Findings from NISE Net's Public Impact Studies

Monday, October 5th - Today's presenters are:

Marjorie Bequette, Steven Guberman, and Maggie Sandford from the Science Museum of Minnesota, and Gina Svarovsky from the University of Notre Dame

As we wait to get started with today's discussion, please:

Introduce yourself! Type your name and institution into the chat box.

Call into the phone line (optional) at (877) 898-0037 (if using the phone line please make sure to mute your phone when not talking and also your computer's microphone).

Questions? Feel free to type your questions or comments into the chat box at any time.

Today's discussion will be recorded and shared on nisenet.org at:
http://nisenet.org/events/online-workshop

NISE network™
NANOSCALE INFORMAL SCIENCE EDUCATION
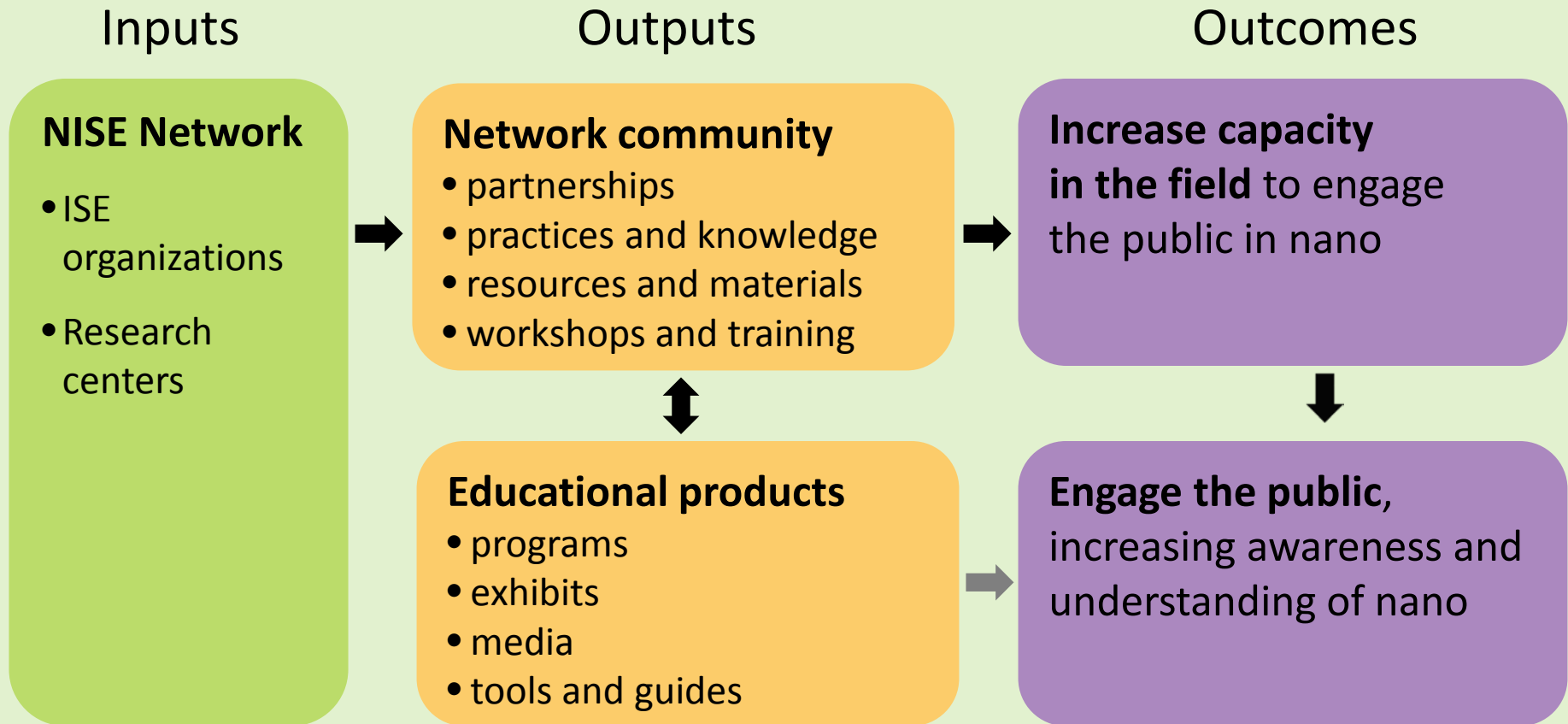
The NISE Network's Public Impacts

Poll #1 – How Familiar Are You with NISE Net?

Nanoscale Informal Science Education Network

The NISE Net is a national community of researchers and informal science educators dedicated to fostering public awareness, engagement, and understanding of nanoscale science, engineering, and technology.

NISE Network Logic Model

Inputs

NISE Network

- ISE organizations
- Research centers

Outputs

Network community
- partnerships
- practices and knowledge
- resources and materials
- workshops and training

