Working with your Research Development Office to Support Team Science

Overview

- Introductions
- What is Research Development?
- Building a Research Development office focused on Team Science support
- TS tools available to help
- Advice for working with your Research Development office

Betsy Rolland, PhD MLIS MPH
Director, Team Science + Research Development, Carbone Cancer Center and Institute for Clinical and Translational Research
University of Wisconsin-Madison

@betsyrolland

David Widmer, PhD
Manager, Scientific Development
Memorial Sloan Kettering Cancer Center

Holly J. Falk-Krzesinski, PhD
Vice President, Research Intelligence
Elsevier
Senior Adjunct Instructor, School of Professional Studies
Northwestern University

@hfalk14

What is Research Development?

"Research Development encompasses a set of **strategic**, **proactive**, **catalytic**, and **capacity-building** activities designed to facilitate individual faculty members, teams of researchers, and central research administrations in attracting extramural research funding, creating relationships, and developing and implementing strategies that increase institutional competitiveness."

--National Organization of Research Development Professionals (nordp.org)

NORDP 2020: May 17-20, 2020, San Antonio, TX

Research Development for Team Science

- What
  - Navigation and support for collaboration, cross-disciplinary research, research teams, and grantsmanship for collaborative opportunities
- How
  - Focusing on connecting the *science* of team science (empirical research on scientific teams) and the *praxis* of team science (the practical aspects of conducting science in teams)
- Who
  - Translate empirical research findings about team science into evidence-based effective practices for scientific teams, team leaders, and institutional leadership

Research Development for Team Science

- Collaboration Facilitation
  - Collaborator identification and referral/facilitation
  - Catalytic research development events (e.g., interdisciplinary meetings, research symposia)
- Proposal Development
  - Collaborative research & funding opportunity identification
  - Grantsmanship & proposal development support for collaborative grant opportunities
- Team Science Training
  - Team science grantsmanship training
  - TeamScience.net online tool
  - Leadership training
  - Collaborative Communication Workshops
- Policy
  - Appointment, Promotion & Tenure guidelines

Building a New RD office focused on TS Support

- New position: Director of Team Science + Research Development
  - 25% Carbone Cancer Center (UWCCC)
  - 25% Institute for Clinical and Translational Science (ICTR, our UW CTSA, as Director of the Team Science core)
  - 25% School of Medicine and Public Health (SMPH)
- Areas of Focus:
  - Providing RD and TS support for team-based proposals
  - TS education for individuals and teams
  - TS interventions for new teams or struggling teams
  - Science of Team Science research (ICTR)

Needs assessment at UW: What is the problem we are trying to solve?

- Low levels of federal funding vs comparable large R1 institutions
- High levels of institutional funding (pilots, internal grant programs) – reduced motivation to submit large grants
- Need to turn UWCCC and ICTR pilots into federal funding
- Low levels of large, team-science projects (U, P, multi-PI, etc.) – organizational barriers and lack of incentives to submit
- Support for team science is minimal, scattered, not discoverable, and not widely available
  - Objective: to increase education about what's available and what's necessary

- Overarching Goal:
  - To slowly, iteratively build a suite of evidence-based services available to large teams

Team Science Services

Research Program Development

- TS meeting facilitation
- Guidance on research integration

Funding and Collaborator Identification

- Monitoring coming RFAs
- Convening teams for new announcements
- Matchmaking, esp for methodologists

Proposal Development

- Governance strategy
- Facilitate discussions around TS elements of proposals, help with writing, esp how to respond to TS-specific review criteria

Collaboration Start-up

- Collaboration and team management plans
- Development of Manual of Operations (MoO)
- Implementation of governance strategy
- Communications strategy and systems development (portal, listservs, social media)
- TS and communications training for team
- Meeting facilitation, esp kick-off and full-team F2F meetings

Project Evaluation and Reporting

- Set-up of process measures for collaboration
- Conduct qualitative assessments of collaboration
- Interventions, if warranted, to increase team functioning

Intake Process

- We can't help everyone (hopefully)
- Started by prototyping processes with individuals or very small teams
- As we build to larger teams, need to create criteria for who gets our limited resources. Possible criteria:
  - Institutional priority areas
  - Funding agency priority areas (esp for UWCCC and ICTR center grants)
  - Complexity of proposal's team-science or interdisciplinarity requirements
  - Size of team
  - Amount of funding
  - Maturity of the team

Metrics (under development)

- **Goal: assess the team-science services and their impact**
- How are the supported teams doing?
  - Measures of collaboration (HFK to discuss tool)
  - Long-running teams (teams work together long-term: via grants and publications)
- How are we doing with the services we provide?
  - Strong demand for team-science services
  - Satisfaction surveys: were we helpful, did the teams feel they got the help needed?
  - Resources available for teams and usage of those resources (e.g., governance plans, authorship policies, multi-PI plan samples)
  - # teams submitted grants with TS sections or review criteria that we helped
  - # new teams convened for coming RFAs or high-priority topics
  - # grant kick-off meetings convened and facilitated
  - # team-science interventions delivered to both nascent and established teams
  - # evaluation plans developed and supported
  - # individuals and teams trained in TS best practices
  - $ submitted and secured

