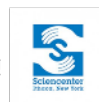# Broader Impacts Identity and Design Workshop for Early Career Faculty

A Framework for Connecting Science and Society

Tiffany Fleming, Research Impacts & Partnerships Manager tfleming@cornell.edu

Office of Sponsored Programs & Research Development & Office of Engagement Initatives

NSF CAREER Series:
Broader Impacts Identity Workshop

	AGENDA & AIMS
1:00 pm	Welcome, Agenda and Aims
1:15 pm	NSF Broader Impacts (BI) – Quick Overview & Discussion
1:45 pm	BI Identity Framework: Individual and Group Exercises
2:30-2:45 pm	Impact Identity Statements Discussion, Q&A
2:50-3:00 pm +5	Next Steps, Wrap Up, Workshop Evaluation (5 min electronic)

Aims

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

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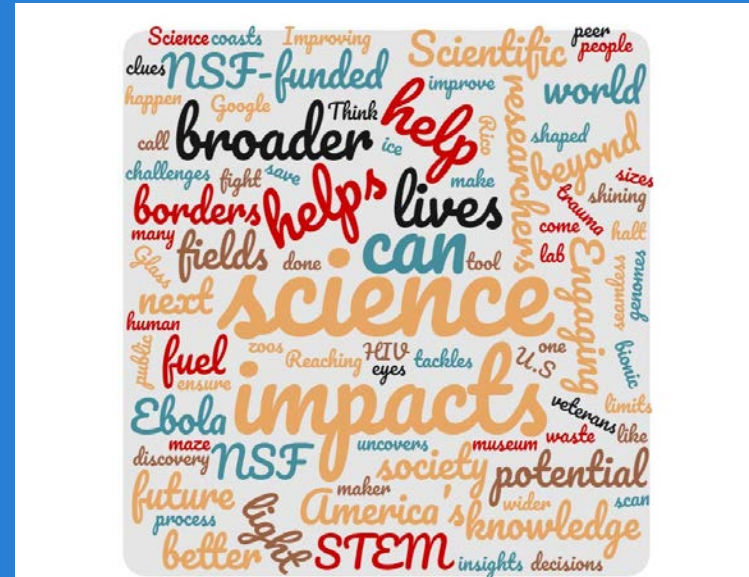
Broader Impacts

Burden   Opportunity
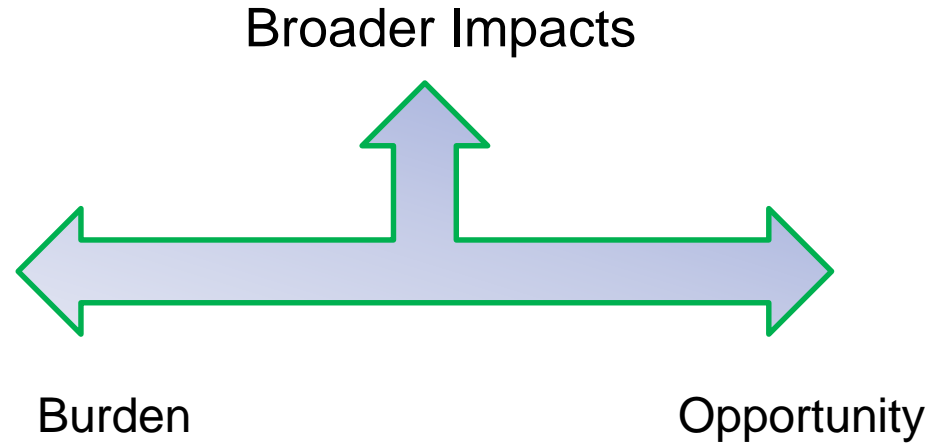
What are Broader Impacts?

NSF Broader Impacts potential (for your research and educational work) to **benefit society** and **contribute to** the achievement of specific, **desired societal outcomes**."