Educational products
- programs
- exhibits
- media
- tools and guides

Outcomes

Increase capacity in the field to engage the public in nano

Engage the public, increasing awareness and understanding of nano

Unique Characteristics of NISE Net

- Size

- Timeline

- Content

- Open-source philosophy

NISE Network Partners
2005-2014
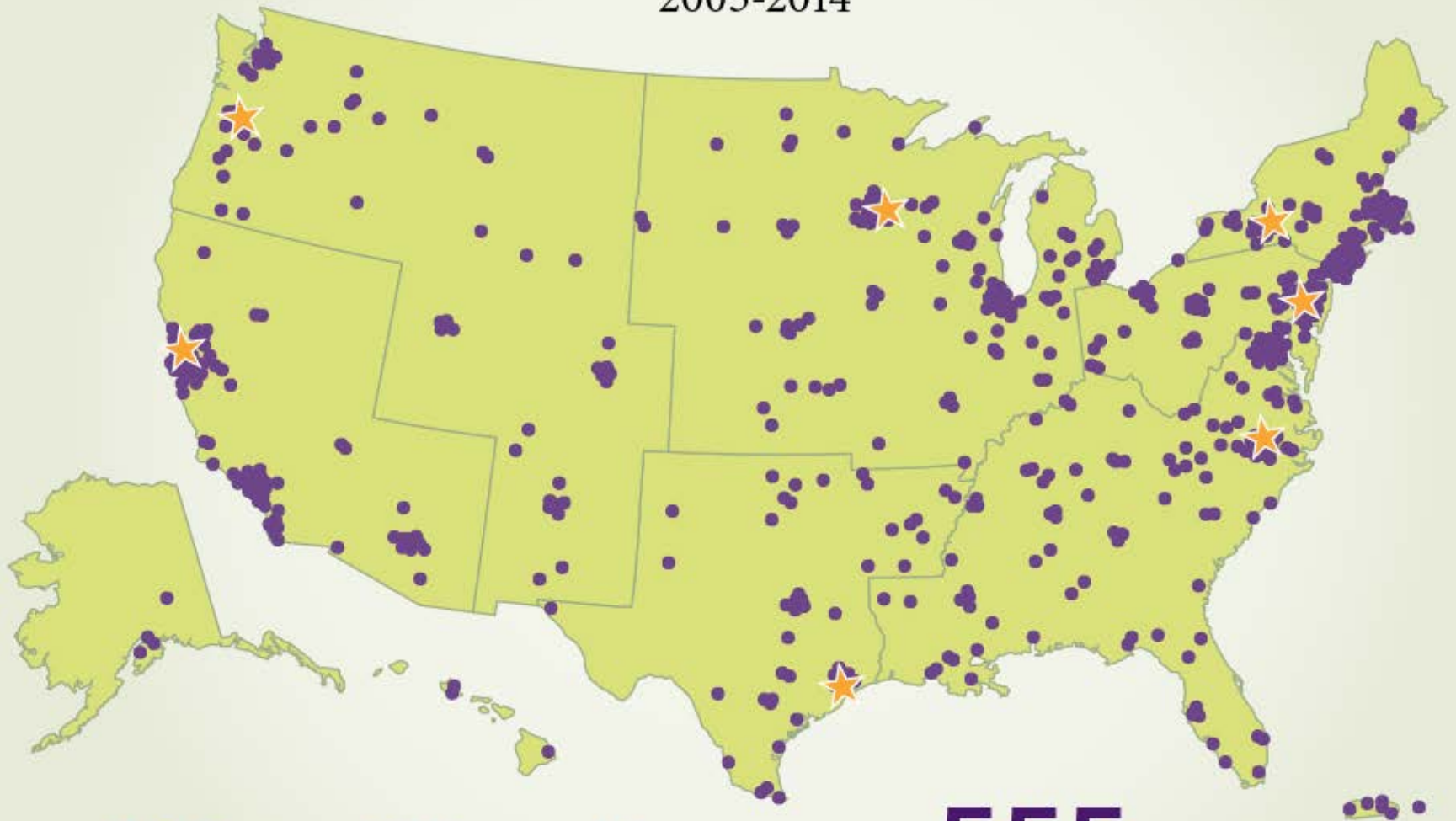
322 MUSEUMS **192** UNIVERSITIES **41** OTHER

555 PARTNERS

Unique Characteristics of NISE Net

NanoDays
The Biggest Event for the Smallest Science!

- Size

- Timeline

- Content

- Open-source philosophy

NISE Net Timeline

Years 1-5: (2005-2010)

- Building the network

Years 6-10: (2010-2015)

- Engaging the public through the network

Unique Characteristics of NISE Net

- Size

- Timeline

- Content

- Open-source philosophy

NISE Net Content

Unique Characteristics of NISE Net

- Size

- Timeline

- Content

- Open-source philosophy

NISE Net Open-Source Philosophy

Brown Bag Agenda

- Summative Evaluation & Public Impact of NISE Products

- Overall Reach

- Nano Richness at Partner Institutions

- The Big Picture & What It Means for You

- Questions & Discussion

NISE Net's Biggest Deliverables

Speaker: Gina Svarovsky

- *Nano* Exhibition

- NanoDays

- Public Impacts
  - Reach
  - Use/Experience
  - Learning

Poll #2 – *Nano* Exhibition Trivia!

Summative Evaluation: *Nano* Exhibition

Context in 2012

- Seven copies installed, first large batch in production

- NISE Net leadership had not finalized total number of copies

Summative Evaluation: *Nano* Exhibition

Methods

- Counting study

- Visitor use/learning data collection

    - Representative sample of institutions

    - Additional exploration of specific audiences

Summative Evaluation: *Nano* Exhibition

Findings: Reach

- Over 1.1 million people reached every year just from the initial 7 copies.

Summative Evaluation: *Nano* Exhibition

Findings

Use, Experience, and Learning

- Evidence of:
  - interest and enjoyment
  - sustained use
  - multi-generational use
  - social interaction
  - use of panels AND interactives

- *Nano* also promoted nano learning for visitors.

Summative Evaluation: *Nano* Exhibition

Findings

Use, Experience, and Learning

- *Nano* was successful in different types and sizes of institutions.

- *Nano* showed promise for being successful with Hispanic visitors and visitors with disabilities.

- *Nano* catalyzed additional programming.

After the Evaluation: *Nano* Exhibition

- Initially, ~70 copies of *Nano*; after the summative evaluation, the decision was to make 90+

- Based on the 93 copies distributed, the projected annual reach of *Nano* is 9.5 million people per year

Poll #3 – NanoDays Trivia!

Summative Evaluation: NanoDays Events

Context in 2014

- 250 kits distributed

- NanoDays kits were all the same, but all the events were different

Summative Evaluation: NanoDays Events

Methods

- Definition of *two* public audiences
    - attendees
    - volunteers

- Event day data collection at a representative sample of 9 sites

- Drew on prior studies in order to update reach estimates

Summative Evaluation: NanoDays Events

Findings: Reach

- In 2014, NanoDays events reached an estimated 184,000 people.

- There were nearly 5,000 volunteers across all of the 2014 NanoDays events.

26

Summative Evaluation: NanoDays Events

Findings

Use, Experience, and Learning

- Event attendees and volunteers found NanoDays interesting and enjoyable.

- NanoDays promoted learning of nano concepts for event attendees and volunteers.

Summative Evaluation: NanoDays Events

Findings

Use, Experience, and Learning

- Volunteering at NanoDays positively impacts interest in STEM activities and careers.

- Volunteering at NanoDays increases confidence around engaging the public in nano.

Overall Reach of NISE Net

- *Nano* Exhibition
  - On display 2012 - 2015

- NanoDays
  - Events happening 2008 – 2015

  - Kit use throughout the year

Overall Reach of the NISE Net

Public Reach of the NISE Network

By 2015, it is estimated that the NISE Network will have reached over 30.4 million people.

