

# Setting Your Science Team Up for (Measuring) Success

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# Workshop Objective

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This workshop will provide skills and resources for creating an effective evaluation plan for interdisciplinary research teams.

# 2023 CAIRIBU Initiative: Best Practices in Collaborative Science



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# ICTR Team Science Core



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# Introductions

- Name
- Organization
- **What is one thing that would tell you that your team is successful?**

# Ground Rules

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- Microphones off (when not speaking)
- Videos on (to generate community)
- Stay focused; avoid distractions
- Everyone participates; no one dominates
- Come with an open mind; learn from each other
- Honor confidentiality (Share lessons, not stories)
- Critique ideas, not people
- Take care of self

# Forming Successful Teams Step by Step

- Clarify and articulate project mission and goals
- Determine your team's essential roles
  - Expertise
  - Cognitive diversity
  - Other roles
- Create your definition of a good collaborator
- Identify candidates mindfully
- Get to know your new collaborators
  - Perspectives
  - Priorities



# Fostering Psychological Safety

## Step by Step

- Inclusion Safety
  - Cultivate awareness
  - Practice civility
- Learner Safety
  - Reframe mistakes as learning opportunities
  - Practice compassionate feedback
- Contributor Safety
  - Create space for all voices
  - Practice gratitude and humility
- Challenger Safety
  - Share responsibility for meetings and training
  - Assign dissent (and kudos) early



# Cultivating Communication Step by Step

- Explain Jargon
- Facilitate Discussions
  - Generate Shared Mental Models
  - Create Transactive Memory Systems
- Strategically Plan Your Collaborations
  - ICTR Collaboration Planning
  - Document essential policies and procedures (e.g., authorship)
- Use Closed Loop Communication to Ensure Understanding



# After completing this workshop, you will be better prepared to

- Select assessment and evaluation methods to monitor performance and impact in interdisciplinary research collaborations
- Identify and implement metrics that will best demonstrate the effectiveness and impact of interdisciplinary research collaborations
- Create an evaluation plan for a specific interdisciplinary research collaboration to ensure stakeholder satisfaction

# Challenges of Evaluating Research Teams

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**What challenges have you experienced?**

# Challenges of Evaluating Research Teams

- There is no one way to evaluate a team
- Constructs like success and impact are difficult to operationalize
- Metrics can be difficult to interpret
- Pathways to impact are rarely linear
- Confounding factors sometimes mediate impact
- Time lags mean that impact often takes time to measure
- Team members sometimes have strong opinions and differing priorities
- Pressure to perform may present ethical dilemmas (e.g., data manipulation)
- Evaluation can be expensive and drain other resources (e.g., time and effort)
  - Exposed problems may need intervention
  - Conflict may require facilitation
  - Documentation of assessments and interventions can be time-consuming and involve additional software or tools

# Benefits of Evaluation

- Provides direction
- Identifies problem areas
- Enhances team processes
- Facilitates communication
- Cultivates strong culture
- Improves motivation
- **Maximizes team impact**



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# Evaluating Your Team



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- **Why?**
  - Why is this project important?
  - Why are you doing this research?
- **Who?**
  - Who is involved in the project?
  - Who will benefit from the research?
- **What?**
  - What are you planning to do?
  - What does success look like?
  - What will this research produce?
- **How?**
  - How can you improve what you are doing?
  - How will your research have impact?
  - How will you tell your story?

## **Components of an Evaluation Plan**

1. Team Mission
2. Current Project
3. List of Stakeholders
4. Research Outputs
5. Research Outcomes

# A Clear Shared Mission Provides...

Transparency in roles and responsibilities

Clarity in communication

Motivation for the work

Target for assessment and evaluation

What is  
your  
mission?

# Articulating the Current Project

- What is the current research question?
- How will this project answer that question?
- What does success look like?
- What are the specific aims?



# Stakeholders

- Funding Agencies
- Organizational Leadership
- Broader Academy
- Community Partners
- Team Members!