1997

NSF's Desired Outcomes for Broader Impacts

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

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

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).*
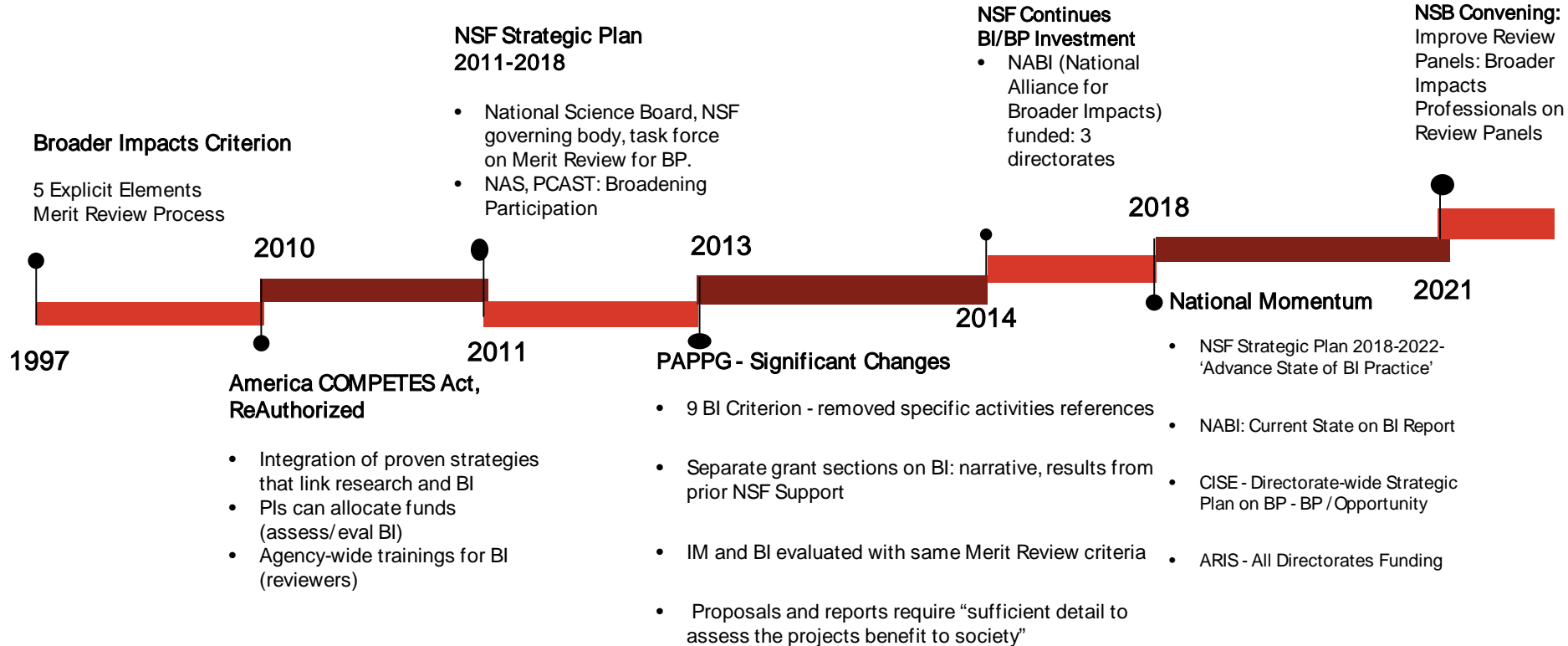
NSF Broader Impacts potential to benefit society and contribute to the achievement of specific, desired societal outcomes."

- 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).
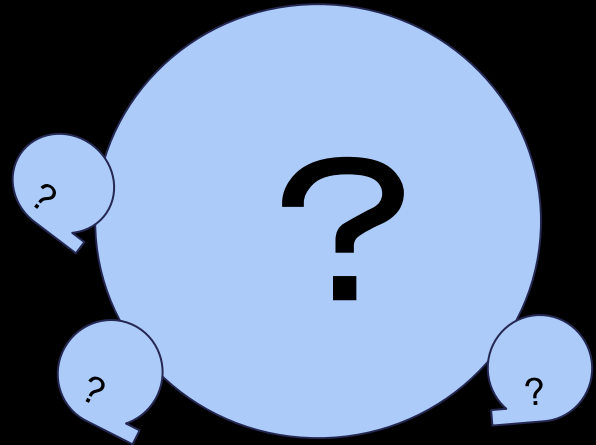
Evolution of BI at NSF

