Jumpstart Your Broader Impacts with the ARIS Toolkit!

Dr. Susan Renoe, University of Missouri

Janice McDonnell, Rutgers University

ARIS

Advancing Research Impact in Society

Agenda for Today

Introduction to ARIS

Toolkit basics

Review new opportunity: ARIS Fellowship

Q&A!

ARIS

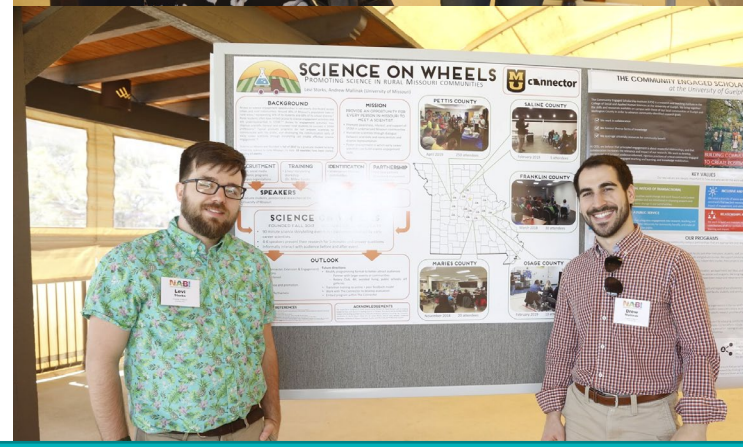
Advancing Research Impact in Society

Mission

ARIS's mission is to amplify the impacts of research for the benefit of society.

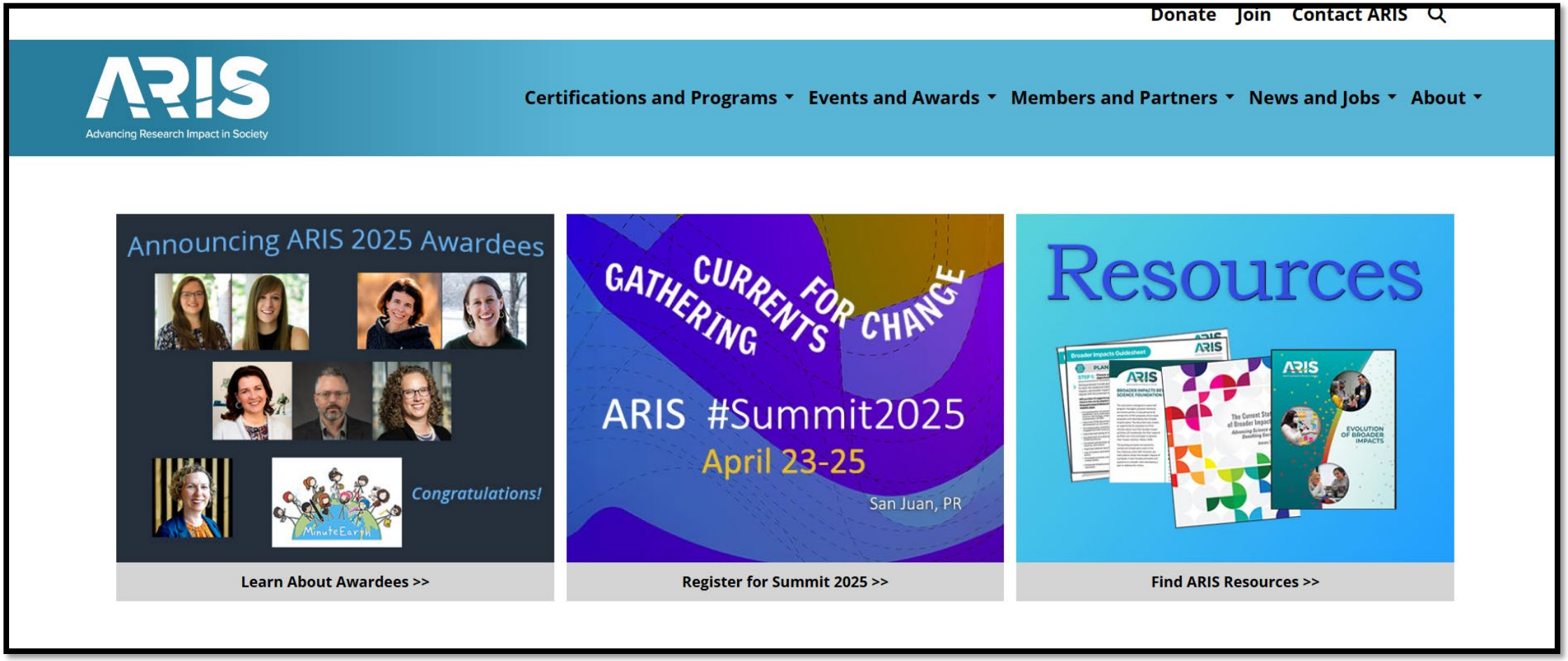
To do this, ARIS:

- Serves as the hub for expertise in and the promotion of research impacts.
- Advances scholarship, builds and stewards a growing field of practice and community of professionals, across academic, educational, governmental, corporate, and non-profit institutions and agencies, focused on the impacts of research.
- Supports investigators from diverse fields and the professionals and partners who collaborate with them to achieve societal impact.
- Partners with the National Science Foundation and other U.S.-based and international organizations, aligned to ARIS's vision to prioritize research impacts for societal benefit.

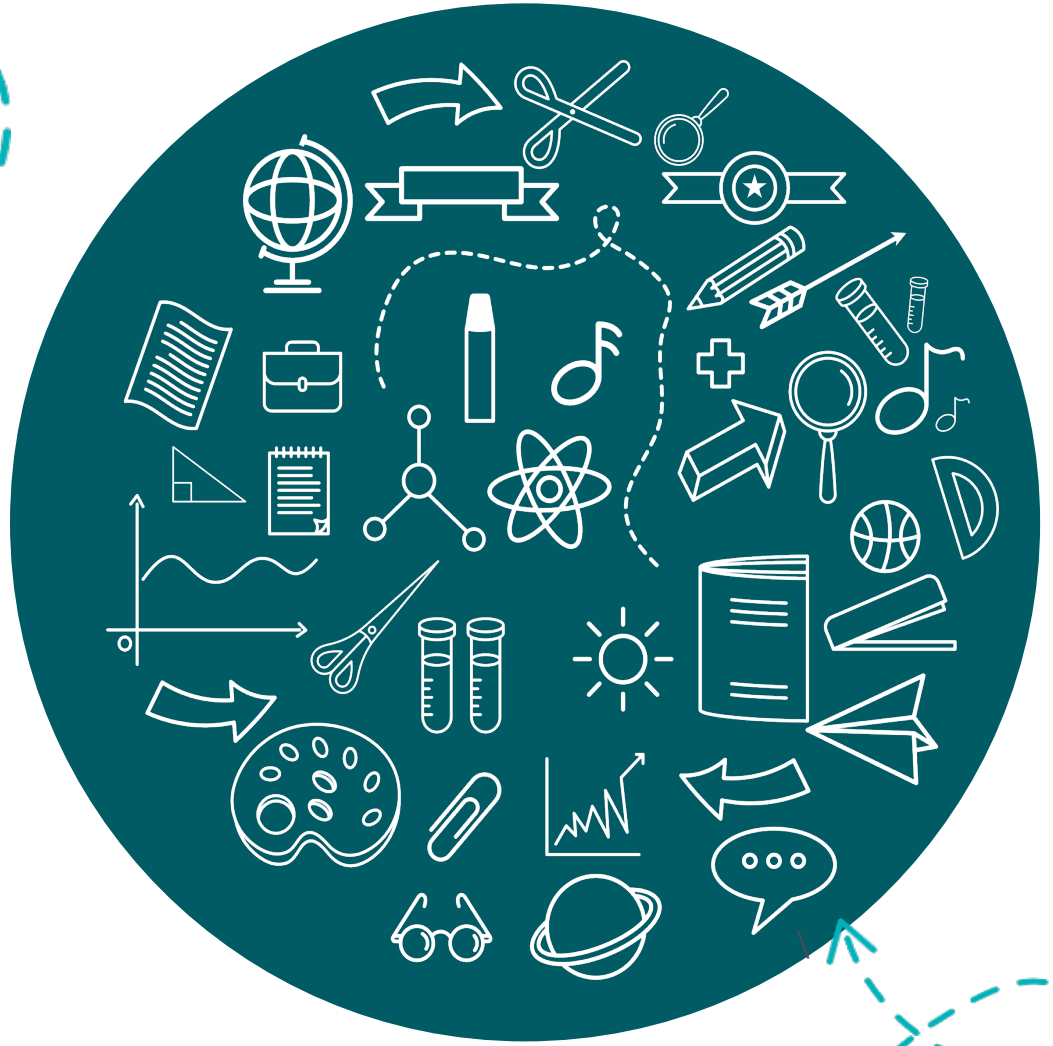


 © 2023 ARIS, all rights reserved. This work is supported by the National Science Foundation under grants OIA-1810732, OIA-2140950MCB-1940655, and MCB-2236057..