Y-axis: Estimated Number of People Reached, in millions (12.00, 10.00, 8.00, 6.00, 4.00, 2.00, -)

X-axis: 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015
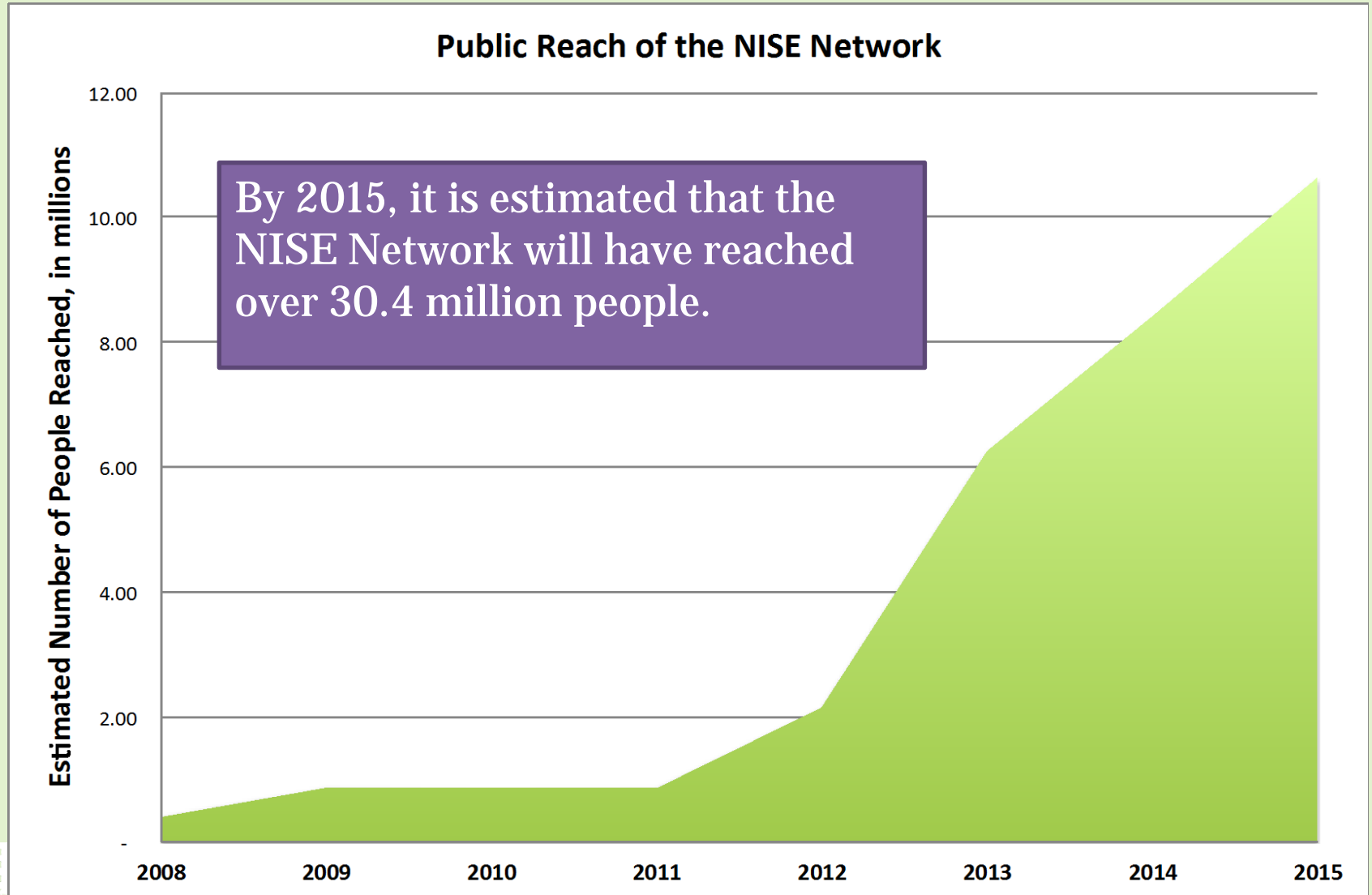
Nano Rich Public Impacts Study

Speaker: Steven R. Guberman

NISENET.ORG

Focus 1: Evaluation Goals

FOCUS 1:

DESCRIBING THE NETWORK

- What does the NISE Network look like with respect to nano offerings for the public?

Focus 1: Methods

- Highly involved organizations (N = 203)