Broader Impacts Criterion

5 Explicit Elements
Merit Review Process

1997

2010

America COMPETES Act, ReAuthorized

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

2011

NSF Strategic Plan 2011-2018

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

2013

2014

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"

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

- CISE - Directorate-wide Strategic Plan on BP - BP / Opportunity

- ARIS - All Directorates Funding

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

2021

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

Capacity

Society

Institution
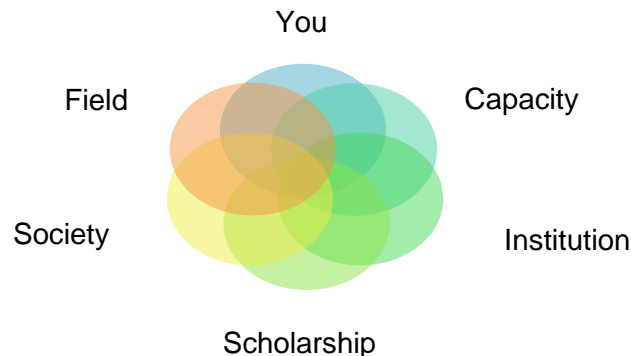
Scholarship

(Risien, J. et al. 2018)

Impact Identity

Personal Preferences

Impact Identity

Scientific Discipline

Capacities & Skill Sets

Scholarship & Research

Institutional Context
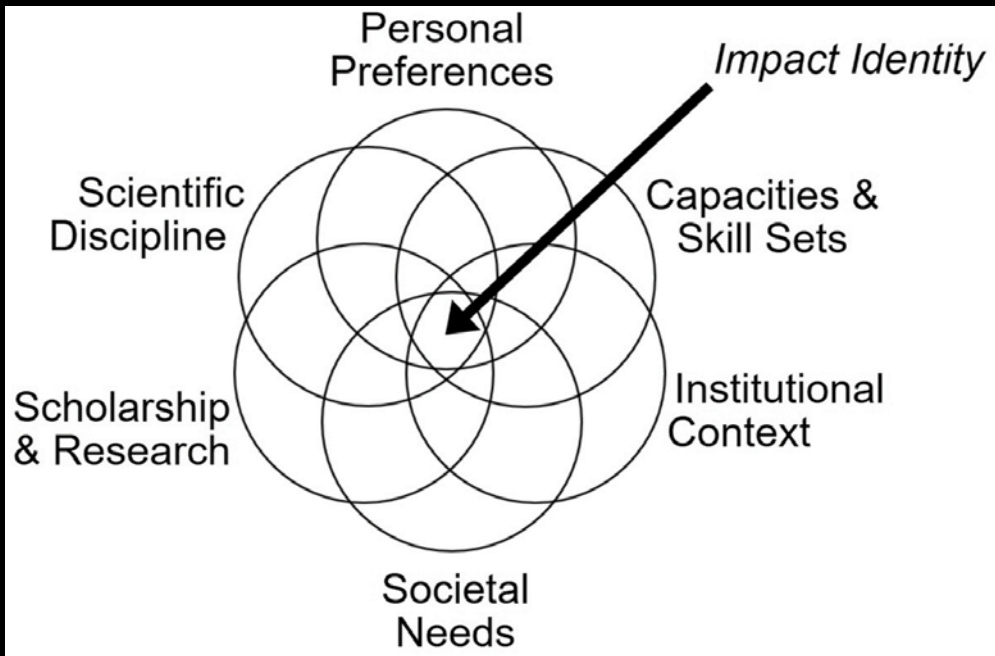
Societal Needs

"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."

Risien, J, Storksdieck, M. 2018. Unveiling Impact Identities: A Path for Connecting Science and Society. Integr Comp Biol. 58(1):58-66.

