QuickTime™ and a
TIFF (Uncompressed) decompressor
are needed to see this picture.

Nanoscale Informal Science Education Network

Larry Bell
Christine Reich
Museum of Science, Boston

CAISE ISE Organizational Networks Convening, Nov. 17, 2011

Why we chose a network structure:

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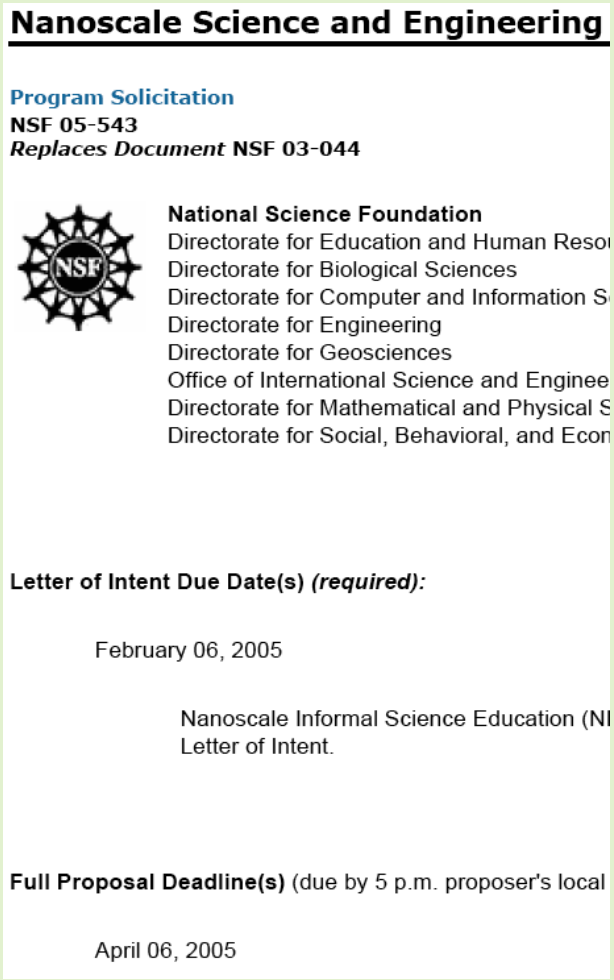
It was in the solicitation - NSF 05-543



Nanoscale Science and Engineering

Program Solicitation
NSF 05-543
***Replaces Document* NSF 03-044**

National Science Foundation
Directorate for Education and Human Reso
Directorate for Biological Sciences
Directorate for Computer and Information S
Directorate for Engineering
Directorate for Geosciences
Office of International Science and Enginee
Directorate for Mathematical and Physical S
Directorate for Social, Behavioral, and Econ

Letter of Intent Due Date(s) ***(required):***

February 06, 2005

Nanoscale Informal Science Education (NI
Letter of Intent.

Full Proposal Deadline(s) (due by 5 p.m. proposer's local

April 06, 2005

"This effort is intended to foster public awareness, engagement, and understanding of nanoscale science, engineering, and technology **through establishment of a Network,** a national infrastructure that links science museums and other informal science education organizations with nanoscale science and engineering research organizations."

THE END

This presentation is based on work supported by the National Science Foundation under Grant No. 0940143. Any opinions, findings, and conclusions or recommendations expressed in this presentation are those of the NSF and do not necessarily reflect the views of the authors.

Core Partners

Collaborated to win the award and have the field-wide impact required

- Museum of Science, Boston
- Exploratorium, San Francisco
- Science Museum of Minnesota, St. Paul

Why we chose a network structure

Goals

- Create a sustainable service-oriented infrastructure that supports long-term efforts to educate the public about nanoscale science, engineering, and technology, as well as builds capacity in the field and within participating institutions.
- Strategically plan, develop, implement, and disseminate educational deliverables of all kinds that foster greater engagement with and understanding of nanoscale science, engineering and technology in a comprehensive way by the general public, as well as K-12 school groups.
- Stimulate educational research and evaluation that add to the nanoscale informal science education knowledge base, inform continuous improvement of both products and processes, and guide the development of future deliverables.