Science of Team Science

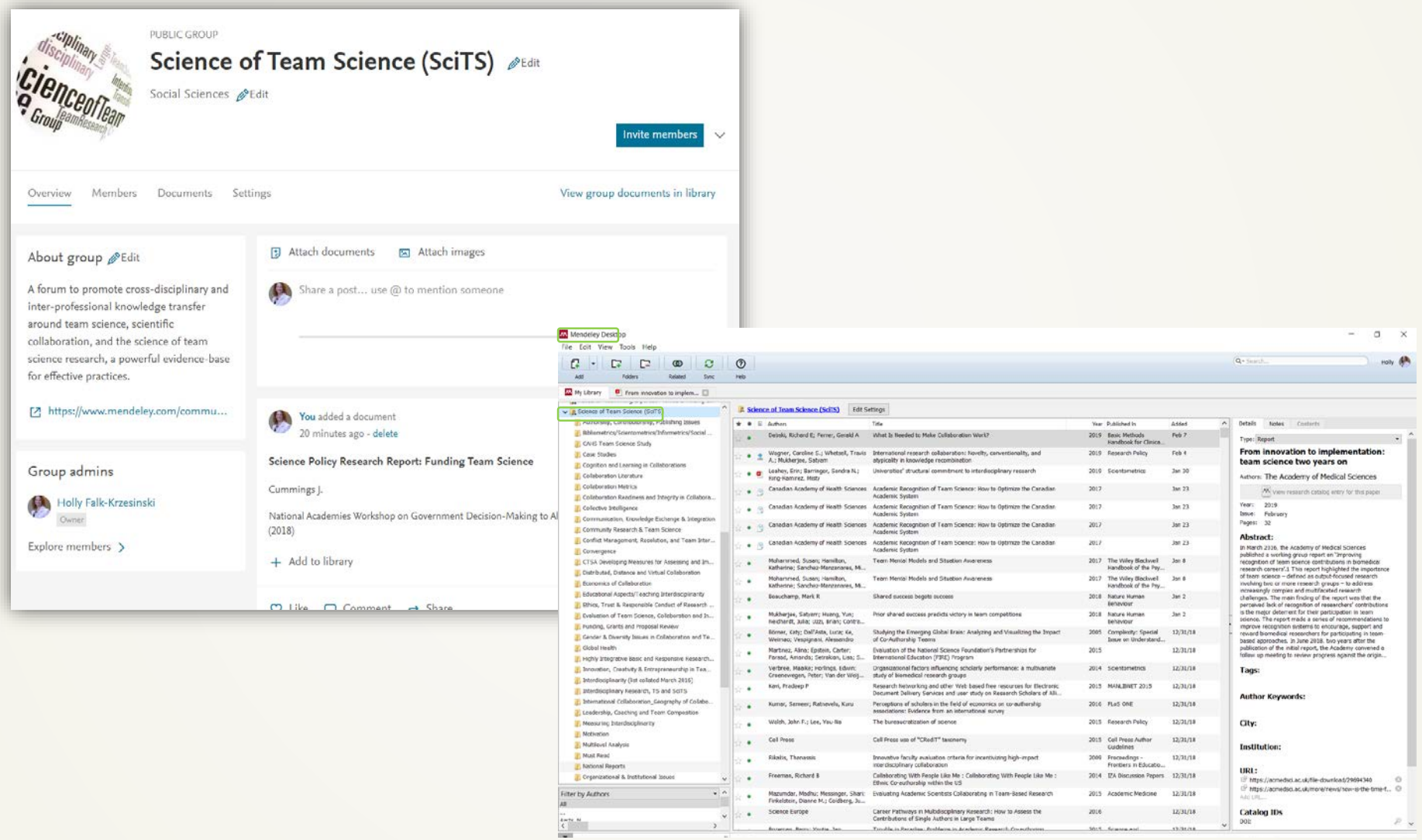
- **Develop evidence-base and training for support of *Team Science Facilitators***
- Goal of TSFs: To offload the "collaboration work" of Team Science onto a trained facilitator with deep scientific knowledge
- Potential activities:
  - Strategic planning
  - Collaboration development
  - Facilitating difficult and contentious discussions (as well as warm and cuddly ones)
  - Leading frequent, iterative, and corrective program evaluations
  - Developing and implementing consortium-level metrics of success
  - Planning next steps, particularly scientific and policy translation
  - Identifying synergies across intraconsortium projects, as well as making connections with related projects elsewhere

November 1 2017 (26) (11) 1581-1582; **DOI:** 10.1158/1055-9965.EPI-17-0471

Goal: To craft an intervention and test across the CTSAs

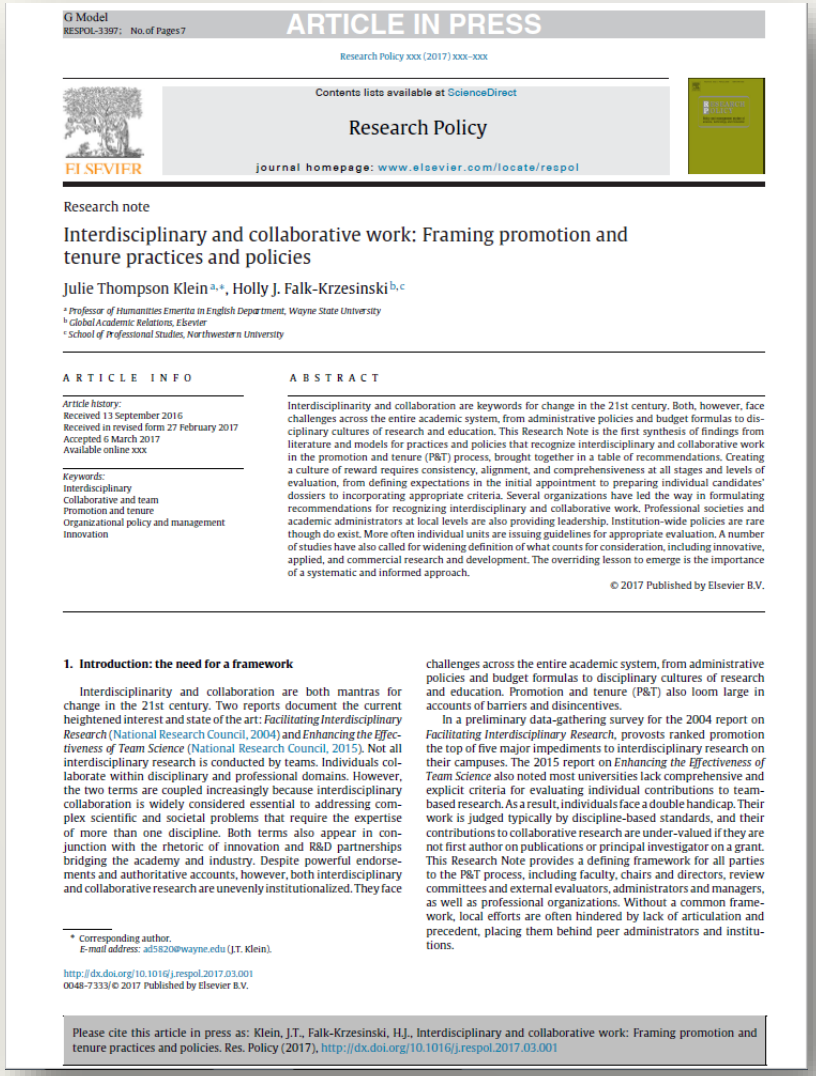
TS Tools RD Professionals Use

SciTS Group on Mendeley



https://www.mendeley.com/community/science-of-team-science-(scits)/

P&T Policy Recommendations



G Model
RESPOL-3397; No. of Pages 7

ARTICLE IN PRESS

Research Policy xxx (2017) xxx–xxx

Contents lists available at ScienceDirect

Research Policy

journal homepage: www.elsevier.com/locate/respol

Research note

Interdisciplinary and collaborative work: Framing promotion and tenure practices and policies

Julie Thompson Klein[a,*], Holly J. Falk-Krzesinski[b,c]

[a] Professor of Humanities Emerita in English Department, Wayne State University
[b] Global Academic Relations, Elsevier
[c] School of Professional Studies, Northwestern University

ARTICLE INFO

Article history:
Received 13 September 2016
Received in revised form 27 February 2017
Accepted 6 March 2017
Available online xxx

Keywords:
Interdisciplinary
Collaborative and team
Promotion and tenure
Organizational policy and management
Innovation

ABSTRACT

Interdisciplinarity and collaboration are keywords for change in the 21st century. Both, however, face challenges across the entire academic system, from administrative policies and budget formulas to disciplinary cultures of research and education. This Research Note is the first synthesis of findings from literature and models for practices and policies that recognize interdisciplinary and collaborative work in the promotion and tenure (P&T) process, brought together in a table of recommendations. Creating a culture of reward requires consistency, alignment, and comprehensiveness at all stages and levels of evaluation, from defining expectations in the initial appointment to preparing individual candidates' dossiers to incorporating appropriate criteria. Several organizations have led the way in formulating recommendations for recognizing interdisciplinary and collaborative work. Professional societies and academic administrators at local levels are also providing leadership. Institution-wide policies are rare though do exist. More often individual units are issuing guidelines for appropriate evaluation. A number of studies have also called for widening definition of what counts for consideration, including innovative, applied, and commercial research and development. The overriding lesson to emerge is the importance of a systematic and informed approach.