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)

You
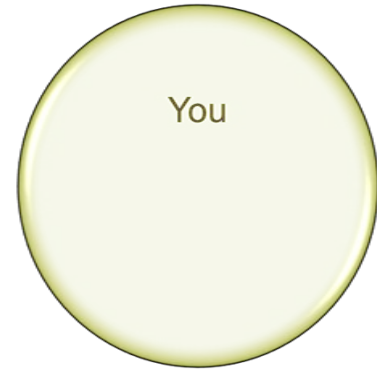
In Break Out Rooms: give your research 'elevator pitch"
in 3 sentences (~1 minute)

Take turns describing your current research/career focus
and reflect on your field's natural connections to societal
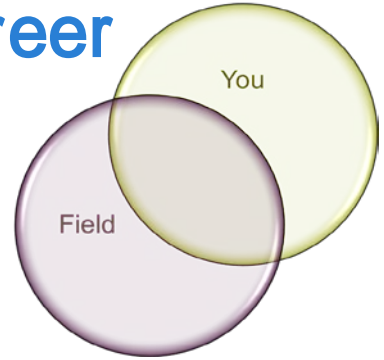needs and issues.

Exercise 2 (5 minutes)
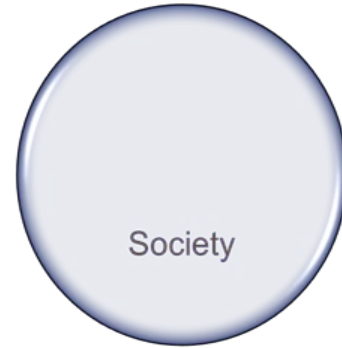
Name your field & its connections to societal issues & needs.

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?

You

Society
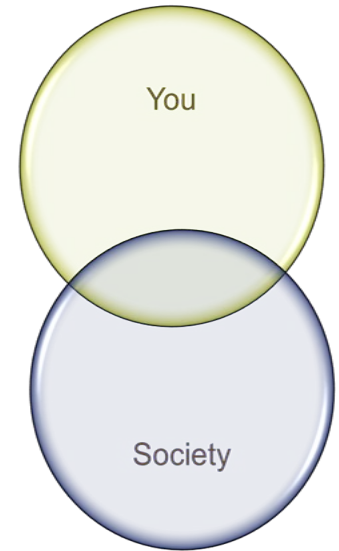
Exercise 4: Draft your Impact Statement (vision goals)– 10 minutes

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?
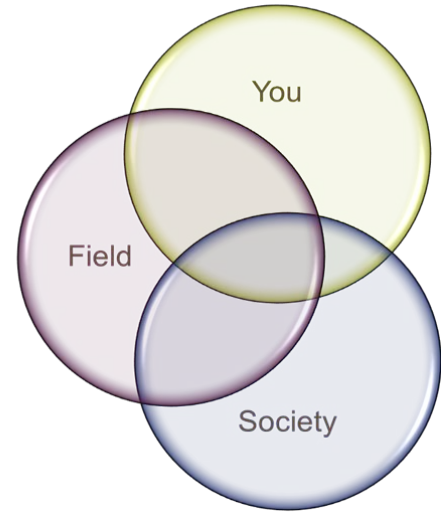
Exercise 5: identifying your impact capacity & assets (5 minutes)

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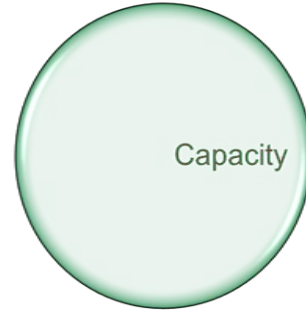
Explore, discuss and record:
- What people, programs, expertise, partners, institutions, tools do you already have access to that can help you reach your impact goals?

- What other people, programs, institutions, partnerships, etc. do you need?