ARIS Website – researchinsociety.org



What is Broader Impacts?



All NSF proposals are evaluated on two criteria…

Intellectual Merit

The potential of a project to advance knowledge and understanding within its own field or across different fields

Broader Impacts

The potential of a project to benefit society or advance desired societal outcomes

NSF-Suggested Areas of Impact

1. Full participation of women, persons with disabilities, and underrepresented minorities in STEM

2. Improved STEM education and educator development at any level

3. Increased public scientific literacy and public engagement with science and technology

4. Improved well-being of individuals in society

5. Development of a diverse, globally competitive STEM workforce

6. Increased partnerships between academia, industry, and others

7. Improved national security

8. Use of science and technology to inform public policy

9. Increased economic competitiveness of the United States

10. Enhanced infrastructure for research and education

Reference: Proposal & Award Policies & Procedures Guide (PAPPG)

ARIS Broader Impacts Toolkit

The resources and tools on this site are designed to help Researchers and BI Professionals develop projects and partnerships that will satisfy the Broader Impact requirement of National Science Foundation (NSF) proposals, and help you fulfill your interest in communicating your science.

http://aris.marine.rutgers.edu

This site is brought to you by the Center for Advancing Research Impact in Society (ARIS) and Rutgers University.

Guiding Principles

What does NSF require?

Get a high-level overview of societally relevant outcomes and review criteria specified by NSF

Planning Checklist

What elements are needed in a BI project?

Use this list to review the key elements of an effective BI project proposal

BI Wizard

How to I develop my BI project proposal?

Our wizard will walk you through all of the key steps to building partnerships and and effective project

BI Project Rubric

How to I assess my project's potential?

Use this rubric to help you evaluate a Broader Impact project plan

Toolkit is a Boundary Object to Help Span Multiple and Interdisciplinary Dimensions

- Institutional change
- Program assessment
- Professional development
- Conceptualizing a BI identity

ARIS Toolkit Quickstart

Learn to how the **ARIS Toolkit** can help you communicate the societal impacts of your research.

- How can my work benefit society?
- How can it help solve challenges facing communities?
- How can I partner with communities to expand the exchange of information, ideas, and expertise in ways that benefit society?

The ARIS toolkit supports STEM researchers in planning and applying effective strategies to explain their work.

ARIS Toolkit Overview

The Toolkit helps researchers find innovative ways to share the exciting science and engineering innovative research funded by the National Science Foundation (NSF) with a broader range of audiences. Not only is this important to meet the requirements of the funders (NSF), but it is critical in an era of increased skepticism about the impact and value of science and a time when we need to build a competent and productive STEM workforce.

ARIS Broader Impacts Toolkit

Home Guiding Principles Checklist Wizard Rubric About

Broader Impacts Guiding Principles

The ARIS Community has put together a Broader Impacts Guiding Principles for National Science Foundation Proposals.

This new version is designed to assist National Science Foundation (NSF) program managers, proposal reviewers, and review panels, in evaluating the broader impacts (BI) component of NSF proposals and to assist proposers with developing their BI plans. This document also creates an opportunity for proposers to think critically about how their BI activities will incorporate into their research portfolio over time and begin to develop their *impact identity*.

Get the Guiding Principles Document

https://aris.marine.rutgers.edu/principles.php

BROADER IMPACTS WIZARD

PLANNING GUIDE

- Introduction
- Who will I engage?
- Partners
- Target Audiences
- How much will this cost?
- How is my research relevant to society?
- Building a BI Identity
- How will I know if my BI project is successful?

PROJECT PLANNING TOOL

- Introduction
- Relevance
- Audience

An Introduction to Planning Broader Impact Projects

The BI Wizard provides support in defining the key elements of ve BI plan. The Wizard will help researchers answer these important questions:

- Who will I work with?
- How and where will I work with them?
- What effective practices support my proposed approach?
- How will I know if I have been successful/effective?
- And how much will all this cost?