# Evaluating Career Success

- Extrinsic Success Factors
  - Financial Success
  - Promotions
  - Leadership Positions
  - Grants and Publications
- Intrinsic Success Factors
  - Life Satisfaction
  - Job Satisfaction
  - Career Satisfaction



# Outputs

- What are the tangible, direct products of the research project?
  - Publications
  - Copyrights and Licenses
  - Patents
  - Grant Applications
  - Presentations/Videos
  - Data Sets



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# Outcomes

- What are the expected changes or impacts resulting from the research?
  - Identification of a model that explains biological pathways in cancer
  - After three years, patients receiving the intervention will show improved health.
  - The team will continue demonstrating satisfaction with processes and overall culture.
  - Team members will receive federal funding within three years
  - Training will allow translational scientists to be more likely to receive tenure and promotion

### Acceptability

- An intervention is agreeable or satisfactory

### Adoption

- The intention or action to employ an intervention

### Appropriateness

- The perceived compatibility of an intervention for a given setting, provider, or consumer

### Feasibility

- The extent to which an intervention can be successfully used by a given agency or setting

### Fidelity

- The degree to which an intervention was implemented as prescribed

### Implementation cost

- The cost to implement the intervention

### Penetration

- The integration of implementation within a service setting and its subsystems

### Sustainability

- The extent to which an intervention is maintained or institutionalized



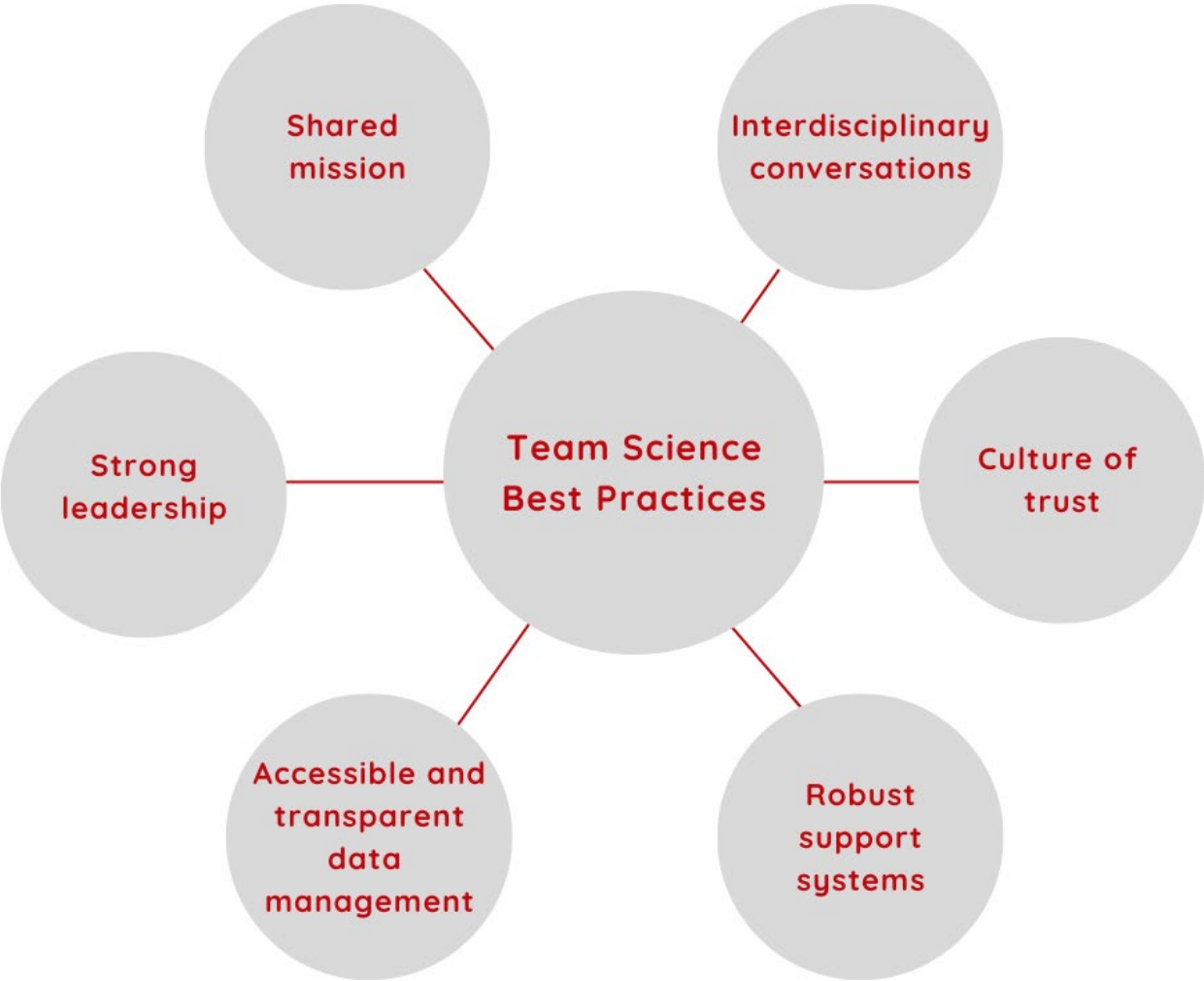
# Short[er] Term Measures

- Milestones/SMART Goals
- Progress Reports
- Assess Team Processes



# Team Process Diagnostic

- The team purpose and team are clear and aligned.
- The team communicates and team members share theoretical approaches.
- The team has a culture of inclusivity, and collaboration.
- The team has strong project management (information management, project management).
- The team has accessible systems.
- The team has strong support systems.



well?	Where are we falling short?

Rolland et al 2020

# Team Process Diagnostic

	SD	D	N	A	SA	What is working well?	Where are we falling short?
The team purpose and shared vision of success of the team are clear and team members understand their roles.	SD	D	N	A	SA		
The team communicates effectively across disciplines and team members have a shared understanding of theoretical approaches, methods, and practices.	SD	D	N	A	SA		
The team has a culture of trust, accountability, openness, inclusivity, and constant learning.	SD	D	N	A	SA		
The team has strong research support systems (information management, scientific coordination and project management, and communication systems)	SD	D	N	A	SA		
The team has accessible, transparent data management systems.	SD	D	N	A	SA		
The team has strong, functional leadership.	SD	D	N	A	SA		

Rolland et al 2020

# How do you check in with your team?

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# Considering Metrics

- **Traditional Measures**

- Funding
- Patents
- Presentations/Videos
