imaging; social, legal, economic and cultural perspectives; and enabling technologies and methodologies.

A key objective of the RMC is to maintain balance across varied art and science disciplines. To encourage cross-pollination the five themes work within a system of accountability so that objectives inform projects, and in turn, project evaluation informs objectives. Within each funded project, external “champions” from a partner company or a representative of a user sector are tasked with evaluation.

Two special internal projects provide ongoing support for all projects relative to mission and vision: Media Enabled Organizational Workflow (using best practices in technology) and Network Assessment and Validation for Effective Leadership (focused on research management). This matrix structure is designed to balance and leverage excellence and community involvement.
As a relatively new organization, what has changed since the formation of GRAND NCE? A little more than a year out, what would GRAND’s stakeholders wish they were doing differently?

The first year was all about getting things set up and running. This second year has been a time to see the first flowering of projects, and also a time to get feedback from our network investigators, and their students and the various committees and the board. In addition to fixing the things that need to be fixed, we are also transitioning to thinking about our renewal plans. Hard to believe -- but in just three more years we will need to apply for renewal -- including picking a new leader for the network. This means that starting now, we need to out together the team to start the renewal process.

Here are a few things that I think we need to tighten up:

- We need a mechanism to bring industry and other receptor communities (NGOs, government agencies, nonprofits, etc) to the table and into projects earlier, often, and in a way that provides real synergy. We’ve decided to implement a 3-phase approach to this: (a) We will make it clear to all project leaders that they must reach out to at least one new ‘friend’ each year in order to receive the fullest funding; (b) we will put together a ‘best practices’ and case studies guide for how to approach industry and the receptor community for partnerships and funding; (c) we will set up multiple regional networking events to bring together potential industry/receptor partners with our investigators. These networking events will be based around themes such as indie games, or the future of film.

- We need an appeals process in place so that investigators have a mechanism for appealing the decisions made by the Research Management Committee with respect to funding.

- We need to formalize our processes for (a) starting new projects, (b) shutting down
unproductive projects, (c) promoting collaborating investigators to full network investigators.

- We need to find ways to involve our International Scientific Advisory Board more. Right now, they give feedback and suggestions to Joe Marks (head of Disney Research and chair of the committee). Joe then forwards the info to our Executive Committee and to the Board. We would like to find a time (perhaps at the next AGM) to get all of these folks together around the table at the same time.

- We just completed our initial social network analysis and discovered that in these earliest days, the Art/Design faculty are moving much more easily between and among the various research projects. The Social Science/Humanities folks are working at the edges—mostly in isolation, and the Computer Science/Technology folks are very active with each other—going from lab to lab and crossing many projects. We don't quite know why this is..... We have a group (NAVEL) studying it now. Its possible that this might shift as GRAND evolves. But we want to take a look at the folks who most serve as border crossers to see if we can identify why/how they do it -- and maybe learn how to replicate them!

**Organization 3: Center for Innovative Learning Technologies (CILT)**

CILT archive: [http://cilt.concord.org/map.html](http://cilt.concord.org/map.html).

CILT's goal was to enable an educational revolution augmented by technology. It was founded in 1997 to stimulate the development and study of important, technology-enabled solutions to critical problems in K-14 science, mathematics, engineering, and technology learning. CILT was active for about five years. Partners included cognitive scientists, computer scientists, natural scientists, engineers, classroom teachers, educational researchers, learning technology industry leaders, and policy analysts.

**Organization**

CILT was designed as an inclusive national effort led by five institutions—SRI International, Stanford University, University of California at Berkeley, Vanderbilt University, and the Concord Consortium. Senior researchers at these five institutions shared in the leadership.

Four "theme teams" focused the efforts in areas of highest promise. These areas were Visualization and Modeling, Ubiquitous Computing, Assessments for Learning, and Community Tools. CILT also incorporated “Synergy” projects that synthesized important ideas and tools from the four themes. The four theme teams developed separate vision statements and initiatives. The role of team leaders was to provide guidance and critical review for the team's work, facilitate collaboration among team members and with the larger community, and provide seed funding to new partnerships that arose from workshop interactions.

**Elements**

Workshops and collaborative forums provided the community means to assess the progress of the field, define research agendas, and initiate new partnerships. A program of seed grants provided rapid funding within each theme. A Knowledge Network offered resources in the field. A postdoctoral program trained scholars to work in interdisciplinary ways. The Industry Alliance Program encouraged corporate collaboration.
CILT’s organization of the four themes revolved around the broader categories of technology tools, learning assessment, and design knowledge. 14 years later, available tools are:

- Online knowledge network / Learning Science and Technology Repository (LESTER) http://lester.rice.edu/DesktopDefault.aspx Developed with Microsoft Research. LESTER includes information about researchers, institutions, and projects; course syllabi; bibliographic references; a bulletin board for collaborations; and moderated discussions.

- The Design Principles Project, now incorporated as part of Web Based Inquiry Science Environment (WISE) http://wise.berkeley.edu/design/ WISE is a free, online, K-14 science learning environment with modules for data visualization, causal modeling, simulations, and assessment.

Another element is a “wishing tree” web page, (the title borrowed from Yoko Ono’s famous artwork) that functions as a community suggestion box.

See [CILT final report](#) The final report from CILT includes highlighted entries of interest to NSEAD. Many points are summarized at the top of this document. CILT’s experiences with corporate partners is valuable reference material for discussion of support mechanisms. The descriptions of initiatives for advancement of junior researchers provide important ideas, as well as advice about individual incentives to participate in an organization. Documentation of courses designed to disseminate knowledge and build community around the four theme areas can also be found.

A repository of documents can be found [here](#)
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