University of Idaho

Zoom participants: Please keep your microphone muted until the Q&A session

DEVELOPING SUCCESSFUL PROJECT MANAGEMENT PLANS FOR LARGE PROPOSALS

RESEARCH AND FACULTY DEVELOPMENT
FACULTY SUCCESS SEMINAR SERIES

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Please note that this session is being recorded

OFFICE OF RESEARCH AND FACULTY DEVELOPMENT

- We provide proposal development assistance across the spectrum*

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*Not including budget preparation

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- After the Q&A session: brief 3 question sli.do poll
  - *On a scale from 1-5, how helpful was this seminar?*
  - *What did you like most about this seminar?*
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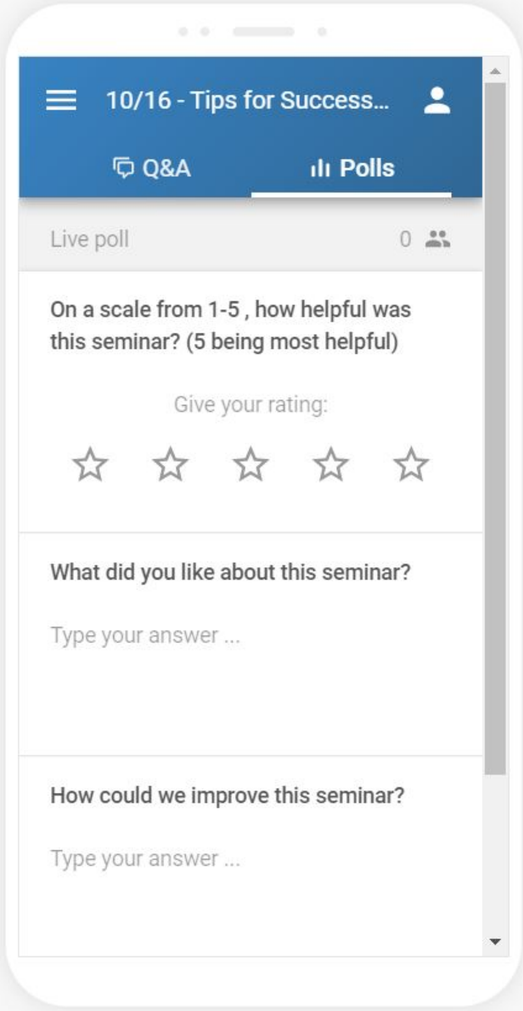

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FACULTY SUCCESS SEMINARS

Let Us Be Your Guide Through the Proposal Development Process

University of Idaho
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JOIN US IN IRIC 305
12:30 P.M. – 1:30 P.M. PT

Can't join us in person? Then join us live via Zoom: uidaho.zoom.us/j/798224314. Each seminar will be recorded and be available on our website.

OBJECTIVES

IN THIS SESSION, WE WILL DISCUSS:

- Project Management Plans – definitions, organization
- Introduce Collaboration Planning – connections to team science and large proposal development
- Review Collaboration Plan components and considerations
- Share tools and resources
- Connect Collaboration Plans to Project Management Plans

PROJECT MANAGEMENT PLANS

- May vary widely by program type and funding agency
- Makes a compelling case that a funded project will be consistently and carefully managed and will meet the sponsor's expectations
- Demonstrates that PIs will function as effective and efficient stewards of an agency's research investment

Cronan, Mike. Strategies for Planning, Developing, and Writing Large Team Grants. College Station, TX: Academic Research Funding Strategies, LLC. (2013). 184 pp.

PROJECT MANAGEMENT PLANS

- Administrative Core section or as a separate document - Project Leadership Plans for Multiple PI Grant Applications
- Purpose: Address administrative processes and PI responsibilities

- Program Roles and responsibilities
- Fiscal and management coordination
- Decision making process for scientific direction
- Allocation of resources
- Data sharing and communication
- Publication and intellectual property
- Procedures for resolving conflicts

- In Project Description or as separate Supplementary Document
- Purpose: Describes how project and collaborations will be managed

- Program Roles and responsibilities
- Project Management tasks
- Approaches to integrate research
- Communication & coordination mechanisms
- Project activities, milestones and timeline
- Data Management (*separate section*)

PROJECT MANAGEMENT PLANS

How these are often constructed:

- PI is the primary writer and architect
- Developed along w/ other supplementary documents
- Proposal guidelines used as a checklist