- Bibliometrics
  - Impact Factor
  - H-index

- **Alternative Measures**

- Altmetrics
- Social Network Analysis
- Electronic Surveillance

# Bibliometrics

- Definition
  - use of statistical methods to analyze books, articles, and other publications, especially regarding scientific contents
- Limitations
  - Bias
  - Time lag
  - Influence? What type of influence: positive vs negative?

# Altmetrics

- Definition
  - Novel metrics, often based on social media, for measuring the impact of diverse scholarly objects such as research papers, source code, or datasets
  - Altmetric data consists of a simple count of the number of times that a research output has been cited, mentioned or downloaded
  - Provide measurement of impact for both academic and non-academic audiences
- Benefits
  - Less time lag
  - Tells you where research had an impact
- Problems
  - Easy to manipulate



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RESEARCH ARTICLE

# Disparities in distribution of COVID-19 vaccines across US counties: A geographic information system-based cross-sectional study

Inmaculada Hernandez , Sean Dickson, Shangbin Tang, Nico Gabriel, Lucas A. Berenbrok, Jingchuan Guo

Published: July 28, 2022 • <https://doi.org/10.1371/journal.pmed.1004069>

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## Abstract

### Background

The US Centers for Disease Control and Prevention has repeatedly called for Coronavirus Disease 2019 (COVID-19) vaccine equity. The objective our study was to measure equity in the early distribution of COVID-19 vaccines to healthcare facilities across the US. Specifically, we tested whether the likelihood of a healthcare facility administering COVID-19 vaccines in May 2021 was

# On using ethical principles of community-engaged research in translational science

Dmitry Khodyakov<sup>a</sup> , Lisa Mikesell<sup>b</sup>, Ron Schraiber<sup>c</sup>, Marika Booth<sup>a</sup>, Elizabeth Bromley<sup>d, e</sup>

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The transfer of new discoveries into both clinical practice and the wider community calls for reliance on interdisciplinary translational teams that include researchers with different areas of expertise, representatives of health care systems and community organizations, and patients. Engaging new stakeholders in research, however, calls for a reconsideration or expansion of the meaning of ethics in translational research. We explored expert opinion on the applicability of ethical principles commonly practiced in community-engaged research (CEnR) to translational research. To do so, we conducted 2 online, modified-Delphi panels with 63 expert stakeholders who iteratively rated and discussed 9 ethical principles commonly used in CEnR in terms of their importance and feasibility for use in translational research. The RAND/UCLA appropriateness method was used to analyze the data and determine agreement and disagreement among participating experts. Both panels agreed that ethical translational research should be “grounded


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## Article Metrics

### Citations

Citation Indexes:	24
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### Captures