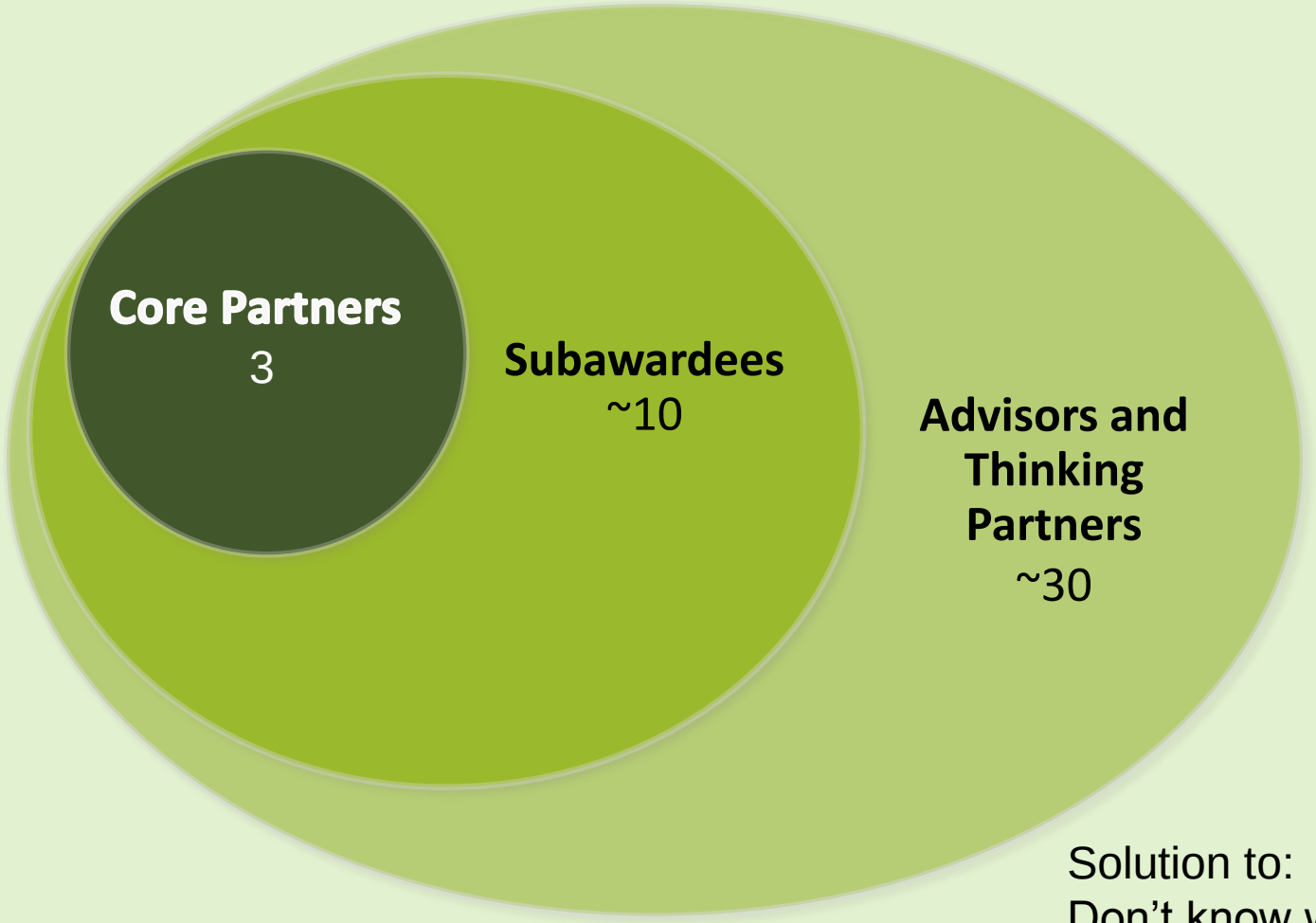
Inverness Research Associates identified four major challenges at the outset

- The content and pedagogy of nano science education is just now emerging.
- The field is just now learning how to design resources that will effectively communicate nano science to public audiences in informal science education settings.
- At the ISE institutional level, there is little expertise, experience, or incentive to do nano education for the public.
- At the field level, there is limited experience in developing and working with a national supportive network.