The BI Wizard provides guidance based on the experience of ARIS BI professionals. Please watch the video above nformation about the BI Wizard and an introduction to constructing effective BI projects.

New Version 2.0! In response to feedback from the community, the ARIS BI Wizard was fully redesigned and updated on March 15, 2023. Please let us know what you think.

Objective

Develop Effective Broader Impacts that are:

Broader Impacts Plan Checklist

This checklist was developed from the NABI Guiding Principles document as a quick assessment to help you gage the completeness of your BI Plan.

You can use this checklist to check off the items you have addressed in your plan. Then, review the items you have not addressed, and consider adding text to your proposal to address them.

1) Does the BI project address one/more of the target outcomes for BI activities outlined by NSF (check all that apply)

- [ ] 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

2) What is the potential for the proposed activity to benefit society and contribute to achievement of specific desired societal outcomes?

Participants/Audience

- [ ] Is the audience defined?
- [ ] Are the needs of the audience described?
- [ ] Is the size of the audience (# engaged participants) articulated?

BI Project Benefits to Society

- [ ] Does the project address a societal need?
- [ ] Are the benefits to the participant/audience described?
- [ ] Is the length of engagement with the participant/audience described and adequate?
- [ ] Is there a mechanism described for reaching the participant/audience?

3) To what extent do the proposed activities suggest and explore creative, original, or potentially transformative concepts?

Potential to be Transformative

- [ ] Does the proposed BI project utilize evidence-based principles, practices, and methods (and if so, to what degree)?
- [ ] Does the project transform knowledge of the PI's science for the

4) Is the plan for carrying out the proposed activities well-reasoned, well organized, and based on a sound rationale? Does the plan incorporate a mechanism to assess success?

BI Project Description

- [ ] Are the goals and objectives of the BI project clearly defined?
- [ ] Is the justification for the BI project clearly articulated?

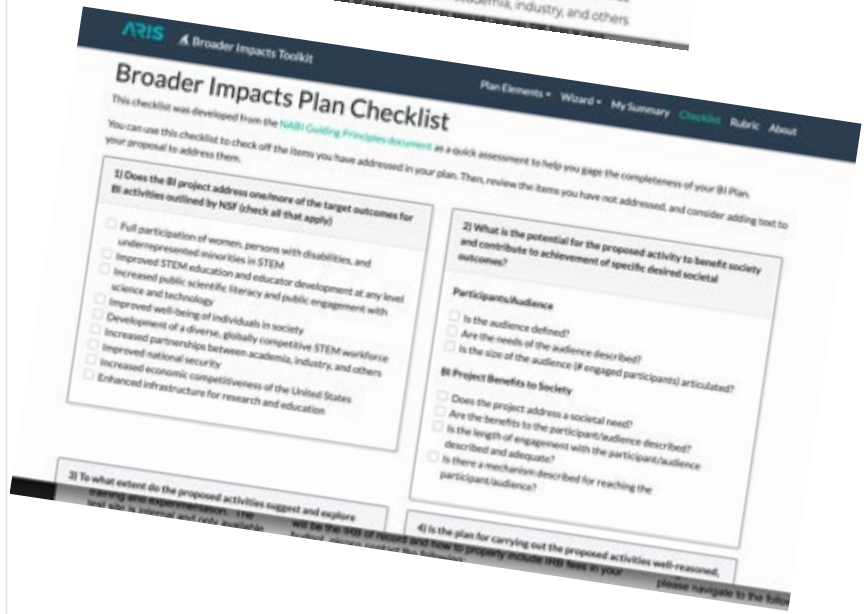
ARIS Tool Kit

ARIS Broader Impacts Toolkit | Plan Elements | Wizard | My Summary | Checklist | Rubric | Abou

Broader Impacts Plan Rubric

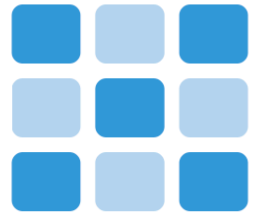
Question 1: What is the potential for the proposed activity to benefit society or advance desired social outcomes?

