Broader Impacts
Identity and Design
Workshop
for Early Career Faculty

A Framework for Connecting Science and Society

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<td>1:00 pm</td>
<td>Welcome, Agenda and Aims</td>
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<td>1:15 pm</td>
<td>NSF Broader Impacts (BI) – Quick Overview &amp;</td>
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<td>1:45 pm</td>
<td>BI Identity Framework: Individual and Group</td>
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<td>Impact Identity Statements Discussion, Q&amp;A</td>
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<td>2:50-3:00 pm</td>
<td>Next Steps, Wrap Up, Workshop Evaluation (5 min</td>
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Aims

- Figure Out
  - What would I enjoy doing?
  - What can I do?
  - What should I do?

  - What resources do I need to be successful?
What are Broader Impacts?

NSF Broader Impacts potential (for your research and educational work) to benefit society and contribute to the achievement of specific, desired societal outcomes.”
NSF’s Desired Outcomes for Broader Impacts

- Full participation of women, persons with disabilities, and underrepresented minorities in STEM
- Improved STEM education and educator development at any level
- Increased public scientific literacy and public engagement with science and technology
- Improved well-being of individuals in society
- Development of a diverse, globally competitive STEM workforce
- Increased partnerships between academia, industry, and others
- Improved national security
- Increased economic competitiveness of the United States
- Enhanced infrastructure for research and education

BI Trends in Awards across NSF Directorates: Broadening Participation & Broad Dissemination of Outcomes
Dr. Susi Iocono, NABI 2018, 2019, ARIS 2020

NSF has outlined 9 strategic areas for societal impacts
Integration

“NSF’s mission is particularly well-implemented through the integration of research and education and broadening participation in NSF programs, projects, and activities” (Merit Review from PAPPG 2018, 2019, 2020, 2021).
NSF Broader Impacts potential to benefit society and contribute to the achievement of specific, desired societal outcomes.”

- Research itself CAN BE the broader impact
- BI activities can be directly related to the research project
- BI activities can be supported by or complementary to the project

“If the research itself is transformational, that is enough; but most researchers can’t make that case at the proposal stage; so they need to do something else” (Susan Renoe NABI, ARIS, B. Olbricht, NSF ENG panel reviews).
Evolution of BI at NSF

1997
Broader Impacts Criterion
5 Explicit Elements
Merit Review Process

1997
America COMPETES Act, ReAuthorized

2010
• Integration of proven strategies that link research and BI
• PIs can allocate funds (assess/eval BI)
• Agency-wide trainings for BI (reviewers)

2010
Agenda for America: Opportunities and Challenges in Education and Workforce Training

2011
• NSF Strategic Plan 2011-2018
  - National Science Board, NSF governing body, task force on Merit Review for BP.
  - NAS, PCAST: Broadening Participation

2011
• NSF Continues BI/BP Investment
  - NABI (National Alliance for Broader Impacts) funded: 3 directorates

2011-2018
• National Science Board, NSF governing body, task force on Merit Review for BP.
• NAS, PCAST: Broadening Participation

2013
NSF Strategic Plan

2013
PAPPG - Significant Changes
• 9 BI Criterion - removed specific activities references
• Separate grant sections on BI: narrative, results from prior NSF Support
• IM and BI evaluated with same Merit Review criteria
• Proposals and reports require “sufficient detail to assess the projects benefit to society”

2014
NSF Continues BI/BP Investment
• NABI (National Alliance for Broader Impacts) funded: 3 directorates

2018
National Momentum
• NSF Strategic Plan 2018-2022 - ‘Advance State of BI Practice’
• NABI: Current State on BI Report

2021
• NSF Strategic Plan 2018-2022 - ‘Advance State of BI Practice’
• CISE - Directorate-wide Strategic Plan on BP - BP / Opportunity
• ARIS - All Directorates Funding

2021
NSB Convening: Improve Review Panels: Broader Impacts Professionals on Review Panels
Broader Impacts are:

Specific
Strategic
Flexible
Non-prescriptive

“NSF is not a monolith” ... Proposals are reviewed in diverse directorates/fields, with their own cultural values, beliefs, needs, and agendas. Implemented in diverse cultures, environments and communities.
NSF CAREER Grants: **RFP Purpose**

- "Is a Foundation-wide activity that offers the NSF’s most prestigious awards in support of early-career faculty who **have the potential to serve as academic role models in research and education** and to lead **advances in the mission of their department or organization**. Activities pursued by early-career faculty should **build a firm foundation for a lifetime of leadership in integrating education and research.**"
Innovation in BI: Link Strategy & Identity

Broader Impacts Strategy

Alignment with NSF’s Strategic Aims:
- Merit Review Criteria
- PAPPG/RFP
- NSF Strategic Plan 2018-2022
- NSF Reports and Data in STEM
- Directorates – Funded Programs
- Reviewer’s Insights

Broader Impacts Identity

You
Field
Society
Capacity
Institution
Scholarship

(Risien, J. et al. 2018)
Impact identity is a concept that integrates scholarship in a scientific discipline with societal needs, personal preferences, capacities and skills and one’s institutional context.

What is your Broader Impacts identity?