1. Introduction: the need for a framework

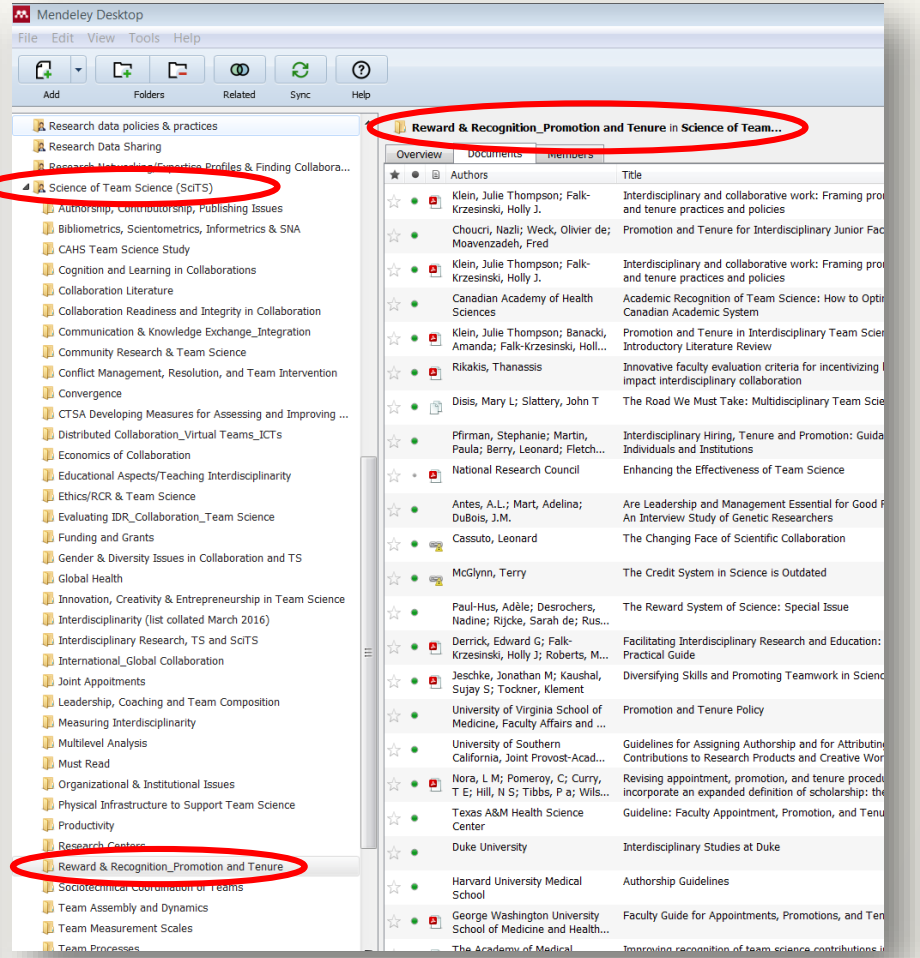
Interdisciplinarity and collaboration are both mantras for change in the 21st century. Two reports document the current heightened interest and state of the art: *Facilitating Interdisciplinary Research* (National Research Council, 2004) and *Enhancing the Effectiveness of Team Science* (National Research Council, 2015). Not all interdisciplinary research is conducted by teams. Individuals collaborate within disciplinary and professional domains. However, the two terms are coupled increasingly because interdisciplinary collaboration is widely considered essential to addressing complex scientific and societal problems that require the expertise of more than one discipline. Both terms also appear in conjunction with the rhetoric of innovation and R&D partnerships bridging the academy and industry. Despite powerful endorsements and authoritative accounts, however, both interdisciplinary and collaborative research are unevenly institutionalized. They face challenges across the entire academic system, from administrative policies and budget formulas to disciplinary cultures of research and education. Promotion and tenure (P&T) also loom large in accounts of barriers and disincentives.

In a preliminary data-gathering survey for the 2004 report on *Facilitating Interdisciplinary Research*, provosts ranked promotion the top of five major impediments to interdisciplinary research on their campuses. The 2015 report on *Enhancing the Effectiveness of Team Science* also noted most universities lack comprehensive and explicit criteria for evaluating individual contributions to team-based research. As a result, individuals face a double handicap. Their work is judged typically by discipline-based standards, and their contributions to collaborative research are under-valued if they are not first author on publications or principal investigator on a grant. This Research Note provides a defining framework for all parties to the P&T process, including faculty, chairs and directors, review committees and external evaluators, administrators and managers, as well as professional organizations. Without a common framework, local efforts are often hindered by lack of articulation and precedent, placing them behind peer administrators and institutions.

* Corresponding author.
E-mail address: ad5820@wayne.edu (J.T. Klein).

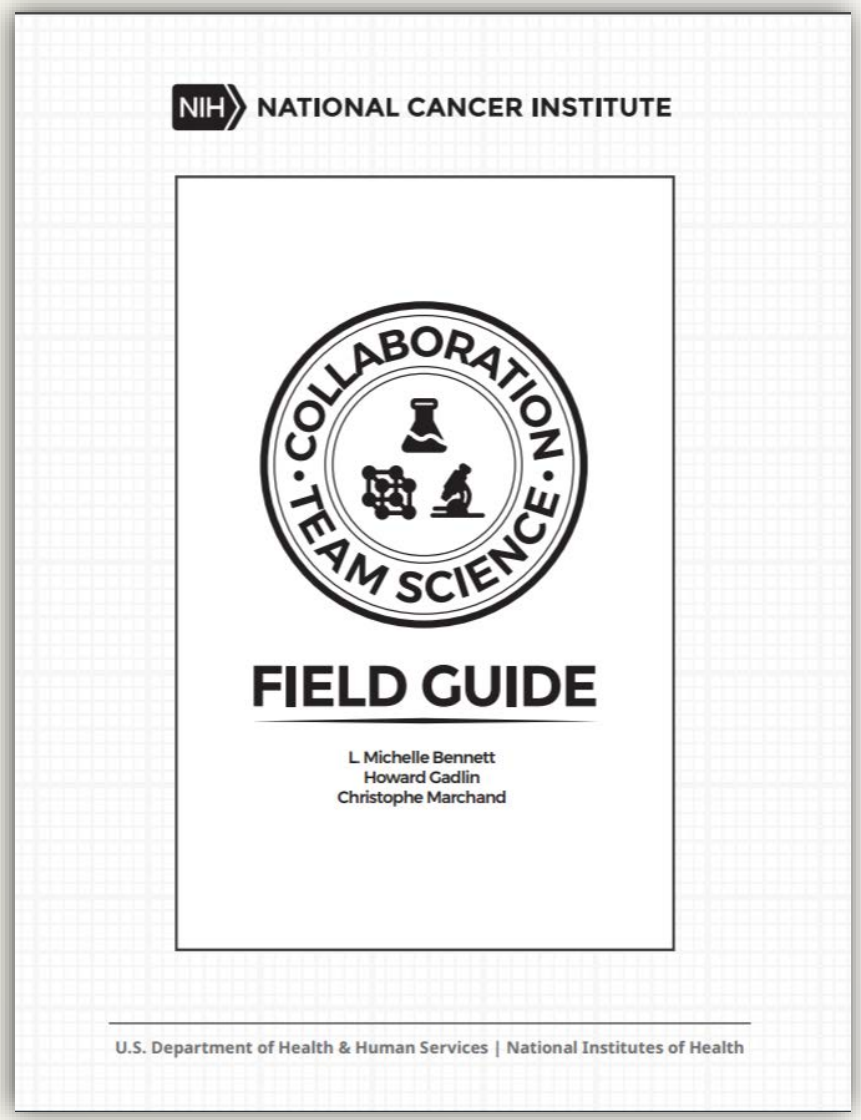
http://dx.doi.org/10.1016/j.respol.2017.03.001
0048-7333/

