

Forming Successful Research Teams

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Workshop Objective

This workshop will help you develop knowledge and skills to form effective interdisciplinary research teams for greater innovation and impact.



Introductions

- Name
- Organization
- Research Area

2023 CAIRIBU Initiative: Best Practices in Collaborative Science



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ICTR Team Science Core



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ICTR Team Science Core

The Team Science Core aims to facilitate high-impact team science by developing infrastructure to support interdisciplinary teams.

Team
Science
Education

Team Science
Interventions

SCiTS
Research

Culture of
Team Science

After completing this workshop, you will be better prepared to

- Leverage interdisciplinary collaborations to generate more innovative research
- Engage and motivate prospective collaborators by clarifying your team's purpose and goals
- Create maximum research impact by strategically selecting team members and assembling effective expert teams





Ground Rules

- 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
- Two breakout rooms will be about 10 minutes each

What is Team Science?

Team science is a **collaborative effort** to address a scientific challenge that leverages the strengths and expertise of professionals trained in **different fields** in an **interdependent** fashion.





Why Team Science?

- Better address complex health problems
 - Integrate experts from diverse areas (Disis and Slattery, 2010; Reasoner et al., 2022)
 - Pool essential resources (Senthil and Lehner, 2020)
- Increase productivity and impact (Wuchty et al., 2007, Hall et al., 2012)
- Achieve greater innovation (Wooten et al., 2015)
- Enhance reproducibility (Rolland et al., 2021)
- Greater satisfaction (aka it is more fun!) (National Research Council, 2015)



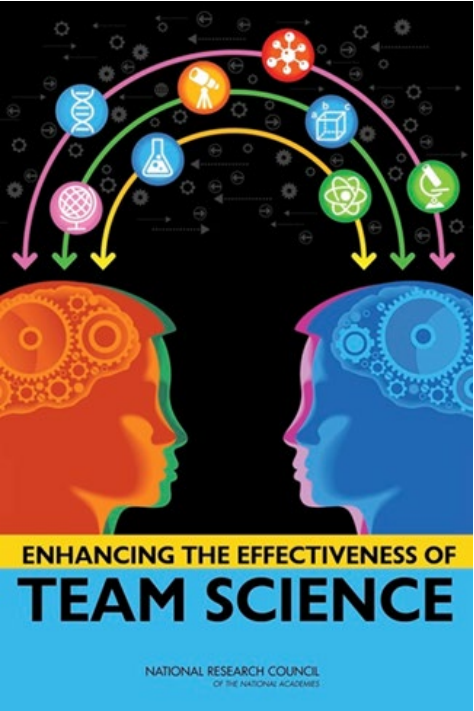


Activity: Setting Up for Team Science Success

- How are you currently using team science in your project(s)? How could a team science approach improve your project(s)?
- What roadblocks are you facing? What roadblocks do you anticipate?



Challenges of Conducting Team Science



Highly Diverse Teams can lack a common vocabulary stymieing creation of research goals and processes.



Deep Knowledge Integration is hard if members can't cross boundaries and build on each other's knowledge.



Large Team Size magnifies the burden of communicating and coordinating research tasks among members.



Goal Misalignment among teams or subgroups can generate conflict and require careful management.