Exports-Saves:	49
Readers:	47

### Social Media

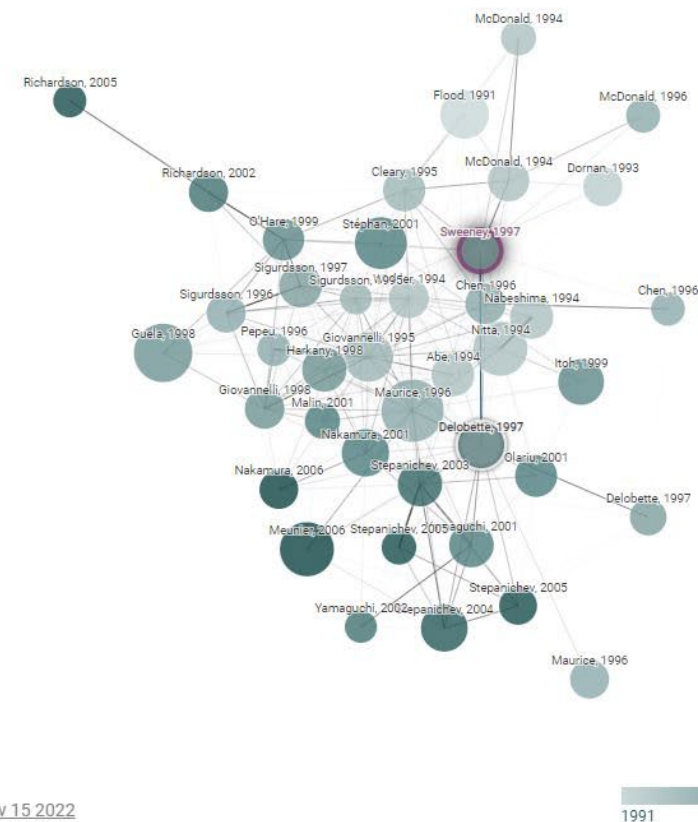
Shares, Likes & Comments:	1
Tweets:	1



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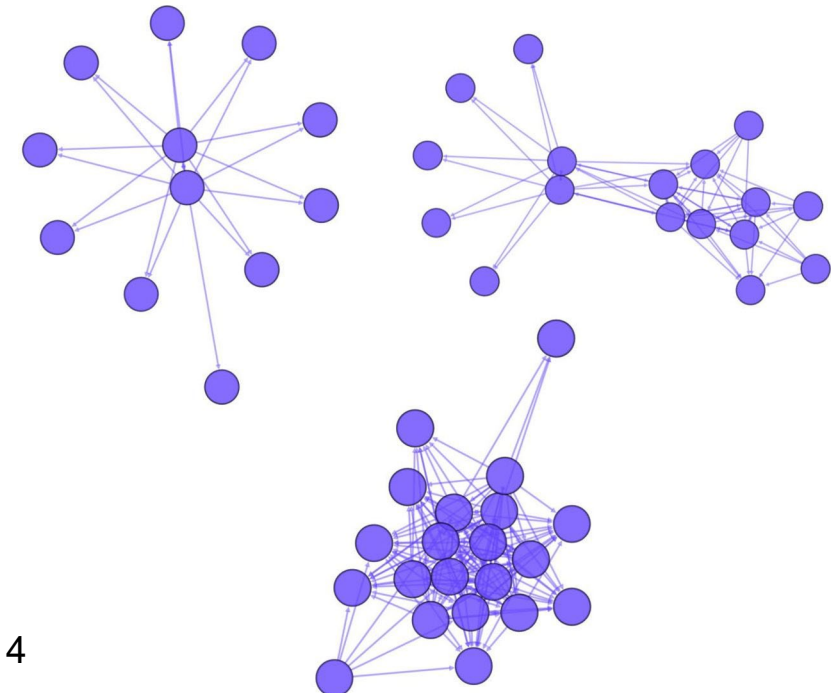
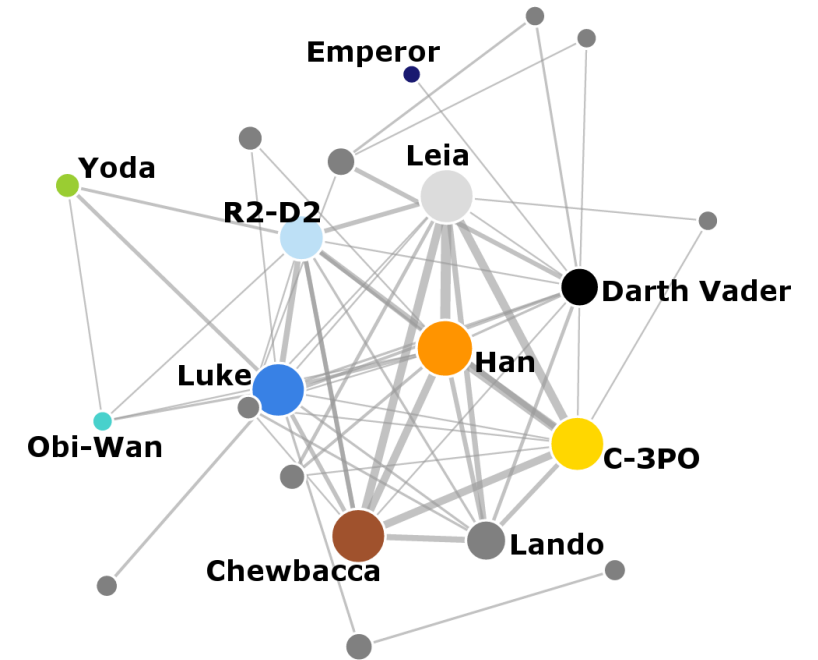
### Prior works