Building your Broader Impacts Identity
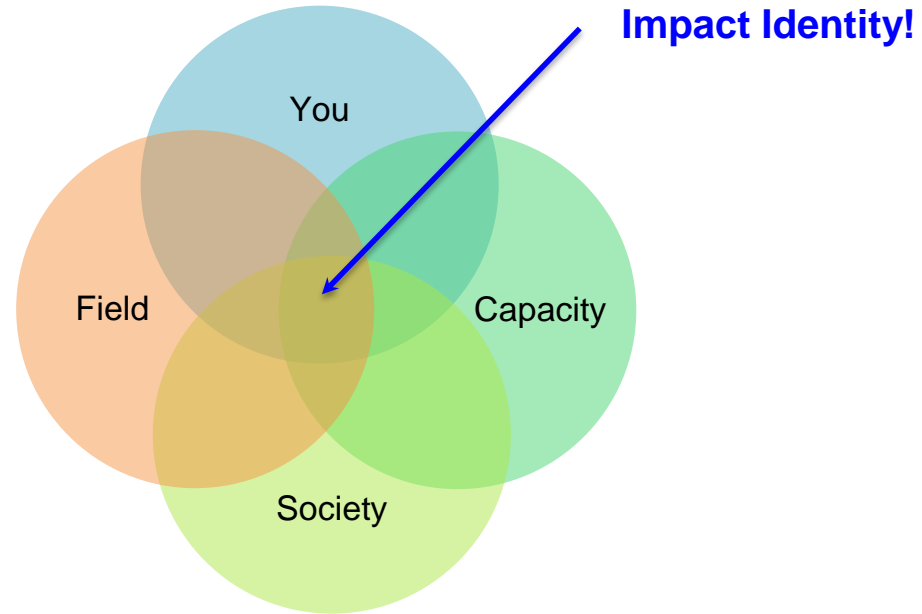
Exercise 5: Next Steps (3 minutes)

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):

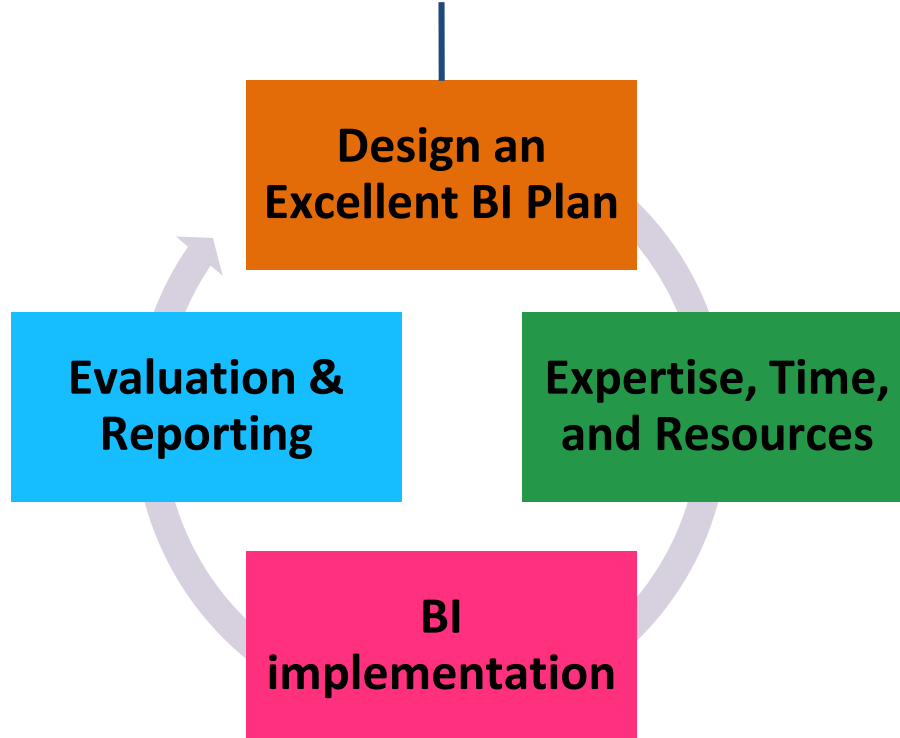# Share out, discussion, comments, and Q&A

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

- Esatablish 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 :

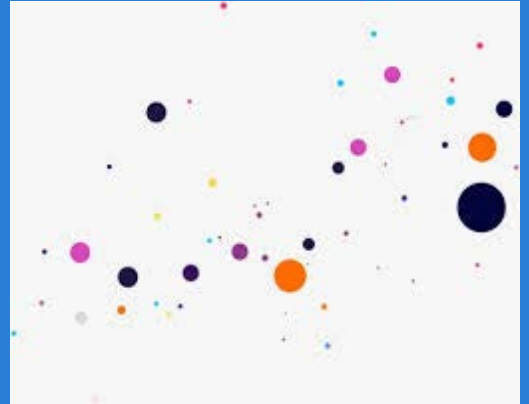# Continued relevance - your BI identity & your proposal(s)

You are here for the next few months!