Excellent Job!	Very Good Job!	Good - You are headed in the right direction.	Fair - Reconsider your approach?	Poor - Needs Work?
Target audience characteristics: The characteristics of the target audience, including who they are, where they are located, and how many will be engaged are clearly described. The target audience is well-aligned with project objectives.				
Participants are clearly described. The description includes strong details about who participants are and how many will engage in the project. The target audience is very well-aligned with project objectives. There are strong letters of collaboration.	Participants are described. The description includes details about who participants are and how many will engage in the project. The target audience is generally well-aligned with project objectives. There are letters of collaboration.	Participants are somewhat clearly described. There is some information on who participants are and how many will engage in the project. The target audience is somewhat well-aligned with project objectives.	Participants are not well described. There is little information on who participants are and how many will engage in the project. It is unclear if the target audience is well-aligned with project objectives.	Participants are not described. There is no information on who participants are and how many will engage in the project.
Target audience engagement: The mechanisms for engaging the target audience are clearly described and well-aligned with project objectives.				
Mechanisms for engaging participants in the project are very clearly described and well-aligned with project objectives.	Mechanisms for engaging participants in the project are described and generally well-aligned with project objectives.	Mechanisms for engaging participants in the project are somewhat clearly described and somewhat well-aligned with project objectives.	Mechanisms for engaging participants in the project are not well described and not well-aligned with project objectives.	No information is provided on the mechanisms for engaging participants in the project.



Broader Impact Plan Rubric

This BI Plan Rubric is designed to help you evaluate a specific Broader Impact (BI) plan.



The rubric can be used in several ways, including...

- Reviewers participating in the review process, as individual or panel reviewers, can use the rubric to assess the rigor and quality of a proposed BI plan. Of course, reviewers should always review NSF's Proposal Awards Policies & Procedures Guide (PAPPG) for specific solicitation guidelines. Panelists should use this rubric in combination with their own experience and judgment when assessing proposals.
- Grant writers can also use this rubric for guidance when writing a BI statement. We encourage grant writers to explore their own career goals and objectives, and carefully consider the research impacts they would like to achieve.

Looking for an example? Practice using the rubric with a case study in our BI Rubric Tutorial.

Cautionary Note: BI projects vary greatly based on the solicitation requirements, the needs of the partners and audiences engaged, and the resources of the proposing institution. This rubric is designed to provide general guidance about a BI project's level of feasibility and completeness. It is not meant to devalue creativity and uniqueness, but rather to help promote understanding and rigor of the limitless possibilities available with BI project.

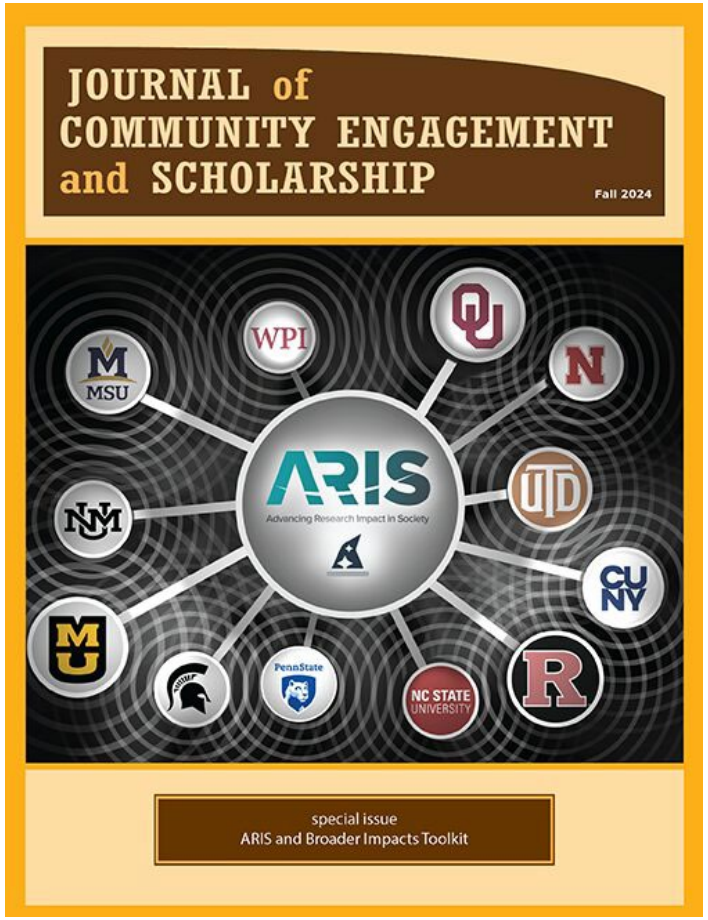
ARIS Toolkit Study

ARIS partnered with the Journal of Community Engaged Scholarship to produce a special edition

The Issue is the result of a two-year effort to identify, pilot, and publish scholarly research about the U.S. National Science Foundation's (NSF's) Broader Impacts (BI) criterion and its role in community engagement.