Delayed behavioral effects following intrahippocampal injection of aggregated A $\beta$ (1–42)  
E. O'Hare, D. Weldon, P. Mantyh, J. Ghilardi, M. P. Finke, M.... 1999

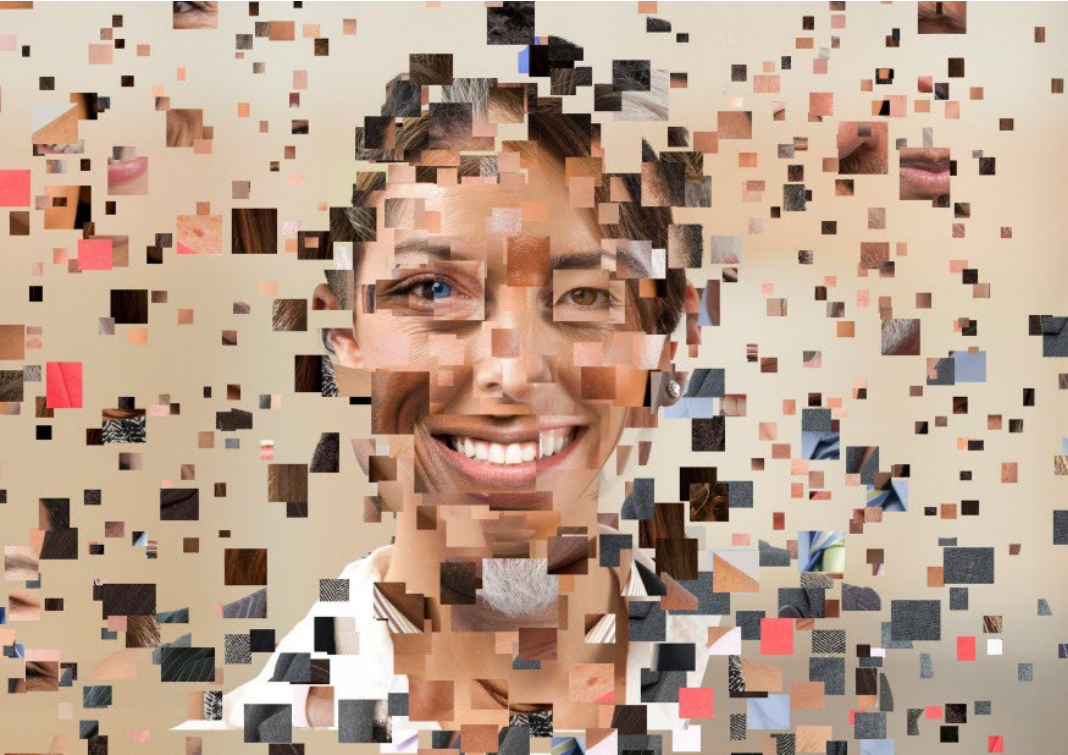


# Social Network Analysis

- Measures the strength of and pattern of relationships within a given network
- Tracks
  - Dissemination of knowledge
  - Use of resources
- Identifies
  - Sources of power and strength
  - Areas of weakness



# Electronic Surveillance



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- **Sensor Badges** - Team members can wear sensor badges to study team interactions
- **Electronic Communication** - Email and social networking can be measured to study team communication and dissemination of information