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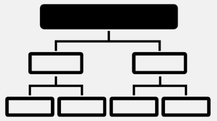
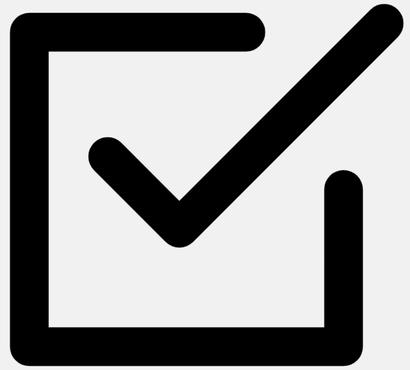
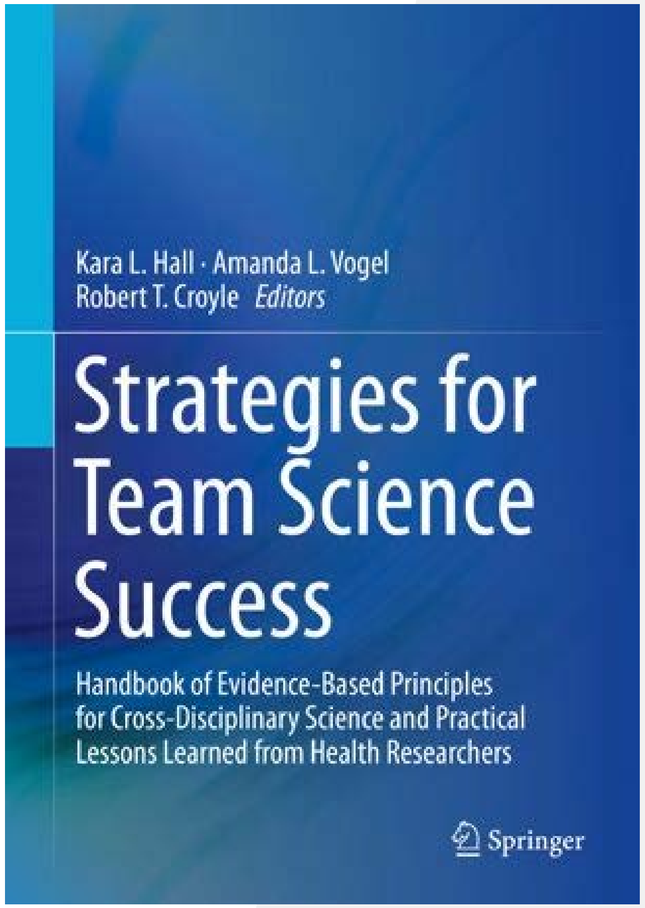
Collaboration Planning Approach

- Roles and responsibilities 
- Project activities, milestones and timeline
- Often uses standard institutional language



COLLABORATION PLANNING APPROACH



Hall K.L., Vogel A.L., Crowston K. (2019)

Comprehensive Collaboration Plans: Practical Considerations Spanning Across Individual Collaborators to Institutional Supports.

In: Hall K., Vogel A., Croyle R. (eds) Strategies for Team Science Success. Springer, Cham. 633 pp.

https://doi.org/10.1007/978-3-030-20992-6_45

COLLABORATION PLANNING APPROACH

FRAMEWORK ORIGINS:

Office of Science and Technology Policy (OSTP)

↓

Networking and Information Technology Research and Development (NITRD) Program

↓

NITRD Subcommittee on Team Science (2014)

- Chapter authors were chairs or members of NITRD Subcommittee on Team Science
- Developed Collaboration Planning Framework with input from numerous federal agencies
- Potential use to enhance federal application process for team science grant initiatives

COLLABORATION PLANNING

WHAT, WHY:

- Roadmap to facilitate effective team formation and functioning
- Assess and enhance team readiness
- Demonstrate effective team organization to funding agencies

COLLABORATION PLANNING

WHAT, WHY:

Team Science – Potential to achieve complex and sophisticated research goals

Team Science – Unique costs related to management of large complex teams

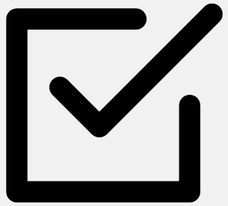
Collaboration Plan – Presents roadmap for effective team functioning

COLLABORATION PLANNING

WHAT, WHY:

Team Science

- Internal facing - Project → Collaboration Planning Framework
- External facing - Proposal → Project Management Plan