- 6 indicators of Nano Richness

  4 indicators from previously collected information

  - NanoDays 2014 event

  - Owning or sharing a Mini-Exhibition

  - Use of mini-grant

  - Use of NanoDays kits outside of NanoDays

  2 indicators from Regional Coordinators

  - Rating of the public impact of NanoDays 2014 event
  - Rating of overall Nano Richness
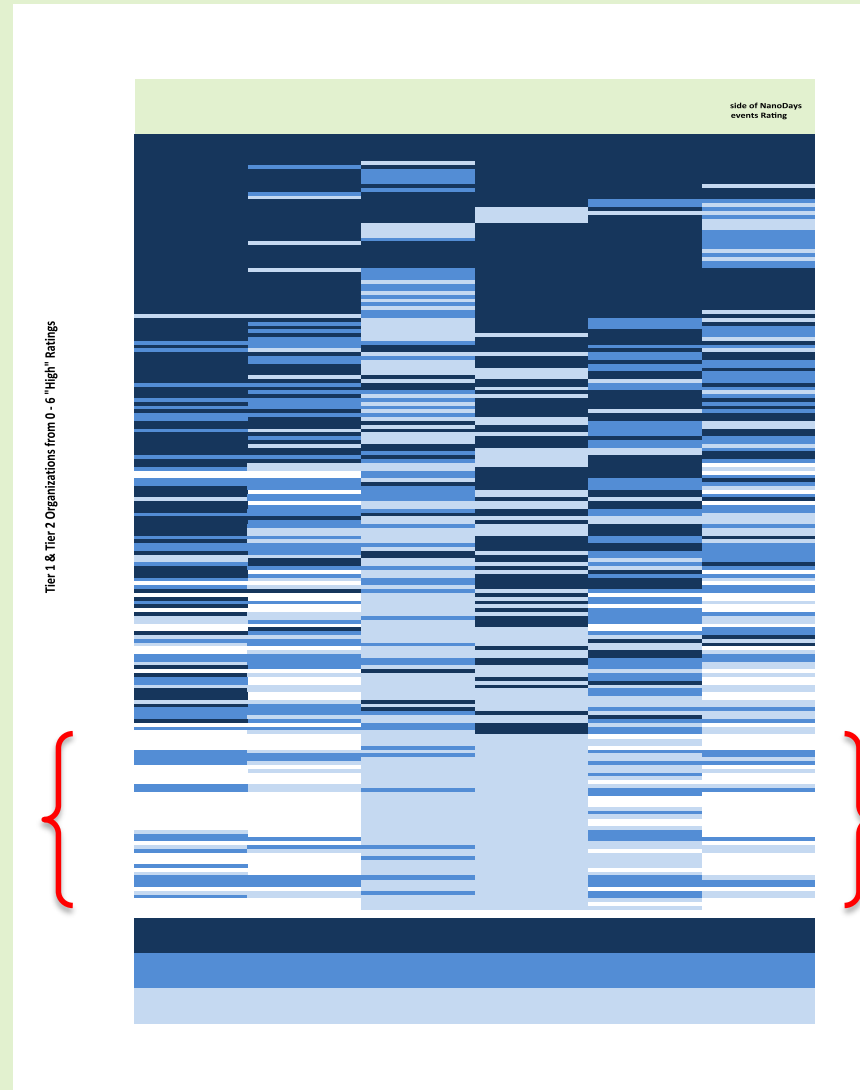
Focus 1: Describing the Network
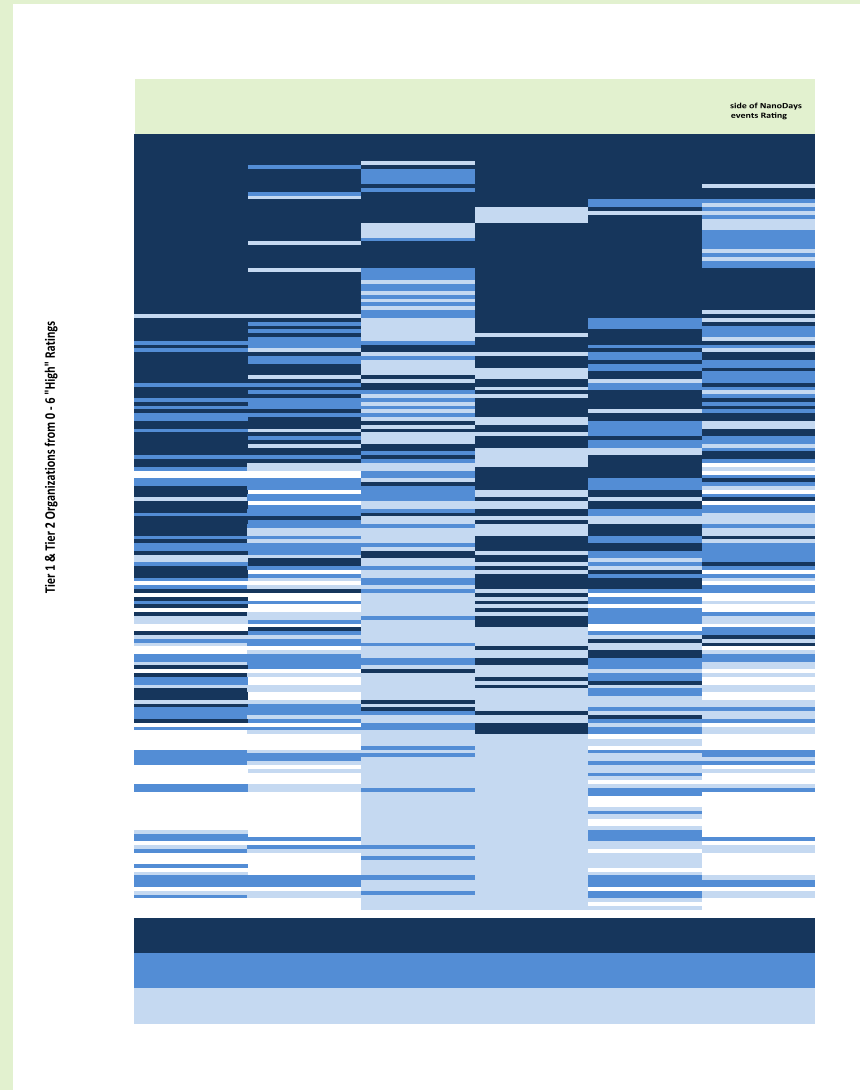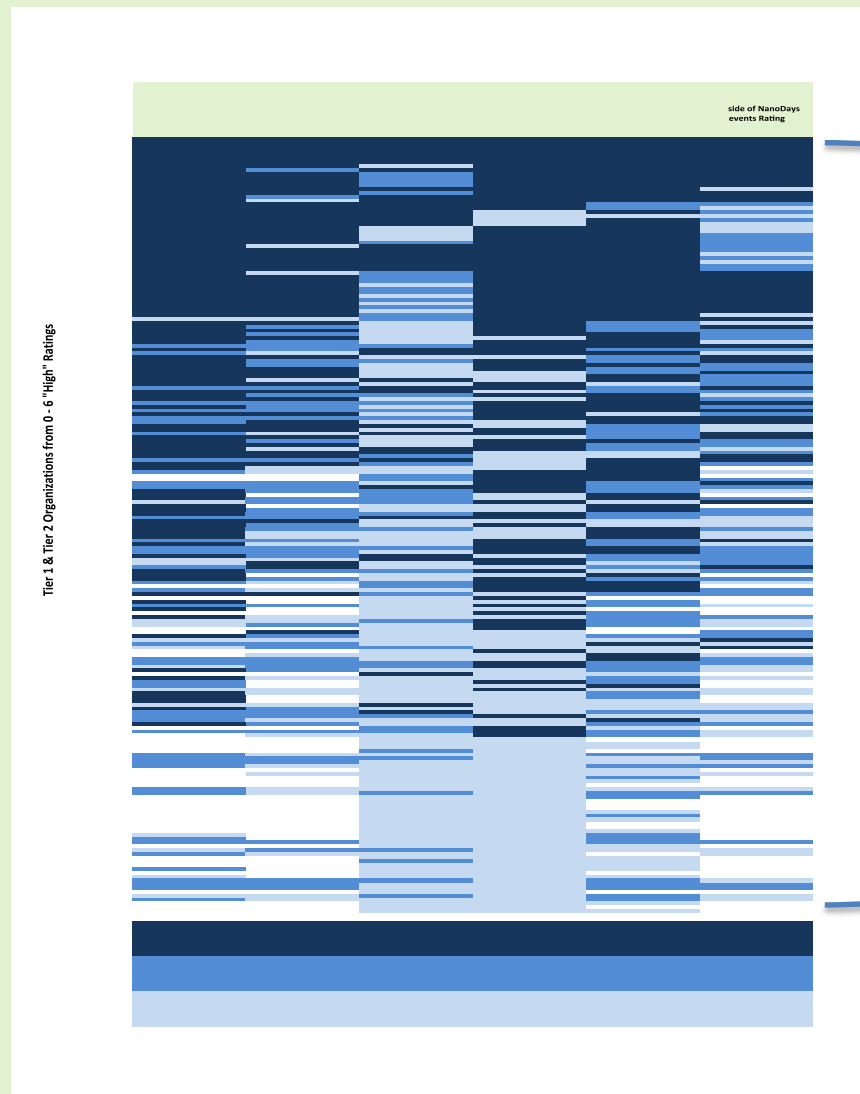
Focus 1: Describing the Network