Please cite this article in press as: Klein, J.T., Falk-Krzesinski, H.J., Interdisciplinary and collaborative work: Framing promotion and tenure practices and policies. Res. Policy (2017), http://dx.doi.org/10.1016/j.respol.2017.03.001



Klein, J. T. & Falk-Krzesinski, H. J. Interdisciplinary and collaborative work: Framing promotion and tenure practices and policies. Res. Policy, In Press (2017).

A Field Guide/Partner Agreement



- Overall Goals & Vision
- Who Will Do What
- Sharing/Storing Reagents & Data
- Authorship, Credit
- Contingencies & Communicating
- Conflict of Interest

https://www.cancer.gov/about-nci/organization/crs/research-initiatives/team-science-field-guide

See also Bennett, L.M., and Gadlin, H. (2012). Collaboration and Team Science: From Theory to Practice. J Invest Med 60, 768-775

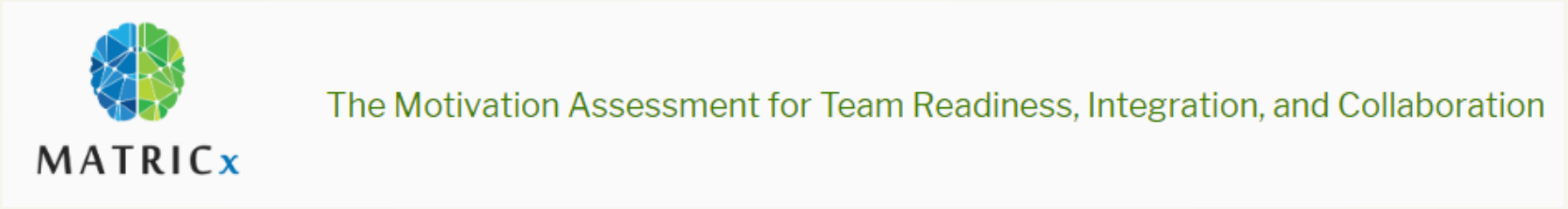
Toolbox Dialogue Initiative

TOOLBOX DIALOGUE INITIATIVE ™

A Toolbox Dialogue Initiative (TDI, formerly Toolbox Project) 'Collaborative Communication Workshop' provides a philosophical yet practical enhancement to cross-disciplinary, collaborative science. Rooted in philosophical analysis, the Toolbox workshop enables investigators, research development professionals, project managers, and collaborators to engage in a structured dialogue about their research assumptions and cross-disciplinary collaboration. This yields both self-awareness and mutual understanding, supplying individuals with the robust foundation needed for effective collaborative research. Led by Toolbox Project Facilitators, Workshop participants will engage in small group discussion and share respective views in response to a number of probing statements about science motivation, methodology, confirmation, objectivity, values, and reductionism.

http://tdi.msu.edu/

Individual Collaboration Readiness Tool



- The Motivation Assessment for Team Readiness Integration and Collaboration (MATRICx) is a psychometric instrument that measures motivations and threats to collaboration in knowledge producing teams (KPTs) of biomedical and health professionals. It is calibrated using Rasch analysis and provides users with individual, team, and composite profiles of collaborative and cooperative strength.

http://matricx.net/

Collaboration Success Wizard

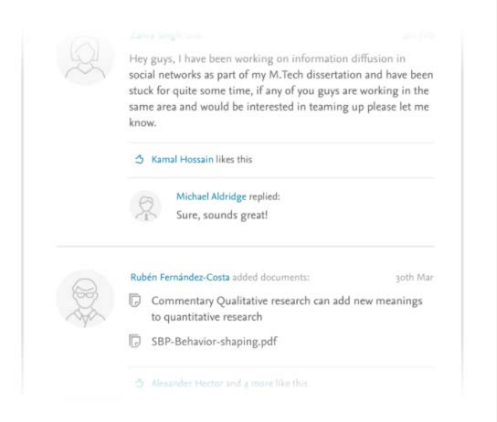
- On-line diagnostic survey for geographically distributed collaborations. The survey probes factors that may strengthen or weaken the collaboration. The Wizard provides both personal and project-level reports to help build successful and productive collaborative projects.

http://hana.ics.uci.edu/wizard/

Mendeley to Support Collaboration

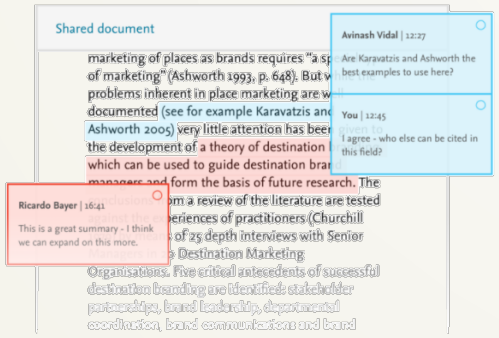
Collaborate with colleagues worldwide

Create a new group dedicated to your topic and invite colleagues from all over the world to join. You can also create Private Groups that are only visible to invited members, letting you share information securely. Groups make it easier to discover ideas and inspire new ones.



