



EDUCATING THE NEXT GENERATION

**INFORMAL STEM EDUCATION**  
**Museum - University Collaborations**  
**Strategic Issues and Transformative Work**

**Al DeSena, NSF/DRL**

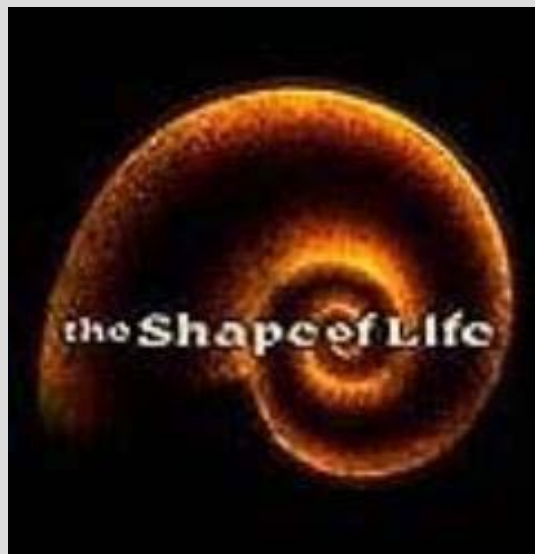


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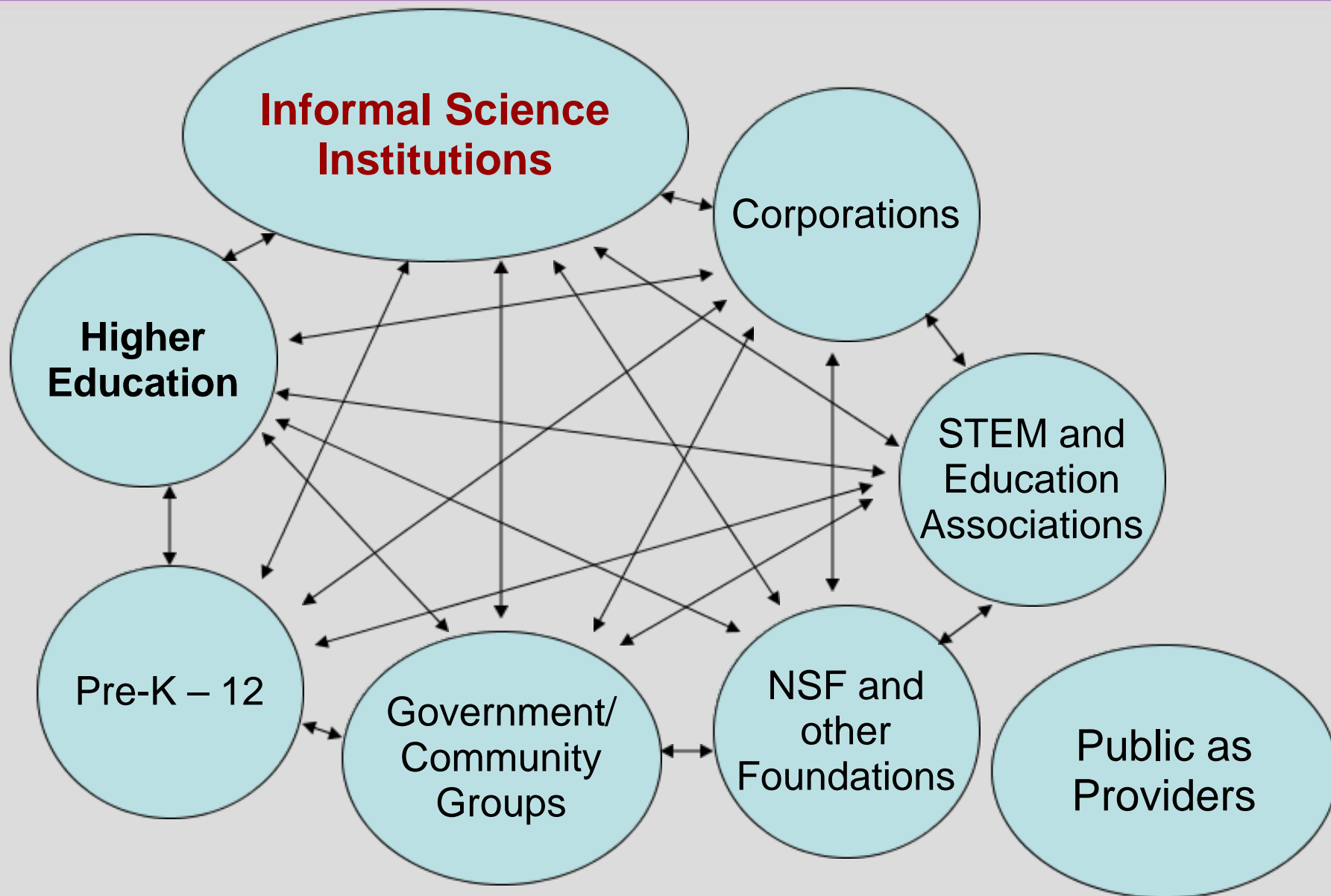
# Critical Strategic Issues for Informal Science Education



- What should be the most **significant kinds of public and professional impacts** that our informal STEM education activities produce?
- How might NSF's Informal Science Education Program foster **transformative work** by the field?



# ISE Program Context: Informal STEM Education “Messy System”



# Some General Trends/Issues Affecting the Education “System”



## Population Dynamics

### Relationship of STEM to Society

### Cyber-revolution and implications for all aspects of life and work

### Where, when and how people learn

**Solar Acoustic Wave**

# Some Trends/Issues in Informal STEM Education



## Common Trends/Issues

- Merging and mixing/matching of learning environments / settings
- “Professionalization” of the field, organizational infrastructure, knowledge base
- STEM education and outreach in higher education, STEM professional associations, etc.



## Specific Trends/ Issues

- Needs of different kinds of Informal Science Institutions  
Museums (of many kinds), zoos, aquariums, libraries, TV, film, radio, after-school programs, cyber-learning, etc.

# INFORMAL SCIENCE EDUCATION PROGRAM



***ISE Program GOAL: Advance both STEM learning and the field of ISE.***

## **What kinds of public impacts?**

- Science Literacy
- Public Understanding
- Public Engagement
- STEM Careers
- STEM-savvy culture
- Innovative culture
- Framing STEM Communications

LEARNING

## **What kinds of capacity-building impacts?**

- Professional development
- Organizational infrastructure
- Knowledge generation and application

# CONCEPTUALIZING “THE PROBLEM OF IMPACTS” - Alternatives



- Conceptualizing “the problem of impacts” from alternative frames of reference - calling on different disciplines/areas of expertise as resources for addressing (transforming?) the problem.
- Innovation/transformativ e work derives more from “problem definition” than from



## ALTERNATIVE / INTERACTING MODELS

**Science Literacy, Public Understanding of Science  
Facts/Phenomena/Concepts versus Process, Habits of Mind, etc.**

**Public Engagement with STEM-related Social Issues and Interaction with  
STEM researchers**

**Pipeline: Interest in STEM careers**

**Learning in the Context of Building a Culture/Community/Society**

- **STEM-Savvy Culture**
- **Innovative Culture**

**Learning in the Context of “Framing” STEM Communications**

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