203 Organizations

Focus 1: Describing the Network
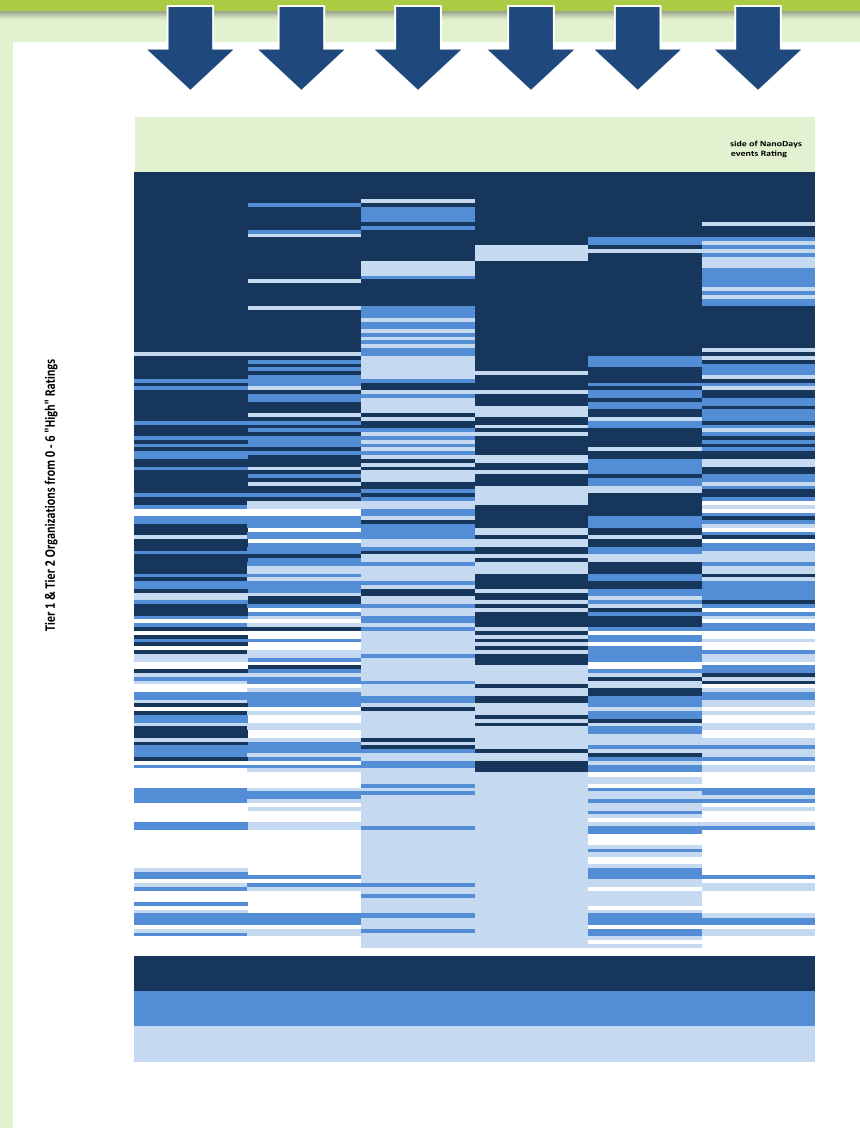
Focus 1: Describing the Network
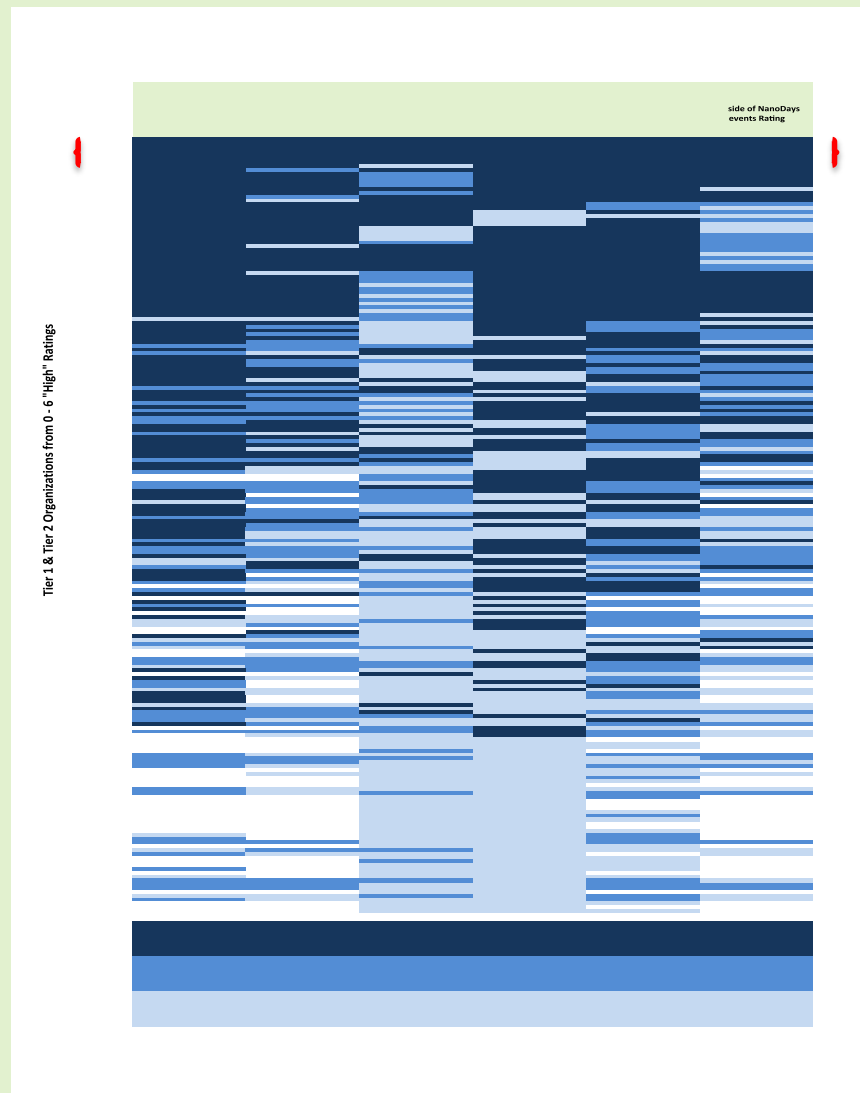