Engage in interesting discussions

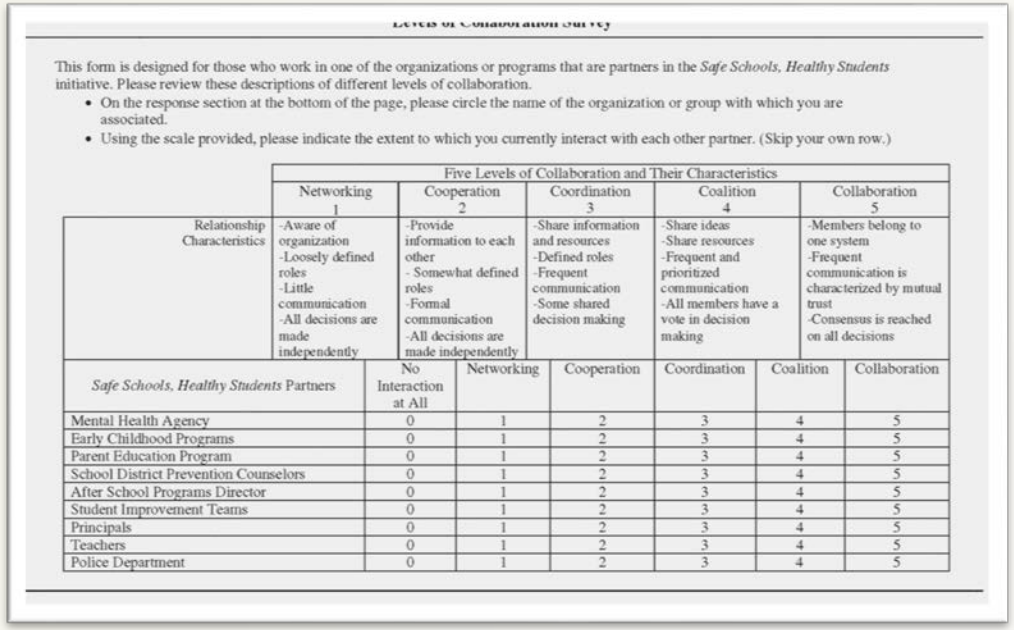
Connect with like-minded researchers in institutions around the world so that you can combine your knowledge and find new avenues for research.



Curate and share reading lists

You can browse other members' public reading lists to discover relevant content. You can also review articles with your collaborators. When a group member adds a note/highlight/summary to a document, the edit is visible to all members of the group

Levels of Collaboration Survey

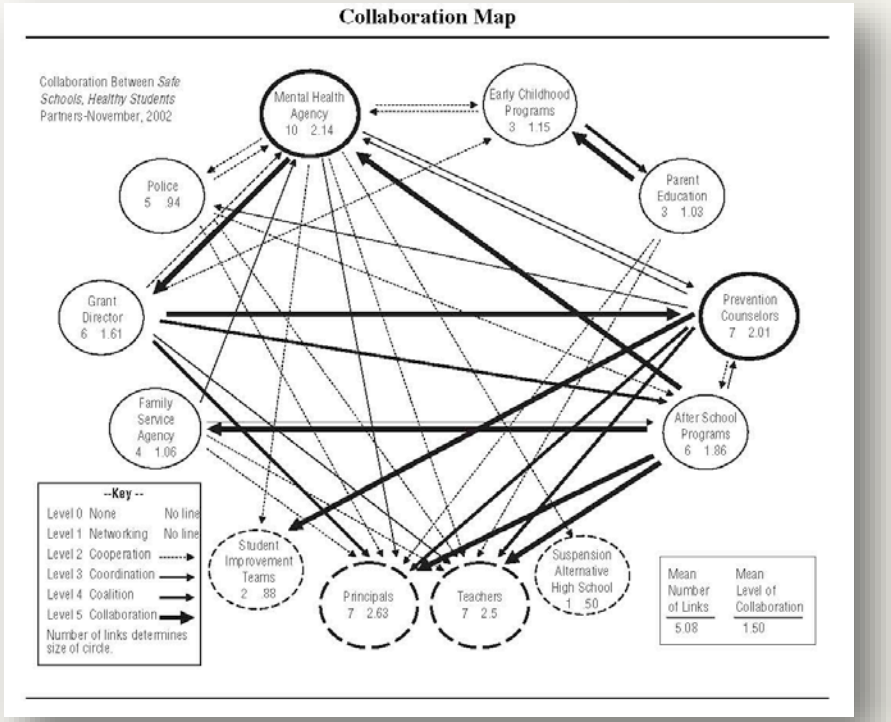


This form is designed for those who work in one of the organizations or programs that are partners in the *Safe Schools, Healthy Students* initiative. Please review these descriptions of different levels of collaboration.

- On the response section at the bottom of the page, please circle the name of the organization or group with which you are associated.
- Using the scale provided, please indicate the extent to which you currently interact with each other partner. (Skip your own row.)

	Five Levels of Collaboration and Their Characteristics				
	Networking 1	Cooperation 2	Coordination 3	Coalition 4	Collaboration 5
Relationship Characteristics	-Aware of organization -Loosely defined roles -Little communication -All decisions are made independently	-Provide information to each other - Somewhat defined roles -Formal communication -All decisions are made independently	-Share information and resources -Defined roles -Frequent communication -Some shared decision making	-Share ideas -Share resources -Frequent and prioritized communication -All members have a vote in decision making	-Members belong to one system -Frequent communication is characterized by mutual trust -Consensus is reached on all decisions

Safe Schools, Healthy Students Partners	No Interaction at All	Networking	Cooperation	Coordination	Coalition	Collaboration
Mental Health Agency	0	1	2	3	4	5
Early Childhood Programs	0	1	2	3	4	5
Parent Education Program	0	1	2	3	4	5
School District Prevention Counselors	0	1	2	3	4	5
After School Programs Director	0	1	2	3	4	5
Student Improvement Teams	0	1	2	3	4	5
Principals	0	1	2	3	4	5
Teachers	0	1	2	3	4	5
Police Department	0	1	2	3	4	5