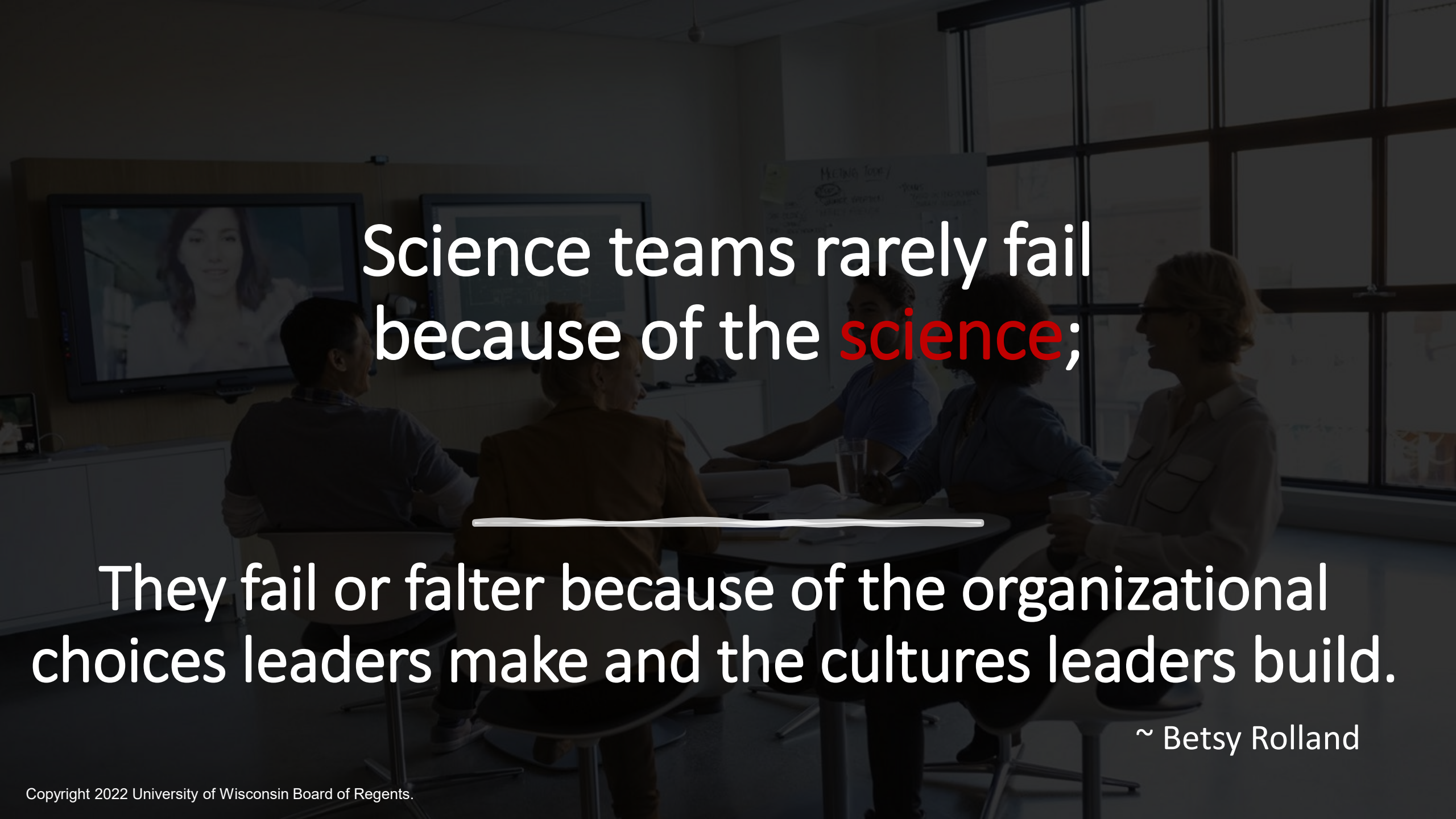
Permeable Boundaries can disrupt team performance if goals and process are not well documented.



Geographic Dispersion adds complexity based on time zones and cultural expectations about scientific work.



High Task Interdependence can increase conflict and require additional coordination and communication.

A group of people are seated around a table in a modern meeting room. A large screen on the wall displays a video conference with a woman. A whiteboard with diagrams is visible in the background. The scene is dimly lit, with light coming from the windows on the right.

Science teams rarely fail
because of the **science**;

They fail or falter because of the organizational
choices leaders make and the cultures leaders build.