Design an Excellent BI Plan

Expertise, Time, and Resources

BI implementation

Evaluation & Reporting

Resources

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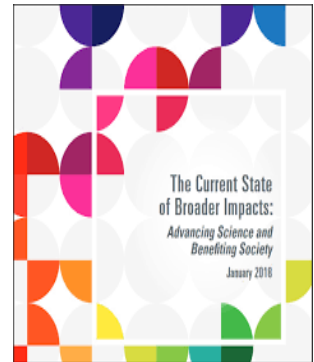
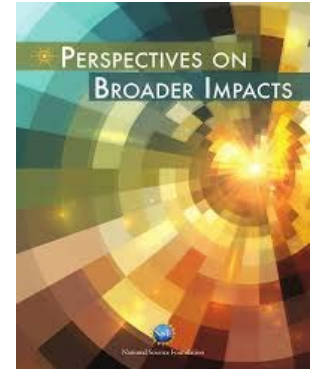How do you connect to the right resources?
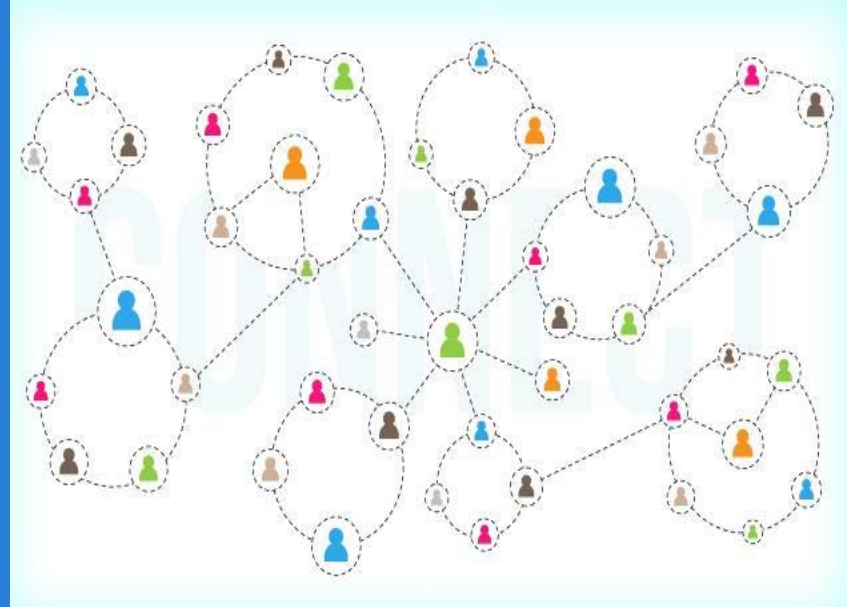
Resources at a Glance

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
  - NSFs - Portal to the Public
- NABI – listserv, summit
- ARIS – fellowships, PD, assessment
- ***Community Based Organizations***
- National and International Collaborators
- Professional Societies

PERSPECTIVES ON BROADER IMPACTS

National Science Foundation

The Current State of Broader Impacts: Advancing Science and Benefiting Society

January 2018

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

Integrate Student Development in IM and BI Plans

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

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/
NSF Merit Review webpage:
http://www.nsf.gov/bfa/dias/policy/merit_review/
NABI website: www.broaderimpacts.net

Publications:
-NSF's *Perspectives on Broader Impacts*
-NSB's *NSF Merit Review Criteria – Task Force on Merit Review*
-NSF's *Proposal and Award Policies and Procedures Guide*
PAPPG Guide)
-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"

BID Toolkit- Sample Resources

- 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.

Table of Contents

Section 1: Setting the Scene

Section 2: Building a Partnership

Section 3: Working Within the Partnership