Exercises 1-5

Exercises will move along with worksheet

Worksheet helps to directly support the development of your proposal BI outline
Exercise 1 (5 minutes)

In Break Out Rooms: give your research ‘elevator pitch” in 3 sentences (~1 minute)

Take turns describing your current research/career focus and reflect on your field’s natural connections to societal needs and issues.
Exercise 2 (5 minutes)

Name your field & its connections to societal issues & needs.

Which connections most resonate with you and align with your work?

Discuss in your group issues that are most pressing, interesting or important to you.
Exercise 3: Early Motivators in your career
Free phrasing

Think about, list, discuss:
• What were your early motivators for going into your field, being a research/teacher, how did you feel about the path ahead?
• In what ways were/are you hoping to change the world and why did you choose this path, what about it did you find exciting or important?
• How are things different now?
• Have your passions changed or evolved?
• Do believe something more or different is possible?
Exercise 3: free phrasing continued

In the present and looking forward:

• How might your work make a larger societal impact, who might your work directly impact?

• What is the (your) hidden potential?
Exercise 4: Draft your Impact Statement (vision goals) – 10 minutes

Work to draft a 1-3 sentence impact identity and goals statement – help each other!

• Who are you, what impact can your work have?
• What change do you want to see as a result of your work and why?
• Who is (are) your audience(s) or beneficiaries?
• What are your preferred processes to realize desired impacts?
Exercise 5: identifying your impact capacity & assets (5 minutes)

Explore, discuss and record:
• What people, programs, expertise, partners, institutions, tools do you already have access to that can help you reach your impact goals?

• What other people, programs, institutions, partnerships, etc. do you need?
Building your Broader Impacts Identity

You

Field

Capacity

Society

Impact Identity!
Exercise 5: Next Steps (3 minutes)

How will you continue down the path of developing and defining your BI identity?

• One thing to do:

• One person to contact (or request a connection with):
Share out, discussion, comments, and Q&A
Next Steps

Save the date: May 18/19 2021  Broader Impacts Partnerships Forum

- Internal and Community Based Resources and Partners: OEI, Cornell Cooperative Extension, 4H Youth Development, Sciencenter, TC3, WSKG, CCE, PRI, CSI, ICG, Engaged Cornell, PSC
- Establish sustainable BI partnerships, broaden participation in your programs, learn about opportunities to innovate in the classroom, evaluate impact,
- Meet & Greet & Learn about Successful BI Programs and Resources

Individual BI meetings, contact me: tfleming@cornell.edu
Continued relevance - your BI identity & your proposal(s)

You are here for the next few months!

- Design an Excellent BI Plan
- Evaluation & Reporting
- Expertise, Time, and Resources
- BI implementation
Resources

What’s out there now?
How do you connect to the right resources?
Resources at a Glance

**INTERNAL**
- OSP/CALS – Research Development Team
- BID project staff and toolkit
- Office of Faculty Development & Diversity
- Center for Teaching Innovation
- Office of Engagement Initiatives
- Public Service Center – McCormick Center for Teaching Excellence in Engineering
- The Graduate School
- K-12 Outreach Programs
- Sci. Communication Trainings
- Peers: Case Studies
- Existing BI programs on campus
- This network

**EXTERNAL**
- NSF Strategic plan 2018-2022
  - NSF data/reports on Societal Trends and Indicators
  - NSF – Portal to the Public
- NABI – listserv, summit
- ARIS – fellowships, PD, assessment
- Community Based Organizations
- National and International Collaborators
- Professional Societies
Thank you
Tips for Broader Impacts Design

Develop a BI Identity & Strategy
- Make sure your Interests, abilities, aims, and resources align
- Gain experience in BI areas that are of true interest to you, build on things you have done and enjoy doing
- Expand your skill set: what are best practices in STEM mentoring, teaching, communications, diversity, inclusion, K-12 programs
- Leverage Resources- OEI, Sciencenter, CTI Grad School PD, Professional Societies,
- Build BI plan over time and alongside research and education career aims
- Have clear goals

Approach BI like you do your Research
- Address a challenge, societal issue or need
- Use data (theory/scholarship) to justify the need and the approach for the project
- What’s being done now? What’s the best approach and why?
- Assign adequate resources, build a team to do this
- Track results
- Share your outcomes

Integrate Student Development in IM and BI Plans

Partnerships are helpful; create and leverage them
- Assemble the right team/resources - partners, advisors
- Pilot and grow over time
- Be clear about your objectives and design a plan that allows you to measure progress/impact
- Budget for their time and expertise. Make a commitment to the project and the partner.
NSF Resources

NSF’s BI webpage: http://www.nsf.gov/od/oia/special/broaderimpacts/
NABI website: www.broaderimpacts.net

Publications:
- NSF’s Perspectives on Broader Impacts
- NSB’s NSF Merit Review Criteria – Task Force on Merit Review
- NABI’s BI Guiding Principles and Questions for NSF Proposals
- Tankersley and Bourexis (2013) “Broader Impacts 2.0 Frequently Asked Questions about Revisions to NSF’s BI Criterion”
New BI Design Tools and Resources developed across 3 partner sites; now being tested with 6 new teams at universities and museums across the country.

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