~ Betsy Rolland



Team Science Best Practices

- Develop a shared mission, vision, and goals
- Build a culture of trust, accountability, openness, inclusivity, and constant learning
- Facilitate interdisciplinary conversations on approaches, methods, and results
- Build strong research support systems
- Build accessible, transparent data management systems
- Foster strong, functional leadership

Team Composition and Assembly

- Identify team mission and goals
- Determine required resources and expertise of your team
- Strategically select team members
- Clearly define roles and responsibilities of team members





Characteristics of Effective Collaborators





Characteristics of Effective Collaborators

Good communicator

Speaks up

Shares credit

Reliable

Transparent

Reflects on their own work and the team's progress in quest to improve

Asks for help and offers help

Understands how everyone's work contributes to the project

Addresses potential conflict early, focuses on the work not on the person

Shares information appropriately and freely

Is respectful of everyone's contributions and role on the project

Seeks to integrate their work with that of the team

Shows up on time and ready to engage

Defines terms and jargon for others

Treats students and staff as collaborators, not servants

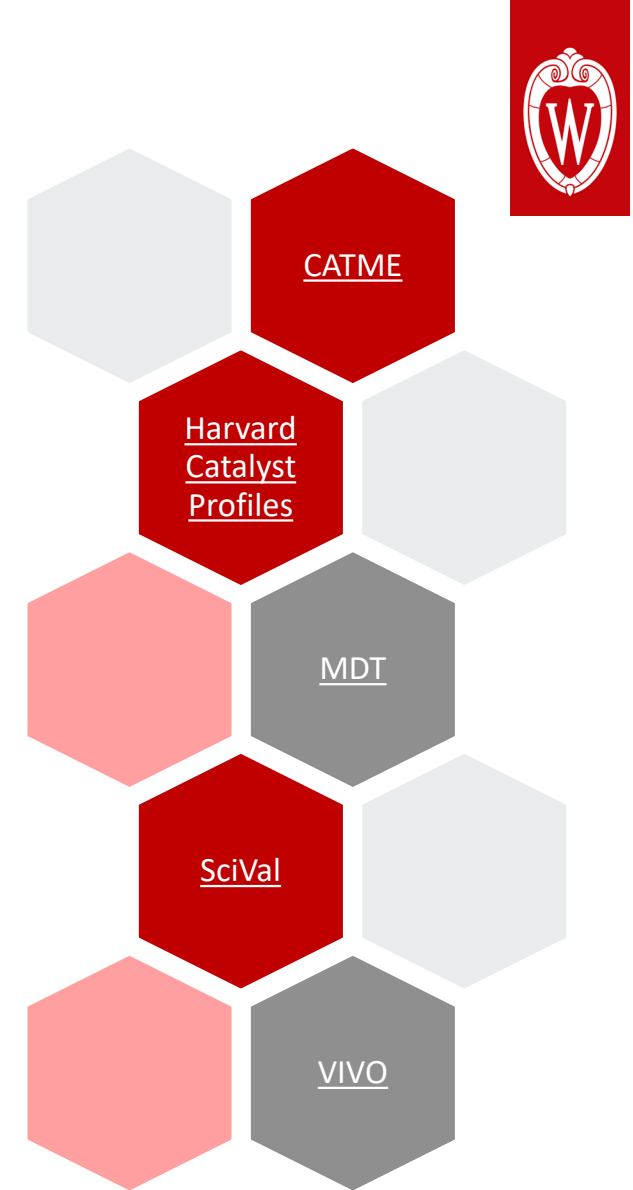
Is focused on the project's overarching goals and...

Is transparent about their goals and how those relate to the project



Strategically Select Team Members and Define Their Roles

- Apply research networking systems to facilitate team assembly
- Staff key team roles and then assemble the rest of the team around the most important positions
- Consider the configuration or mix of members and whether they fit together on knowledge, skills, abilities, and other factors



National Research Council, 2015

<https://ctsi.psu.edu/research-support/team-science-toolbox/formation/>



Additional Strategies for Selecting Team Members



- Attend relevant workshops, conferences, and seminars with an interviewing lens
 - Does their work or expertise fit?
 - Do they have experience collaborating?
 - How do they discuss collaborations and authorship?
 - What kinds of stories do they tell you about their collaborations?