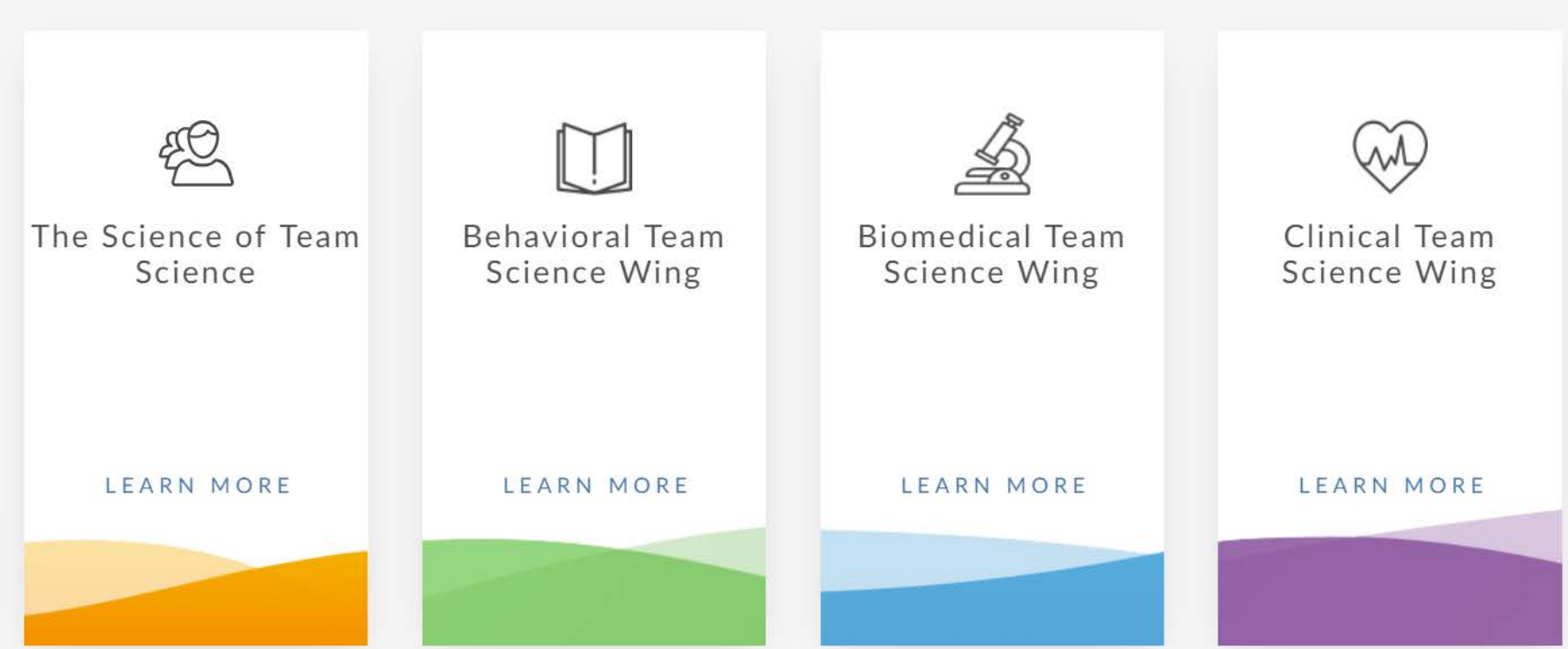


Frey, B.B., Lohmeier, J.H., Lee, S.W., and Tollefson, N. (2006). Measuring collaboration among grant partners. American Journal of Evaluation 27, 383-392.

Case Studies: Portable Team Science Training

TeamScience.net

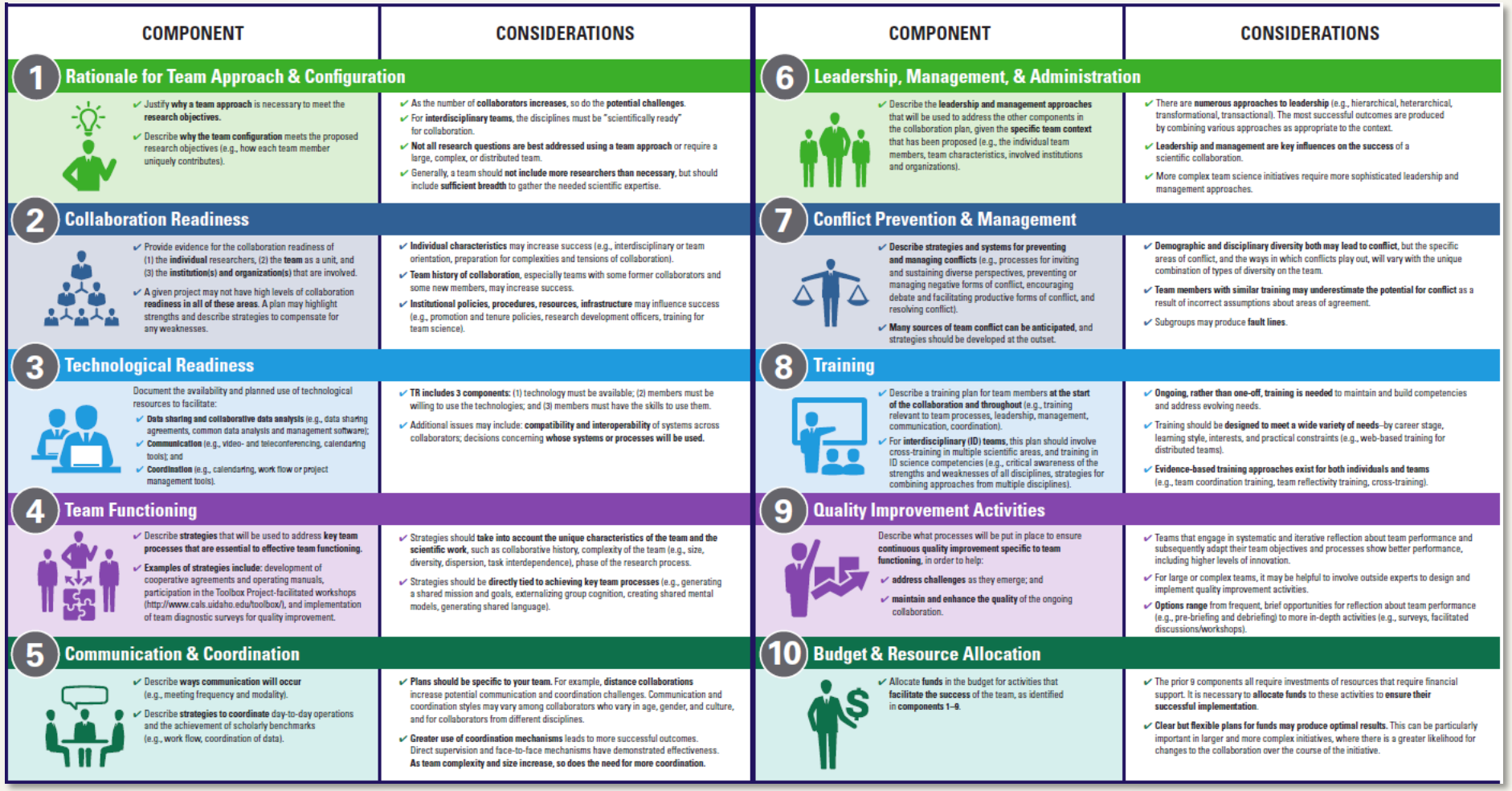
- Learn to perform trans-disciplinary, team-based translational research



www.teamscience.net

References: Hesse, B.W. (2011). COALESCE (CTSA Online Assistance for Leveraging the Science of Collaborative Effort). JAMA: The Journal of the American Medical Association *306*, 1925-1926.

Collaboration Plan Development



https://www.teamsciencetoolkit.cancer.gov/Public/TSResourceBiblio.aspx?tid=3&rid=3119
http://www.teamsciencetoolkit.cancer.gov/public/TSResourceBiblio.aspx?tid=3&rid=3261