HOW TO WRITE A COLLABORATION PLAN

COMPONENT	CONSIDERATIONS
1 Rationale for Team Approach & Configuration	
✓ Justify **why a team approach** is necessary to meet the **research objectives.** ✓ Describe **why the team configuration** meets the proposed research objectives (e.g., how each team member uniquely contributes).	✓ As the number of **collaborators increases**, so do the **potential challenges.** ✓ For **interdisciplinary teams**, the disciplines must be "scientifically ready" for collaboration. ✓ **Not all research questions are best addressed using a team approach** or require a large, complex, or distributed team. ✓ Generally, a team should **not include more researchers than necessary**, but should include **sufficient breadth** to gather the needed scientific expertise.
2 Collaboration Readiness	
✓ Provide evidence for the collaboration readiness of: (1) the **individual** researchers, (2) the **team** as a unit, and (3) the **institution(s) and organization(s)** that are involved. ✓ A given project may not have high levels of collaboration **readiness in all of these areas.** A plan may highlight strengths and describe strategies to compensate for any weaknesses.	✓ **Individual characteristics** may increase success (e.g., interdisciplinary or team orientation, preparation for complexities and tensions of collaboration). ✓ **Team history of collaboration**, especially teams with some former collaborators and some new members, may increase success. ✓ **Institutional policies, procedures, resources, infrastructure** may influence success (e.g., promotion and tenure policies, research development officers, training for team science).
3 Technological Readiness	
Document the availability and planned use of technological resources to facilitate: ✓ **Data sharing and collaborative data analysis** (e.g., data sharing agreements, common data analysis and management software); ✓ **Communication** (e.g., video- and teleconferencing, calendaring tools); and ✓ **Coordination** (e.g., calendaring, work flow or project management tools).	✓ **TR includes 3 components:** (1) technology must be available; (2) members must be **willing** to use the technologies; and (3) members must have the skills to use them. ✓ Additional issues may include: **compatibility and interoperability** of systems across collaborators; decisions concerning **whose systems or processes will be used.**
4 Team Functioning	
✓ Describe **strategies** that will be used to address **key team processes that are essential to effective team functioning.** ✓ **Examples of strategies include:** development of cooperative agreements and operating manuals, participation in the Toolbox Project facilitated workshops (http://www.cals.uidaho.edu/toolbox/), and implementation of team diagnostic surveys for quality improvement.	✓ Strategies should **take into account the unique characteristics of the team and the scientific work**, such as collaborative history, complexity of the team (e.g., size, diversity, dispersion, task interdependence), phase of the research process. ✓ Strategies should be **directly tied to achieving key team processes** (e.g., generating a shared mission and goals, externalizing group cognition, creating shared mental models, generating shared language).
5 Communication & Coordination	
✓ Describe **ways communication will occur** (e.g., meeting frequency and modality). ✓ Describe **strategies to coordinate** day-to-day operations and the achievement of scholarly benchmarks (e.g., work flow, coordination of data).	✓ **Plans should be specific to your team.** For example, **distance collaborations** increase potential communication and coordination challenges. Communication and coordination styles may vary among collaborators who vary in age, gender, and culture, and for collaborators from different disciplines. ✓ **Greater use of coordination mechanisms** leads to more successful outcomes. Direct supervision and face-to-face mechanisms have demonstrated effectiveness. **As team complexity and size increase, so does the need for more coordination.**

COMPONENT	CONSIDERATIONS
6 Leadership, Management, & Administration	
✓ Describe the **leadership and management approaches** that will be used to address the other components in the collaboration plan, given the **specific team context** that has been proposed (e.g., the individual team members, team characteristics, involved institutions and organizations).	✓ There are **numerous approaches to leadership** (e.g., hierarchical, heterarchical, transformational, transactional). The most successful outcomes are produced by combining various approaches as appropriate to the context. ✓ **Leadership and management are key influences on the success** of a scientific collaboration. ✓ More complex team science initiatives require more sophisticated leadership and management approaches.
7 Conflict Prevention & Management	
✓ **Describe strategies and systems for preventing and managing conflicts** (e.g., processes for inviting and sustaining diverse perspectives, preventing or managing negative forms of conflict, encouraging debate and facilitating productive forms of conflict, and resolving conflict). ✓ **Many sources of team conflict can be anticipated**, and strategies should be developed at the outset.	✓ **Demographic and disciplinary diversity both may lead to conflict**, but the specific areas of conflict, and the ways in which conflicts play out, will vary with the unique combination of types of diversity on the team. ✓ **Team members with similar training may underestimate the potential for conflict** as a result of incorrect assumptions about areas of agreement. ✓ Subgroups may produce **fault lines.**
8 Training	
✓ Describe a training plan for team members **at the start of the collaboration and throughout** (e.g., training relevant to team processes, leadership, management, communication, coordination). ✓ For **interdisciplinary (ID) teams**, this plan should involve cross-training in multiple scientific areas, and training in ID science competencies (e.g., critical awareness of the strengths and weaknesses of all disciplines, strategies for combining approaches from multiple disciplines).	✓ **Ongoing, rather than one-off, training is needed** to maintain and build competencies and address evolving needs. ✓ Training should be **designed to meet a wide variety of needs** (by career stage, learning style, interests, and practical constraints (e.g., web-based training for distributed teams). ✓ **Evidence-based training approaches exist for both individuals and teams** (e.g., team coordination training, team reflexivity training, cross-training).
9 Quality Improvement Activities	
Describe what processes will be put in place to ensure **continuous quality improvement specific to team functioning,** in order to help: ✓ **address challenges** as they emerge; and ✓ **maintain and enhance the quality** of the ongoing collaboration.	✓ Teams that engage in systematic and iterative reflection about team performance and subsequently adapt their team objectives and processes show better performance, including higher levels of innovation. ✓ For large or complex teams, it may be helpful to involve outside experts to design and implement quality improvement activities. ✓ **Options range** from frequent, brief opportunities for reflection about team performance (e.g., pre-briefing and debriefing) to more in-depth activities (e.g., surveys, facilitated discussions/workshops).
10 Budget & Resource Allocation	
✓ Allocate **funds** in the budget for activities that **facilitate the success** of the team, as identified in **components 1–9.**	✓ The prior 9 components all require investments of resources that require financial support. It is necessary to **allocate funds** to these activities to **ensure their successful implementation.** ✓ **Clear but flexible plans for funds may produce optimal results.** This can be particularly important in larger and more complex initiatives, where there is a greater likelihood for changes to the collaboration over the course of the initiative.