Who else needs to be on the team?

- Community Partners
- Program Managers
- Research Administrators
- Students



Diversity of Membership



- Disciplinary (e.g., biologist, epidemiologist, or statistician)
- Professional (e.g., academic, industry partner, community member)
- Career stage (e.g., early-stage vs. senior faculty)
- Demographic (e.g., race/ethnicity, gender, age)
- Personality type and work style (e.g., introvert vs. extrovert, task-oriented vs. relationship-oriented)



“Whoever we are, when we are at our best,
it is encounters with those who bring
different perspectives to our personal and
work lives that allow us to grow, personally
and professionally.”

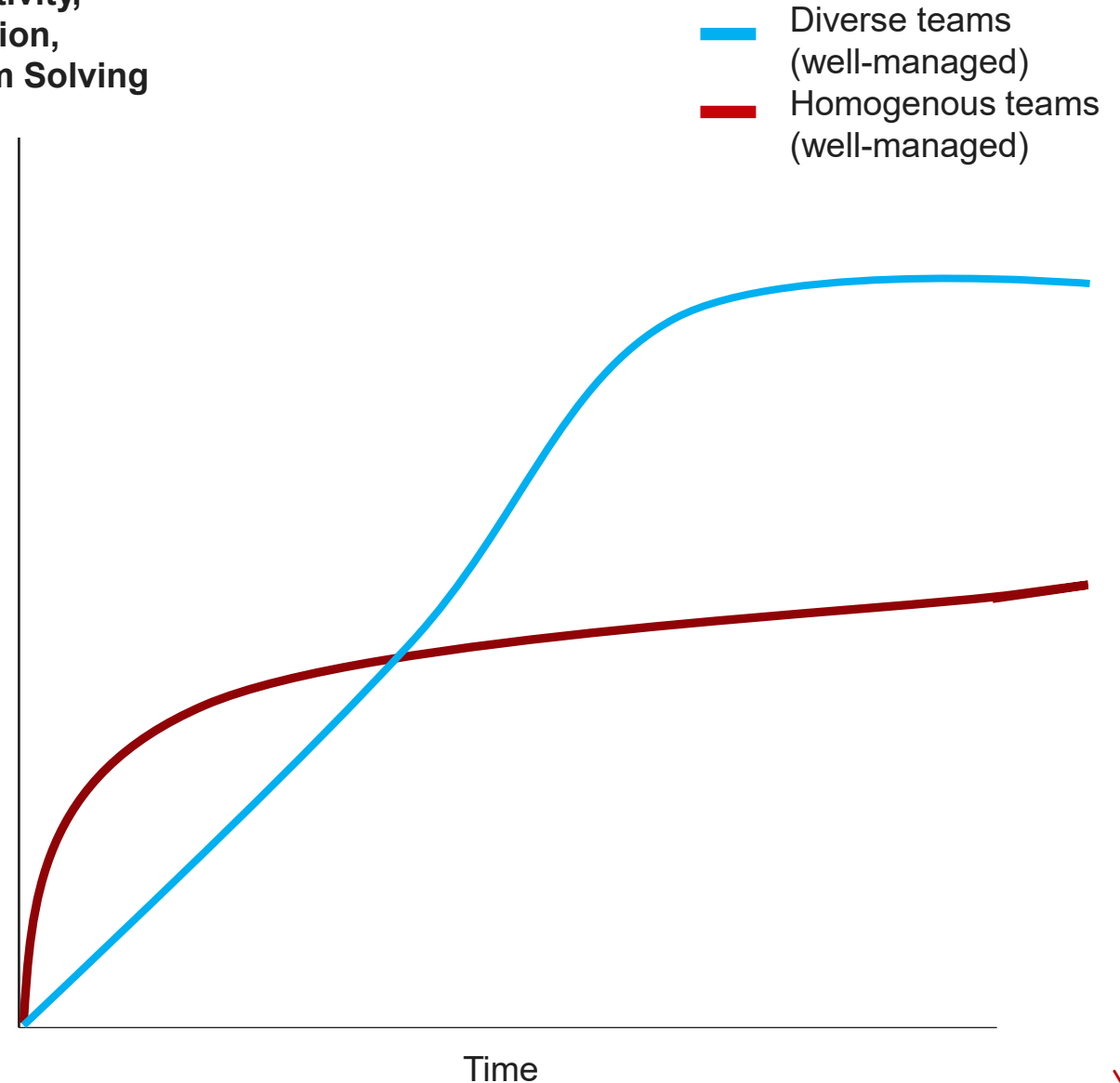
~Amy Edmondson's foreword
LaTonya Wilkins', *Leading Below the Surface*, 2021