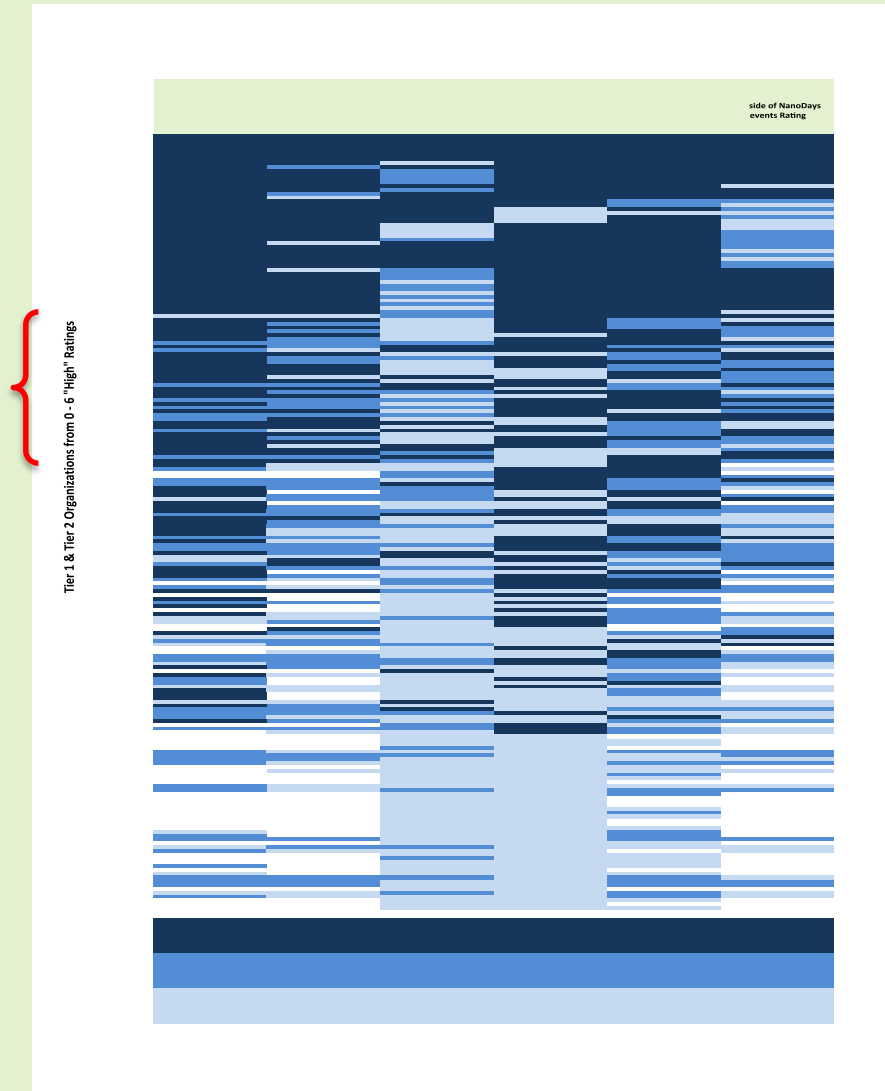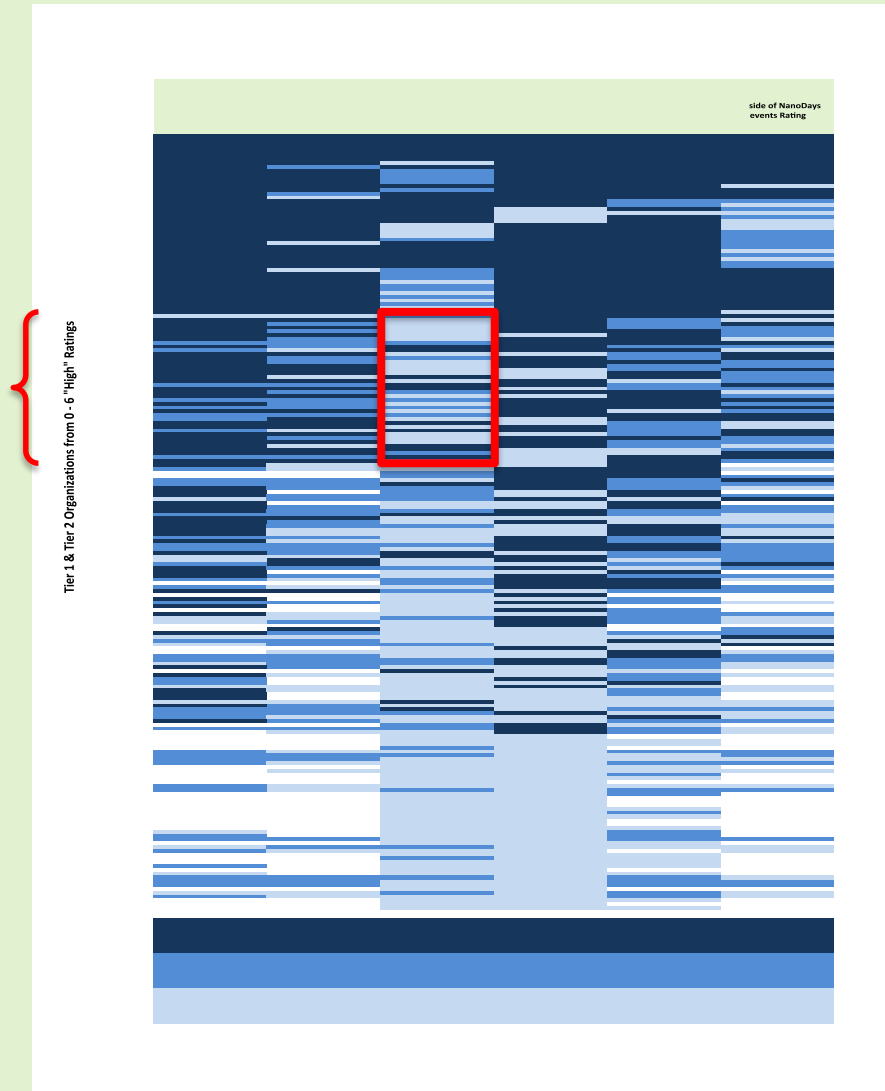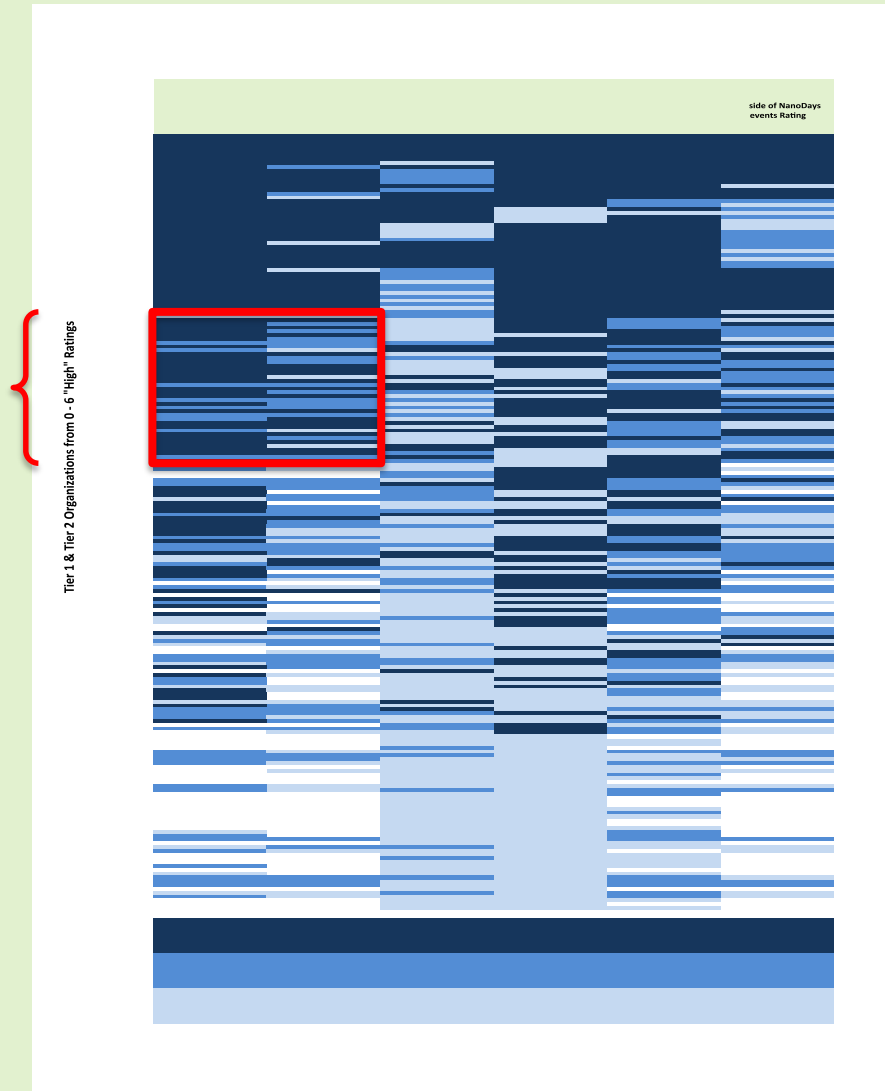
Focus 1: Describing the Network