Inverness Research Associates identified four major challenges at the outset

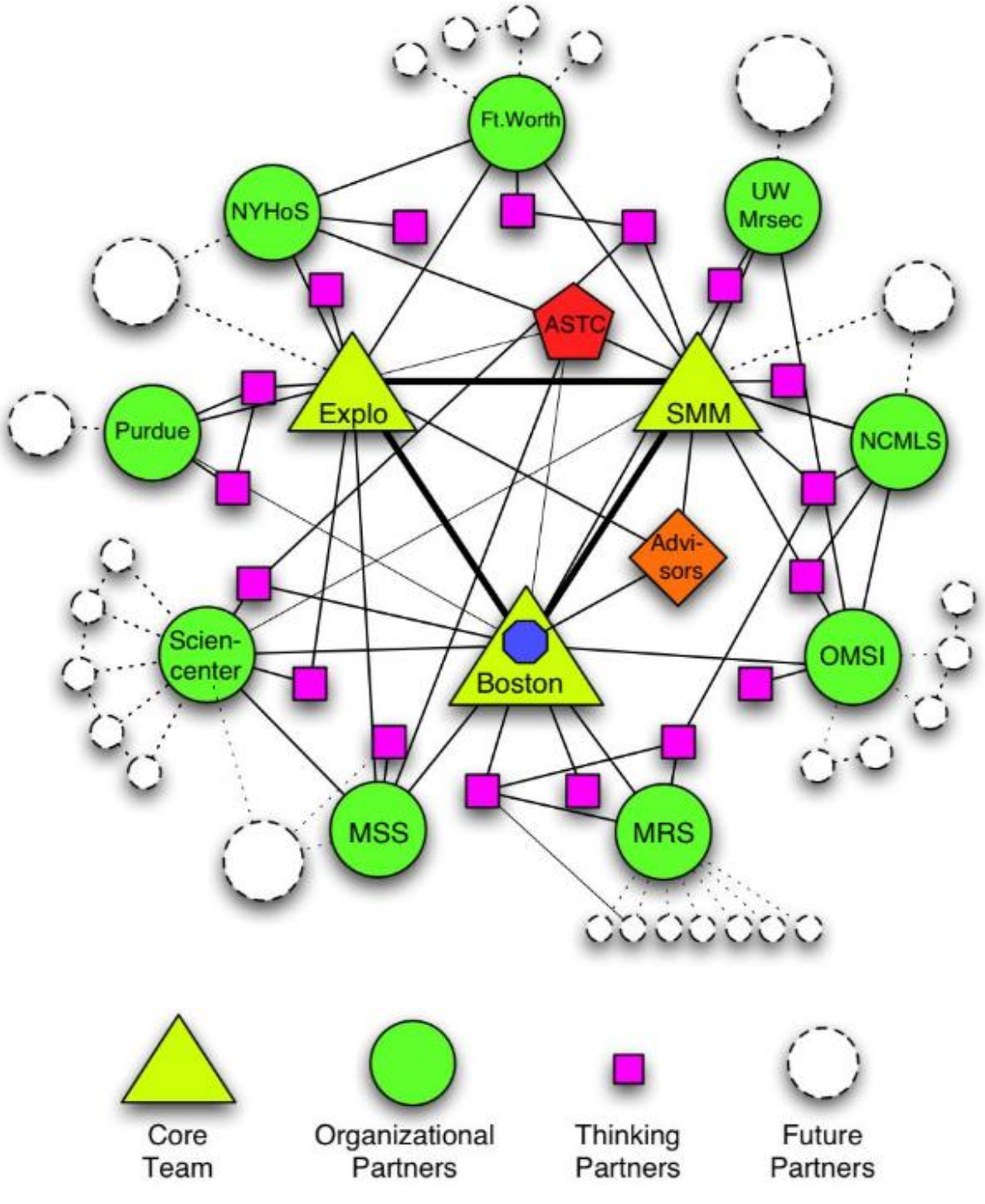
- We don’t know what it is
- We don’t know how to do it.
- Nobody wants to do it.
- And we don’t know how to get anyone to do it.