Cognitive Diversity

- Refers to differences in perspective or information processing styles -- how individuals engage with uncertain and complex situations.
- Leads to greater innovation and expedited problem solving
- Is less visible and requires targeted assessment

Productivity,
Innovation,
Problem Solving



This figure synthesizes the work on the performance of diverse versus homogenous teams adapted from Katherine W. Philips (October 2014).





Activity: Recruiting Effective Collaborators

- How can you use what you have learned today to identify future collaborators?





Approaching and Selecting New Collaborators

- Approaching New Collaborators
 - Share your mission, vision, and goals
 - Ask them if they see a way they can contribute
 - Ask them what resources they would need to accomplish that contribution



You don't have to give them everything they ask for, but you do need to be aware of what they need to be successful!

Interviewing New Team Members

- Interviewing New Team Members
 - Performance-Based Questions
 - Can they do the work?
 - Values-Based Questions
 - Do they have shared values?
 - Behavior-Based Questions
 - How will they react to a situation?



The Flip Side: Evaluating Collaboration Opportunities



The collaboration

Does the collaborator have a reputation as a collaborative scientist?

Does this collaborator have a compatible organizational and management style to mine?

Can this collaboration achieve the stated goals?

My career needs

Will this collaboration help me achieve my vision?

What will I need to say no to if I say yes to this collaboration?

What will be the effort required to engage in this project scientifically?

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
- Strategically evaluate your new collaborators
 - Perspectives
 - Priorities



**What is one “next step”
you can take build an
innovative team?**





We value your feedback!

UW-ICTR



TEAM SCIENCE



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Resources

- **NCATS Translational Science Principles:** <https://ncats.nih.gov/training-education/translational-science-principles>
- **NIH Field Guide:** <https://www.cancer.gov/about-nci/organization/crs/research-initiatives/team-science-field-guide/collaboration-team-science-guide.pdf>
- **Research Matchmaking Tools**
 - **CAT-ME Team Maker:** <https://info.catme.org/features/team-maker/>
 - **Harvard Catalyst Profiles:** <https://connects.catalyst.harvard.edu/profiles/search/people>
 - **My Dream Team:** <https://sonic.northwestern.edu/home/software/c-iknow-mydreamteam/>
 - **SciVal:** <https://www.elsevier.com/solutions/scival>
 - **VIVO:** <https://www.ctsi.ufl.edu/research/vivo/>



Community of Practice: March 20, 2023

- Optional (virtual) adjunct to the first CAIRIBU Collaborative Science workshop
- Explore your unique team-building experiences through an informal discussion of case studies and participant examples
- You will enjoy this session most if you come prepared to share your
 - Successes
 - Questions and/or
 - 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

- **Psychological Safety and Team Success**
 - **Workshop:** April 3
 - **Community of Practice:** April 17
- **Successful Team Communication**
 - **Workshop:** May 1
 - **Community of Practice:** May 15
- **Setting Your Science Team Up for (Measuring) Success**
 - **Workshop:** June 5
 - **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