Focus 1: Describing the Network

Focus 1: Describing the Network

Focus 1: Describing the Network

Focus 2: Evaluation Goals

FOCUS 2:

DESCRIBING NANO-RICH ORGANIZATIONS

- What are different ways that organizations can be Nano-Rich?
  - Audiences
  - Nano experiences
  - Learning goals

Focus 2: Methods

- Identify Nano-Rich organizations and staff members to interview
    - 14 sites: children's museums, science centers/museums, universities
    - 19 staff members

- Conduct interviews with staff members
    - What **audiences** are you trying to reach with nano content?
    - What **nano experiences** do you provide for each audience?
    - What are your **learning goals** for each audience?
    - What are visitors **taking away** from their nano experiences?

Focus 2: Nano Experiences for Visitors

Nano Experiences by Organization

| Organization	NanoDays	Mini-exhibit	Events or lectures	Cart or floor demos	Other hands-on activities	Theatre program	Camp or after-school program	Signs or posters	Student outreach	General community outreach	Nano lab or clean room	Total
1	■	■	■	■	■		■	■	■	■		9
2	■	■	■	■		■	■	■	■	■	■	10
3	■	■			■		■	■				6
4	■	■	■	■			■		■	■		8
5	■	■			■	■						5
6	■	■		■	■		■		■			7
7	■	■		■		■						4
8	■	■	■	■	■					■		6
9	■	■										3
10	■	■			■			■	■		■	9
11	■				■		■	■	■	■		8
12		■	■	■			■	■			■	6
13	■		■							■		3
14	■		■									2
Total	13	12	10	9	8	6	7	6	6	6	3	86

KEY		
Children's Museums	Science Centers or Museums	University

Focus 2: Variety of Learning Goals

Types of Learning Goals by Type of Organization
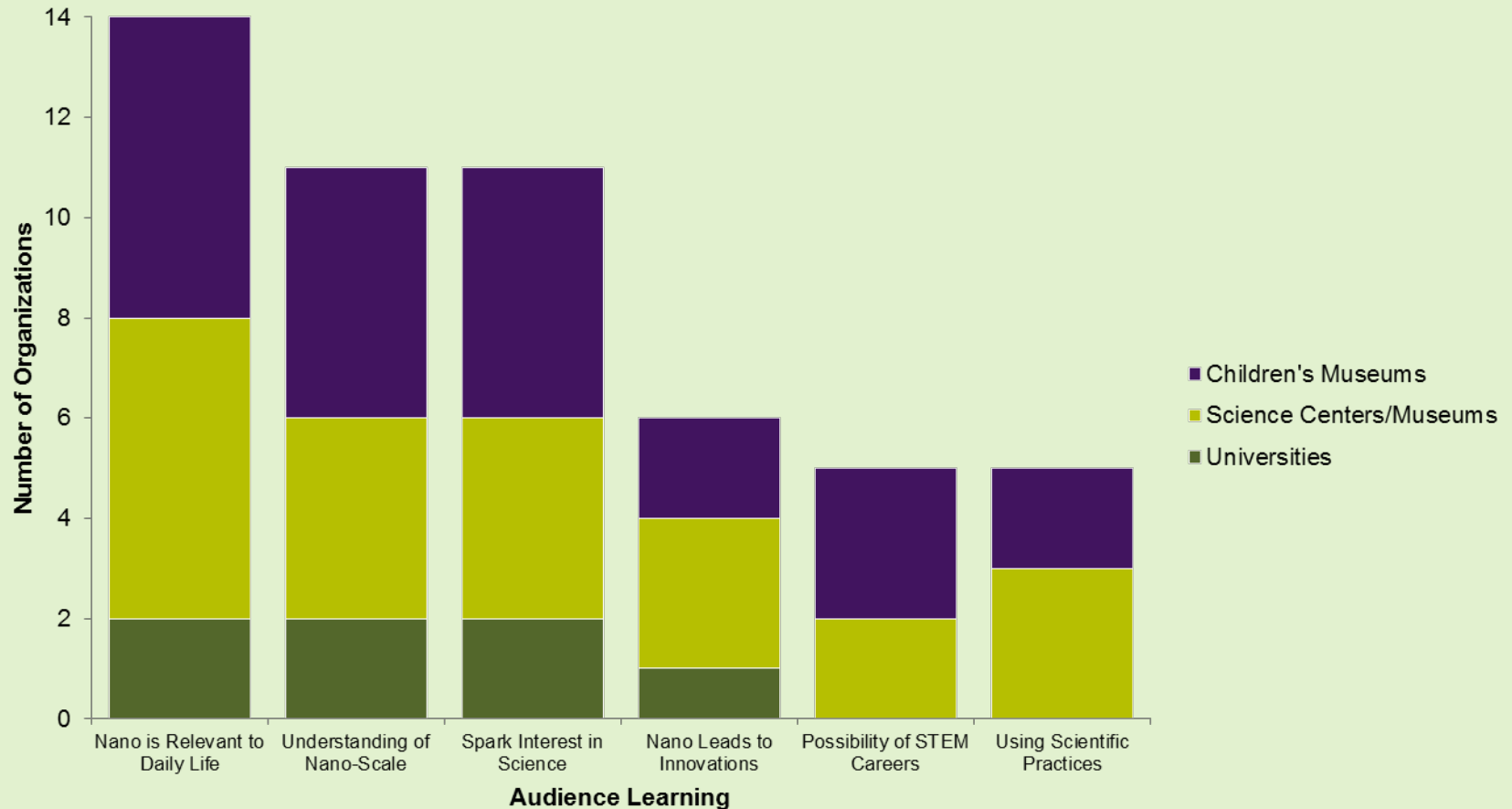
# Nano Richness Study: Conclusions