NISE Net Launch



Solution to:
Don’t know what it is
Don’t know how to do it

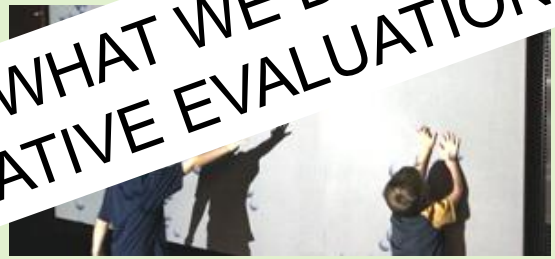
First NISE network diagram



Educational Programs and Exhibits

Educational Programs and Exhibits

GIVEN WHAT WE DIDN'T KNOW
FORMATIVE EVALUATION WAS KEY



NanoDays™

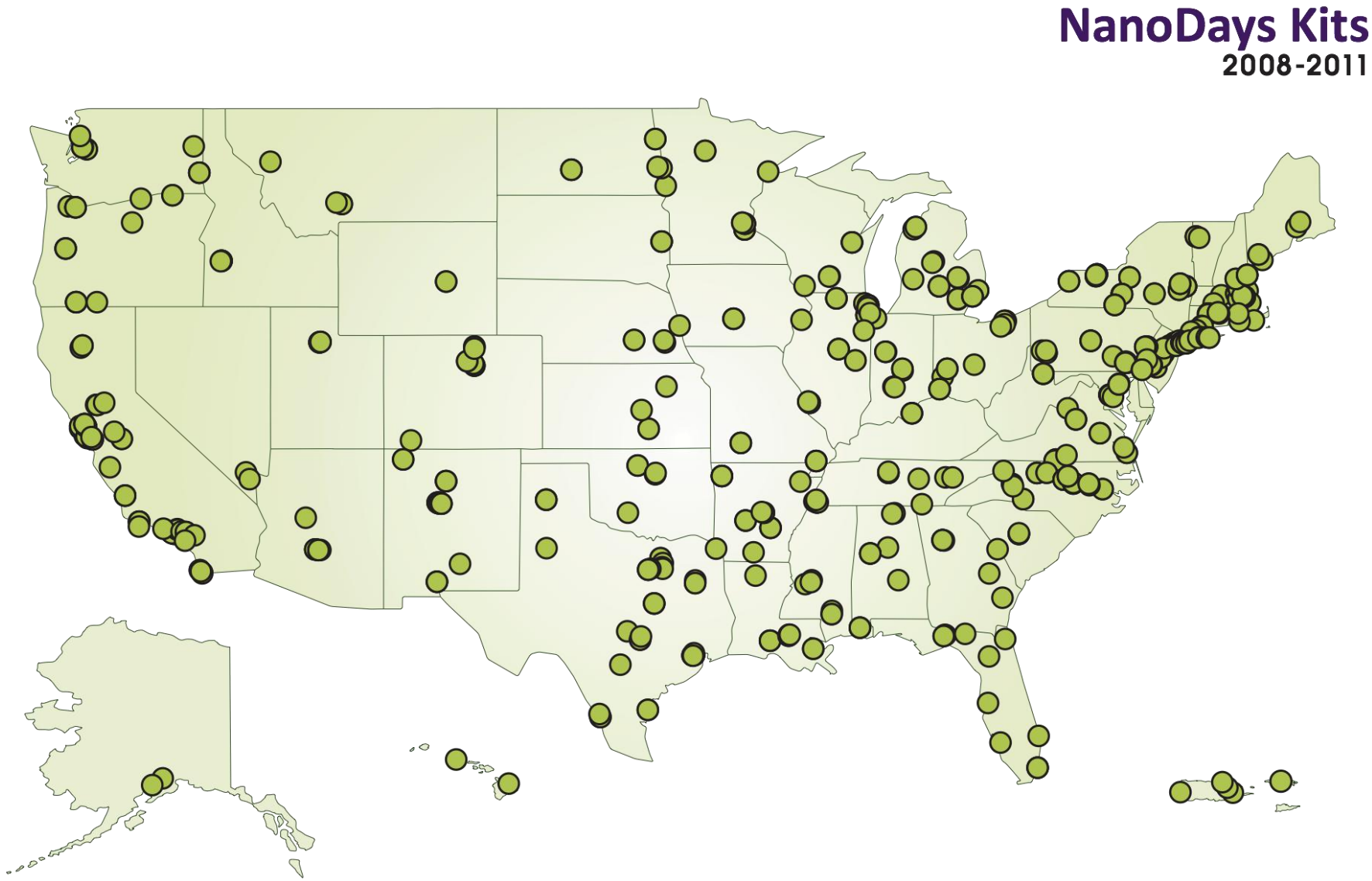
Hands on Science and Technology!