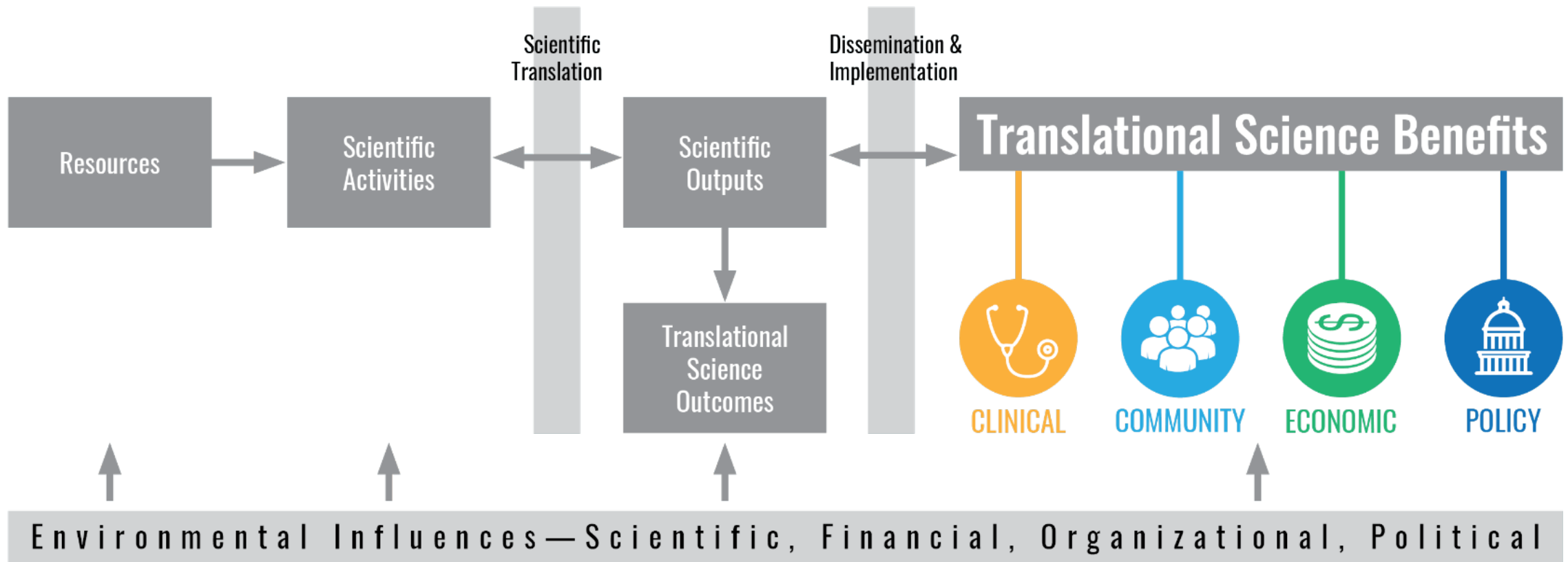
# What metrics will you use to measure impact?

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# Measuring Impact with the TSBM



# Team Evaluation

## Step by Step

- Establish and Align to Team Mission
- Articulate Current Project Goals
- Identify and Engage Stakeholders
  - Funding agencies
  - Team members
  - Community members
- Determine Outputs and Metrics
  - Publications
  - Patents
  - Publications
- Define Research Outcomes



**What is one “next step”  
you can take to measure  
your team’s success?**





**We value your feedback!**



# Community of Practice: June 19, 2023

- Optional (virtual) adjunct to the first CAIRIBU Collaborative Science workshop
- Explore ways to measure your team's progress and impact. This session will cover topics like selecting the best metrics and how to prepare your progress reports.
- You will enjoy this session most if you come prepared to share your
  - Successes
  - Questions
  - Problems
- Preparation is NOT required. All are welcome to join us and learn together.
- Drop in any time during the 60-minute session!

# Future Sessions

- **Setting Your Science Team Up for (Measuring) Success**
  - **Community of Practice:** June 19
- **Leading Your Team to Success**
  - **Workshop:** July 10
  - **Community of Practice:** July 31
- All sessions will be recorded and available 1-2 days following the live session

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# Other Resources

- [www.connectedpapers.com](http://www.connectedpapers.com)
- <https://translationalsciencebenefits.wustl.edu>
- <https://reviewing.co.uk/success/brief-encounters-cards.htm>