Team Science-Specific Review Criteria

NIH

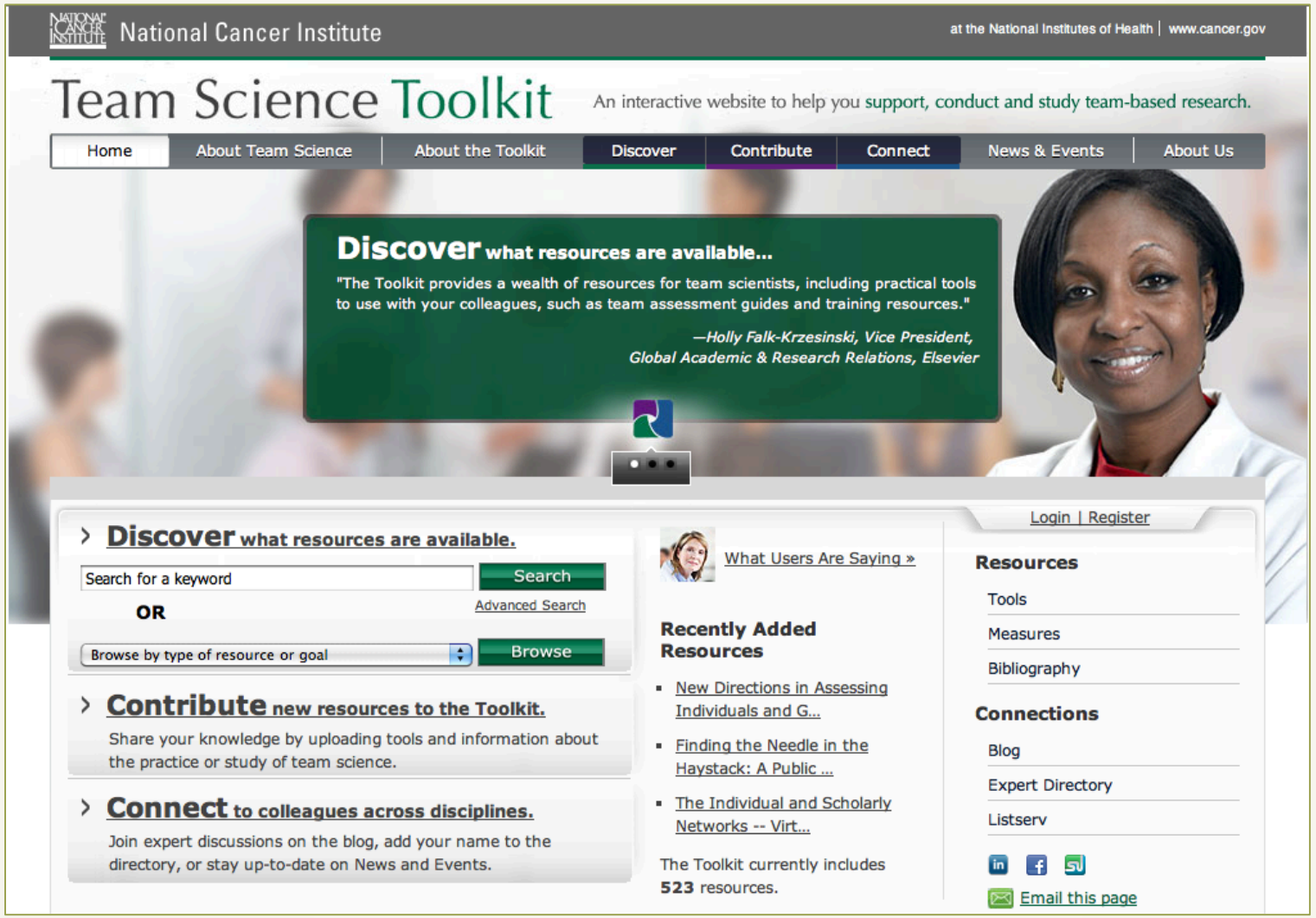
- Scored (Core) Review Criteria
  - An existing standard Scored Review Criterion
  - Additional team science-specific review elements associated with one or more of the five standard Scored (Core) Review Criteria
  - A new, additional sixth Scored Review Criterion
- Additional Review Criteria
- Extra Review Elements

NSF

- Additional Solicitation Specific Review Criteria
  - Systems Approach
  - Interdisciplinary Integration
  - Network Structure
  - Management, Organization and Evaluation
  - Transdisciplinarity/Synergy
  - Quality and Value of Collaboration
  - Others

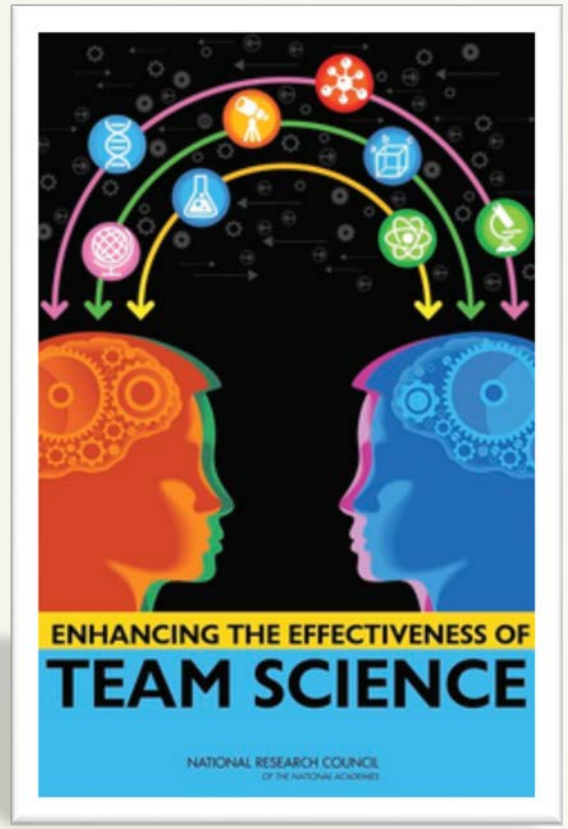
Source: Holly Falk-Krzesinski, initially presented at NORDP 2018

Team Science Toolkit



www.teamsciencetoolkit.cancer.gov

National Academies Consensus Report



BOARD ON BEHAVIORAL, COGNITIVE, AND SENSORY SCIENCES
DIVISION OF BEHAVIORAL AND SOCIAL SCIENCES AND EDUCATION

Thursday, December 11, 2014

enter search terms | Search

Subscribe | SHARE | Contact Us

BBCSS HOME | ABOUT BBCSS | NEWS AND EVENTS | OUR WORK | PUBLICATIONS | WORK WITH US

BBCSS - TOPICS

- Cognitive Sciences and Learning
- Health and Aging
- National Security and Intelligence
- Research and Evaluation

The Science of Team Science

Project Scope

The NRC will conduct a consensus study on the science of team science to recommend opportunities to enhance the effectiveness of collaborative research in science teams, research centers, and institutes. The science of team science is a new interdisciplinary field that empirically examines the processes by which large and small scientific teams, research centers, and institutes organize, communicate, and conduct research. It is concerned with understanding and managing circumstances that facilitate or hinder the effectiveness of collaborative research, including translational research. This includes understanding how teams connect and collaborate to achieve scientific breakthroughs that would not be attainable by either individual or simply additive efforts. The committee will consider factors such as team dynamics, team management, and institutional structures and policies that affect large and small science teams. Among the questions the committee will explore are:

- How do individual factors (e.g., openness to divergent ideas), influence team dynamics (e.g., cohesion), and how, in turn, do both individual factors and team dynamics influence the effectiveness and productivity of science teams?
- What factors at the team, center, or institute level (e.g., team size, team membership, geographic dispersion) influence the effectiveness of science teams?
- How do different management approaches and leadership styles influence the effectiveness of science teams? For example, different approaches to establishing work roles and routines and to the division of labor may influence team effectiveness.
- How do current tenure and promotion policies acknowledge and provide incentives to academic researchers who engage in team science?
- What factors influence the productivity and effectiveness of research organizations that conduct and support team and collaborative science, such as research centers and institutes? How do such organizational factors as human resource policies and practices and cyberinfrastructure affect team and collaborative science?
- What types of organizational structures, policies, practices and resources are needed to promote effective team science, in academic institutions, research centers, industry, and other settings?