Thursday, April 3, 11 AM - 1 PM
NSF Atrium

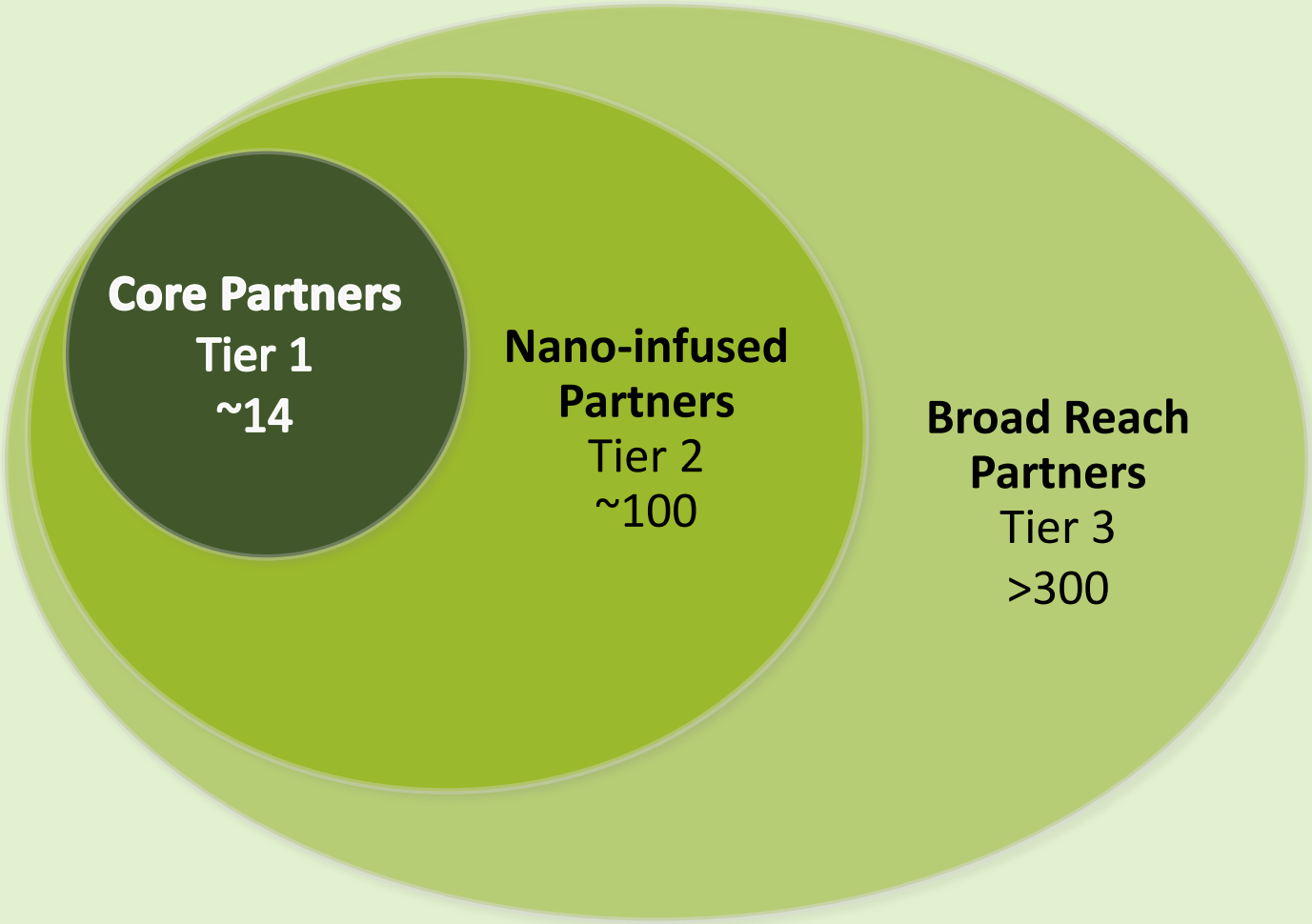
Participate in activities developed to engage the public in learning about nanotechnology during NanoDays March 29 - April 6, 2008

Developed by the Nanoscale Informal Science Education Network with funding from NSF.