- Within organizations
  - Reaching many kinds of audiences
  - A variety of types of nano experiences
  - Multiple learning goals
  - Confident that public is getting main messages

- Across organizations
  - Variability in public offerings and experiences
  - Similar goals

- Many ways to be Nano-Rich

Reach & Nano Richness

Speaker: Marjorie Bequette

Combined Reach and Nano-Rich Analysis
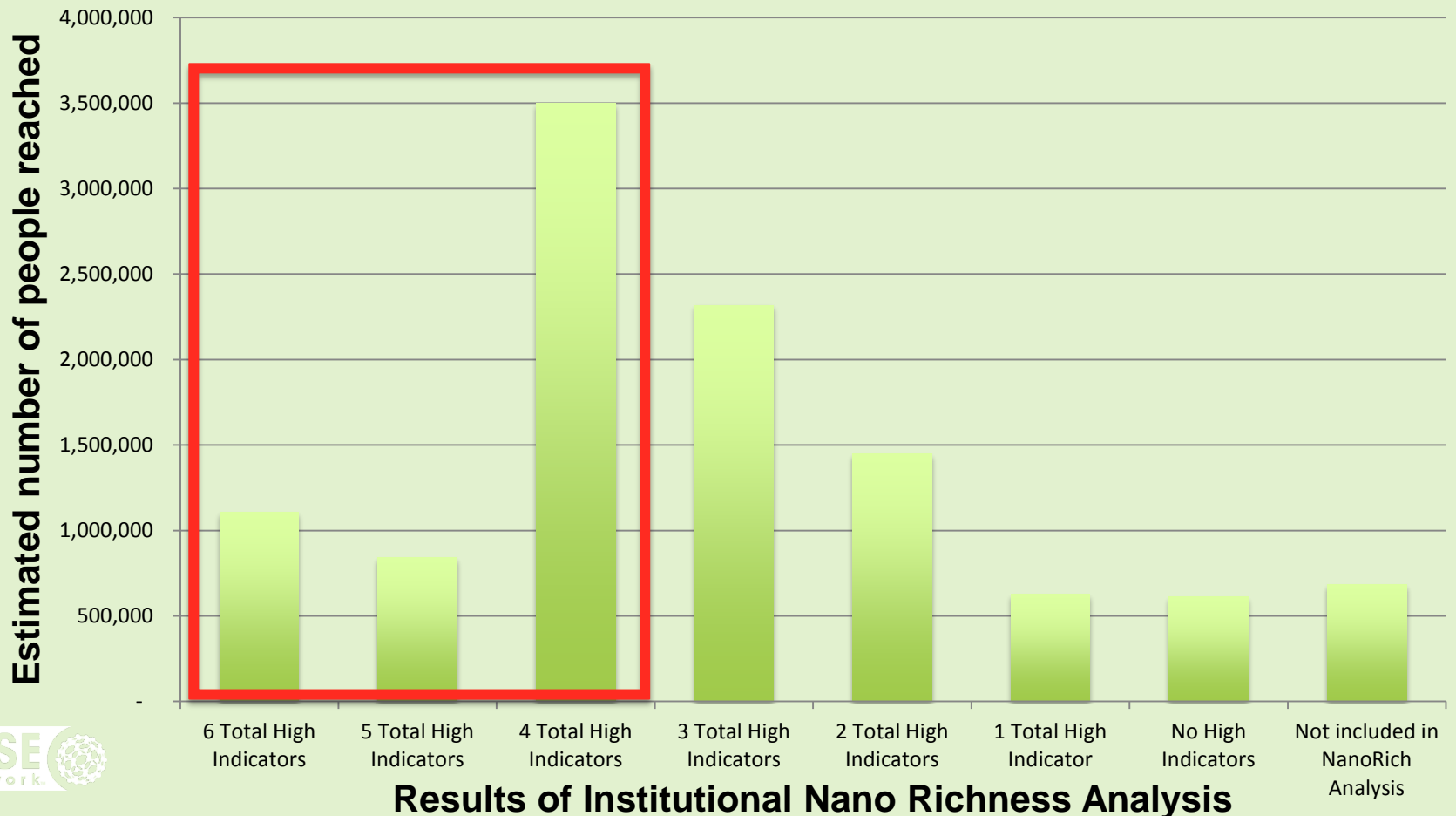
Audience Experience: Research Projects

NISE Public Learning & Decision Making

Museum of Science, Boston & Science Museum of Minnesota

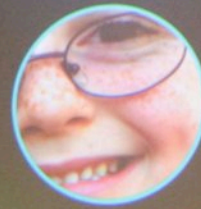## NISE Net's Digital Footprint

University of Wisconsin

What might this mean for you?

Does it help:

- To understand your institution?

- To understand NISE Net?

- To understand the ISE field?

- In considering methods for evaluation and understanding public impact?

Questions & Discussion

NISE Net Evaluation Resources

Further Information & Reports:

http://www.nisenet.org/About_Evaluation_Research

Thank you!