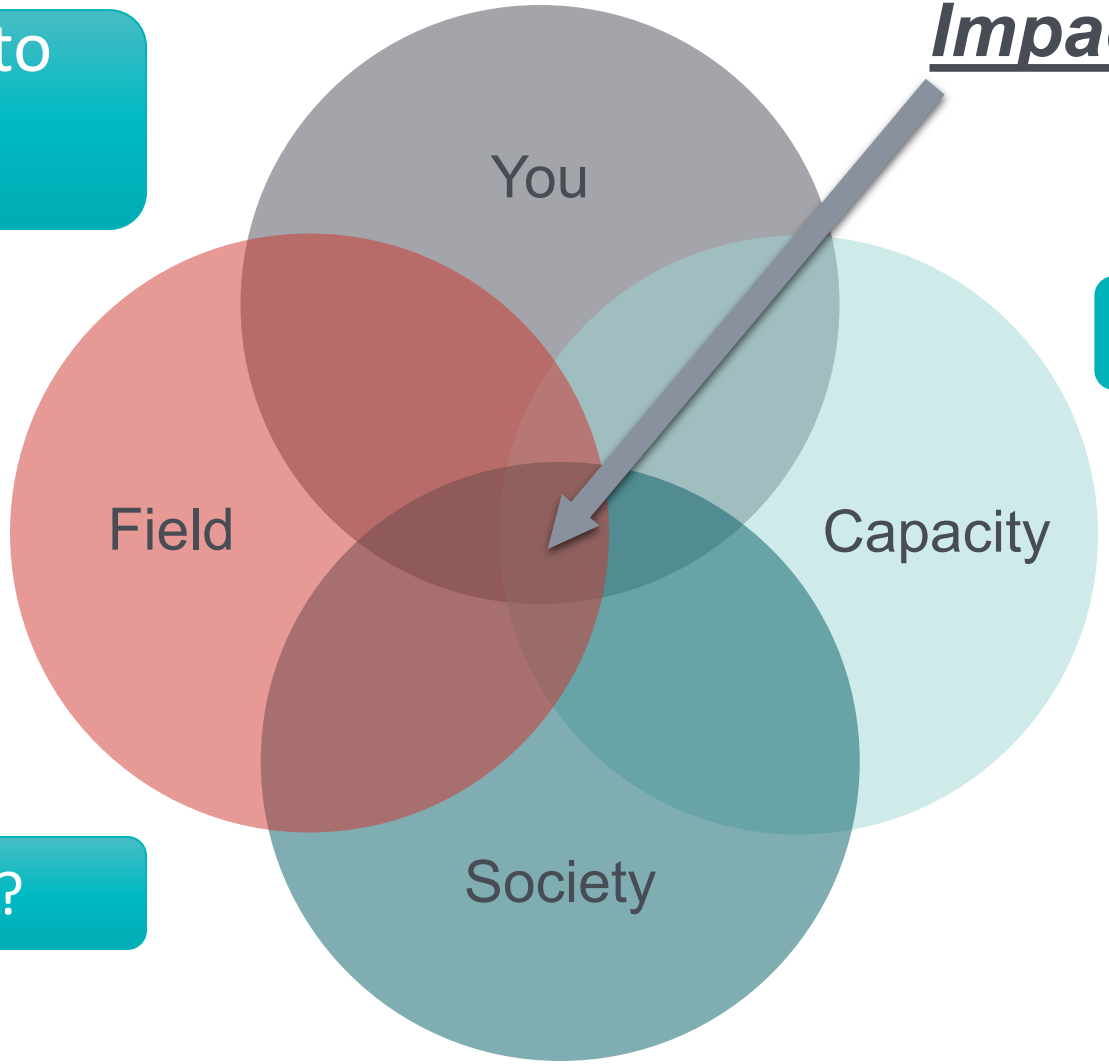
Study Results: The ARIS Toolkit can:

1) Support institutional development and change in the areas of BI promotion, development, and community engagement. (McNall et al, 2024 and Merchant et al, 2024)
2) Jumpstart project and proposal development and assessment. (Iverson et al, 2024, Pendley and Shahid, 2024, and Bosley et al, 2024).
3) Provide support for the professional development of researchers and BI professionals in BI work. (Johnson et al, 2024, and Willoughby and Bug, 2024)
4) Future research frameworks (Telliel and Chen, 2024, Yohalem and Torres, 2024, and Grant et al, 2024).