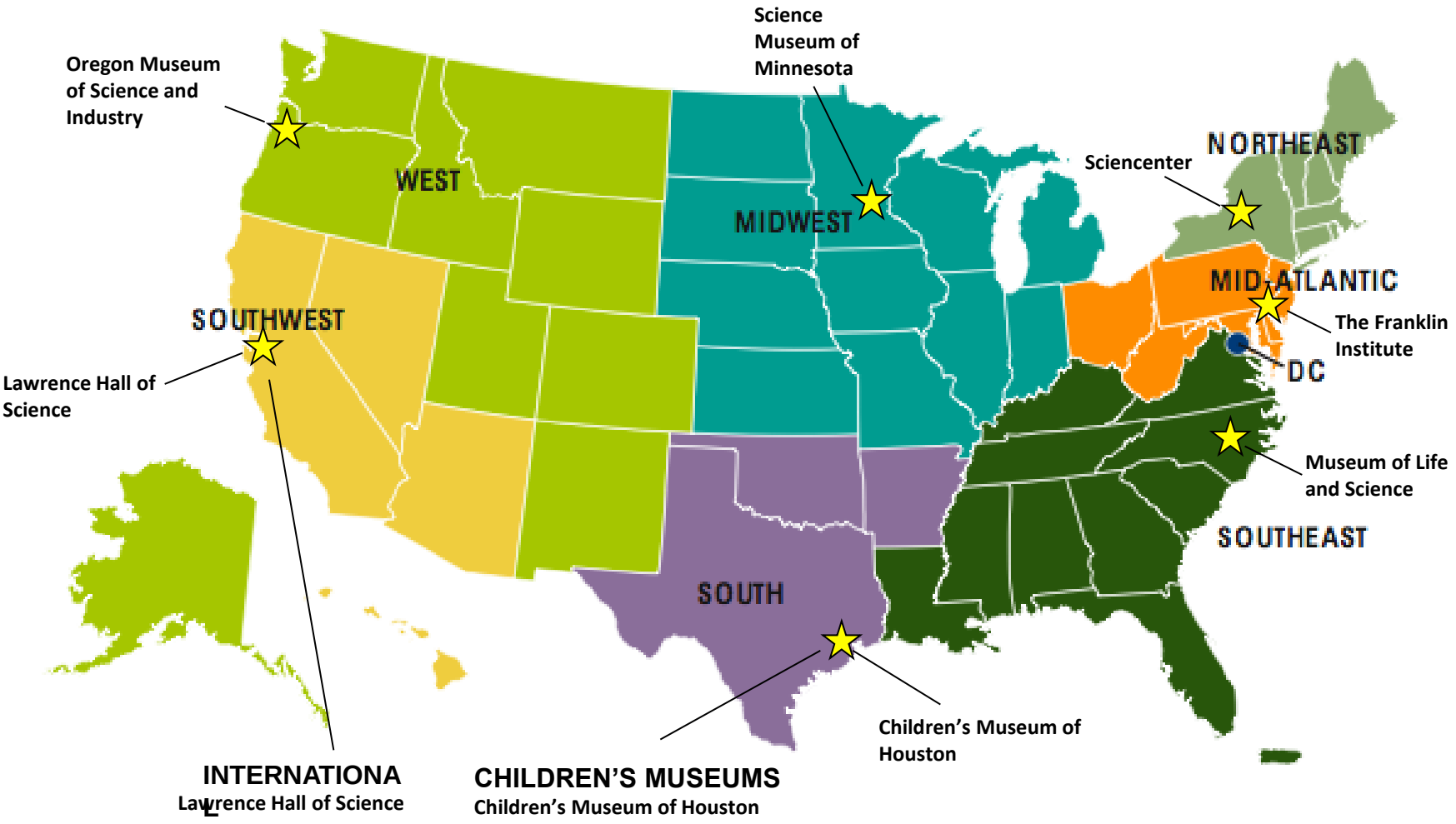
200+ NanoDays Participants



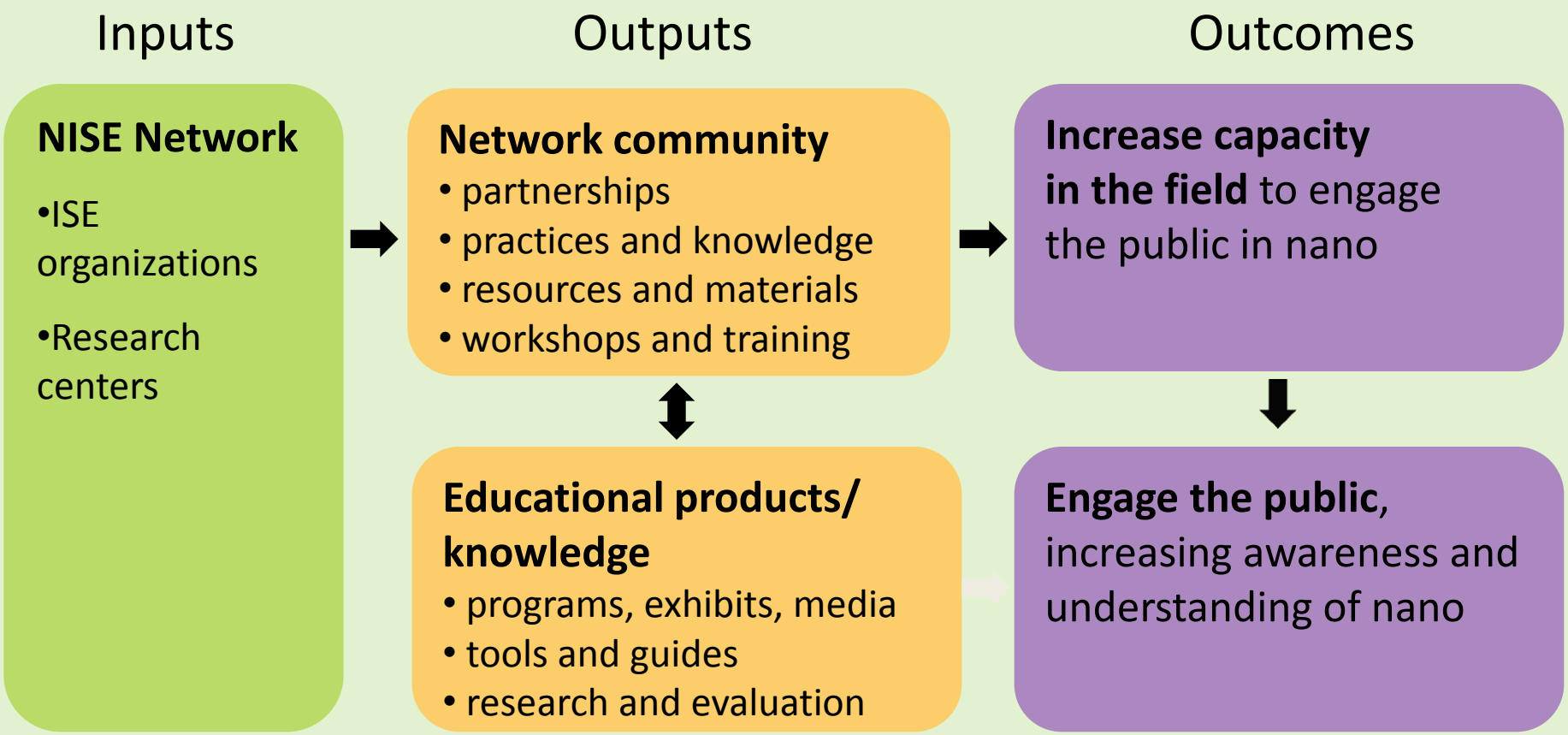
Network Community Tiers



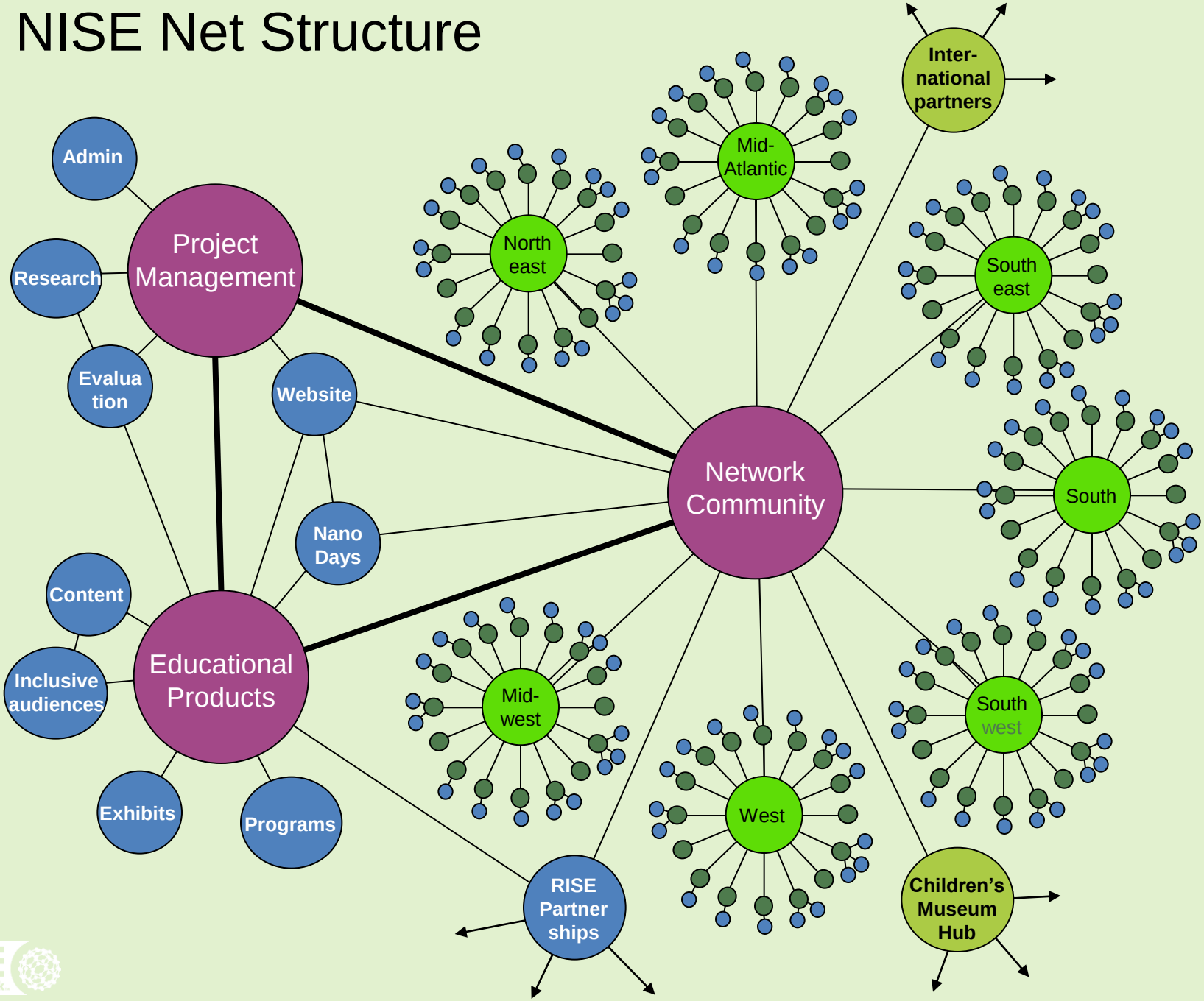
NISE Net Regional Hub Structure



NISE Network Simplified Logic Model



NISE Net Structure

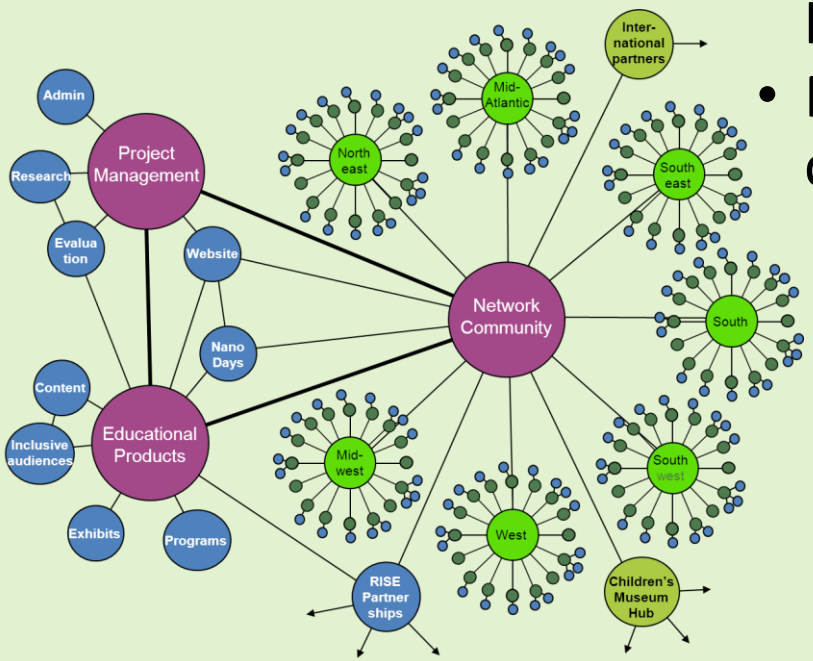


Evaluating NISE Net

- Refining and defining the network structure
- Measuring public impacts
- Informing the work of NISE Net

Studying NISE Net structures

- New study examines communication flow within NISE Net as a way to refine and define our image of the network structures



- Existing mental model places people as the connecting nodes
- Possibility of non-human forms of communication
  - NanoDays kit as a boundary object?
  - Meetings as a potential structure?
  - Nisenet.org?

Measuring public impact directly