Sponsored by the National Science Foundation and Elsevier, the project began in October, 2012. A report will be issued in late 2014 or early 2015.

Members

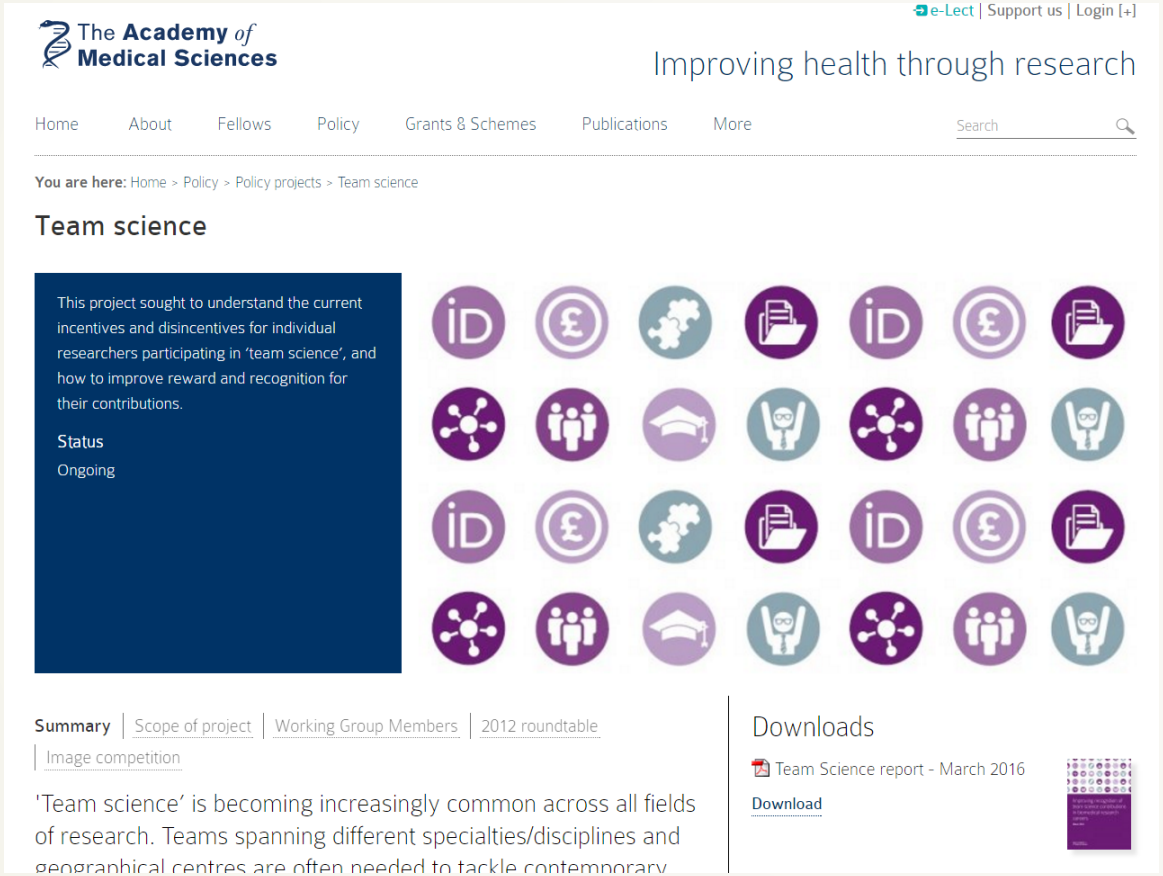
Dr. Nancy J. Cooke, *Chair*, Arizona State University
Dr. Roger Blandford, Department of Physics, Stanford University

NSF

ELSEVIER

http://sites.nationalacademies.org/dbasse/bbcss/currentprojects/dbasse_080231

Academy of Medical Sciences Reports



http://www.acmedsci.ac.uk/policy/policy-projects/team-science/

Canadian Academy of Health Sciences Report

Canadian Academy of Health Sciences

Evidence for a Healthier Canada / Des données probantes pour un Canada en meilleure santé

ABOUT US FELLOWS OUR WORK NEWS AND EVENTS Language: EN

Academic Recognition of Team Science: How to Optimize the Canadian Academic System

Background

Research questions and methodologies have become more complex in recent decades. As a result, successful health science research relies more and more on collaboration among experts across disciplines, institutions, or countries, all working together in research teams. While team science yields many benefits for scientific discovery, it is not without risk for individual team members. Concerns about appropriate recognition for personal contributions and — by extension — career advancement can discourage strong researchers from collaborating in team science projects. The problem lies in how to fairly evaluate the research records of applicants (for advancement, promotion, tenure, or funding) who have devoted much of their activities to team science. This can particularly affect specialists (e.g., biostatisticians, communicators, bioethicists) whose work is often critical to the success of projects led by others. Overall, academic institutions, funding agencies, and research award programs in Canada have been slow to adapt assessment/evaluation processes to recognize the contributions of individual investigators to team science.

The factors that hamper the fair evaluation of individual work performed in a team are numerous. They can exist in institutional structures, in the structure of review committees, and within the actual assessment/evaluation process itself as set forth by universities and funders. This report therefore examines these factors through three lenses: culture and behaviour, review committees, and assessment/evaluation. Promising practices and recommendations are also presented through these lenses.

This assessment was initially proposed by the Canadian Cancer Research Alliance, which also served as one of the sponsors. The other sponsors include Alberta Innovates — Health Solutions, the Canadian Institutes for Health Research, Fonds de recherche

http://www.cahs-acss.ca/academic-recognition-of-team-science-how-to-optimize-the-canadian-academic-system/

Elsevier Fostering Collaboration

https://p.widencdn.net/fi0lp1/ACAD_RL_RI_BRO_FosteringCollaboration_EN_WEB

Advice for working with your RD Office

Goal: To work closely with your RD office to improve the quality of your institution's large, complex TS proposals (practitioners, administrators)

Consider:

- RD teams have limited resources: Reach out early!
- Think about the specific "asks" you have for your RD team. How can they provide unique help and input not otherwise available to your team?
- How does your proposal add unique value to the institution?

Remember:

- Not all RD offices understand TS, so you may have to do some education

Advice for working with your RD Office

Goal: To work closely with your RD office to improve the quality of TS being conducted at your institution (TS researchers/interventionists)

Consider:

- RD teams have a high-level view of large, complex proposals and teams so can be a source of referrals and a source of barriers/facilitators and needs assessments
- RD teams are often located within central administration so can help communicate the value of TS interventions
- What will resonate with your leadership to help convince them to invest in TS education?

Questions?

Holly Falk-Krzesinski: H.Falk-Krzesinski@elsevier.com

Betsy Rolland: BRolland@wisc.edu

David Widmer: WidmerD@mskcc.org