Building a Positive BI Identity

What would I LOVE to do?



What CAN I do?

What SHOULD I do?

ARIS Fellowship Program

aspires to cultivate innovation and leadership among researchers engaged in Broader Impacts initiatives.

Objectives:

1) expand BI work, 2) strengthen the network of researchers who are interested in strengthening their Broader Impacts, and 3) disseminate effective BI practices through publications and presentations.

Fellowship Phases:

- Orientation & training - Focus on enhancing/sharing specific skills relevant to the field.
- Project work and networking - Opportunities to connect with peers, mentors, and leaders.
- Evaluation and reflection - Encouraging fellows to undertake innovative projects.

ARIS

Advancing Research Impact in Society

Eligibility

- This fellowship is open to U.S.-based researchers with a strong academic background in a **tenure track position**. We encourage researchers who are at various career stages, from early to mid-career to advanced, in all disciplines typically funded by the U.S. National Science Foundation (NSF).

- Applicants should have experience conducting and/or participating in at least one BI project.

- Must submit the application and will also be interviewed prior to final selection.

- Selection will be based on a review process by a panel of ARIS leaders, members, and advisors.

ARIS

Advancing Research Impact in Society

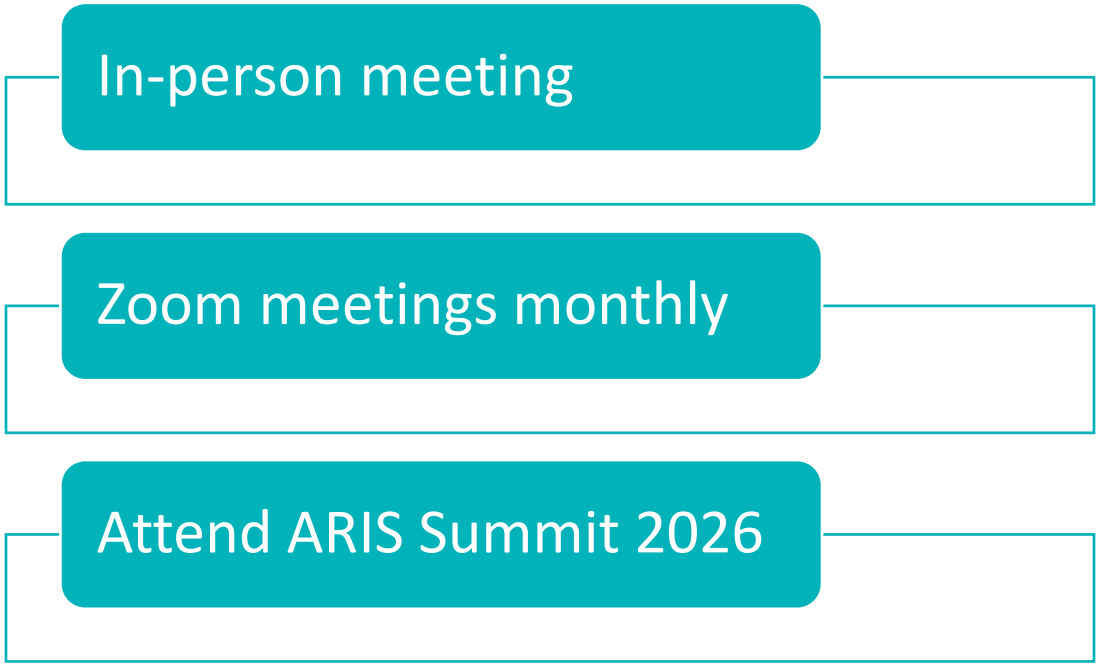
Fellows Team

A diverse and collaborative team that represents:

- Basic Research
- Use Inspired Research
- Stages of tenure stream
- Levels of expertise in BI work
- Diversity of viewpoints on societal engagement in STEM and how researchers can approach BI

Fellows will be chosen in early May 2025

- $5000 stipend
- Publications are a key outcome
- Collaborative partnerships with ARIS and each other



Thank you for attending!

Contact: Janice McDonnell
mcdonnel@marine.rutgers.edu

Susan Renoe, PhD
renoes@missouri.edu