- Studies directly measuring NISE Net **products** demonstrate impact
- Studies measuring NISE Net **activities** are inconclusive
- Possible reasons:
  - Do “modifications” change the impacts?
  - Are the experiences too varied to be measured against narrowly defined goals?
  - Is there only a narrow range of experiences that are successful?

Measuring public impact indirectly

- Counting participation
- Professional impacts
  - Theory of action articulates ISE professionals/university affiliates as pathway for reaching the public
  - Hard to link professional to public impacts as little is known about how ISE professional actions influence public learning

Informing the work of NISE Net

- Early in NISE Network
  - Inverness evaluated network impacts
  - Multimedia evaluated public impacts
  - In-house evaluators conducted formative evaluation on educational products
- Challenges
  - Divisions were not always clear
  - Evaluators were less “networked”
  - Capacity exceeded demand
  - Products were being formatively evaluated, but the broad range of implementations were not

Informing the work NISE Net

- Current model
  - Multi-institutional, collaborative team
    - Three evaluation departments
    - Committee of visitors
    - Targeted studies of the Network
  - Team-based inquiry
    - Practitioners conduct own studies
    - Aimed at product/practice improvement and professional learning
    - Already launched in Tier 1
    - Discussions of a Tier 2 launch

This presentation is based on work supported by the National Science Foundation under Grant No. 0940143. Any opinions, findings, and conclusions or recommendations expressed in this presentation are those of the authors and do not necessarily reflect the views of the Foundation.