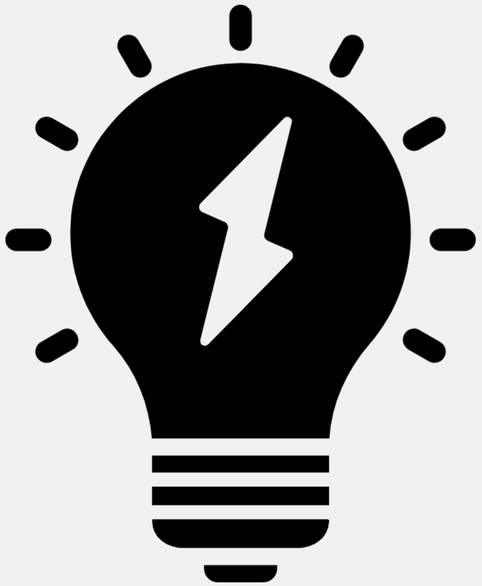
COLLABORATION PLANS

TEN KEY COMPONENTS TO ADDRESS:

1) Rationale for Team Approach and Team Composition
2) Collaboration Readiness
3) Technological Readiness*
4) Team Functioning
5) Communication and Coordination
6) Leadership, Management, and Administration
7) Conflict Prevention and Management
8) Training
9) Quality Improvement Activities
10) Budget/Resource Allocation

1) RATIONALE FOR TEAM APPROACH

CONSIDERATIONS, TOOLS:



- Justify how a team approach, team size, and composition are required for scientific success, in light of complexity introduced by a large team.
- Answer these questions:
  - Why do the research questions and goals require a team approach?
  - Will the participating disciplines and fields be able to work together successfully to achieve the scientific objectives?
  - Why is this team size and expertise necessary to achieve the scientific goals?

2) COLLABORATION READINESS

CONSIDERATIONS, TOOLS:

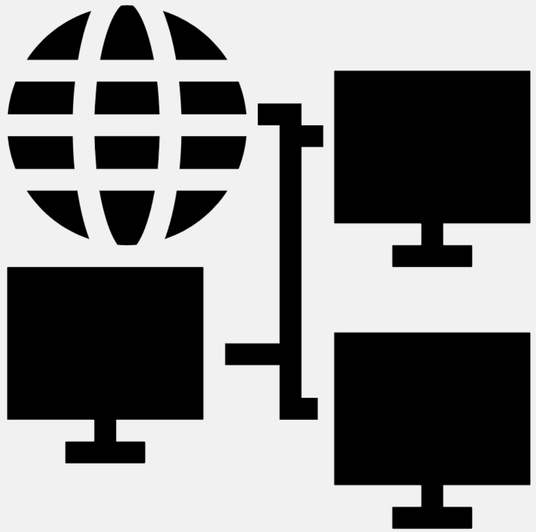
- Provide evidence for the collaboration readiness of individual investigators, the team as a unit, and the institutional partners.
- For each institution, identify indicators of readiness, highlight potential challenges, and describe plans to address challenges.
- Document institutional resources, infrastructure, and policies that support collaboration readiness.
- Tools to assess collaboration readiness:
  - Team Diagnostics Survey (Wageman & Hackman, Harvard University)
  - Collaboration and Team Science: A Field Guide (NIH NCI)

3) TECHNOLOGICAL READINESS

CONSIDERATIONS, RESOURCES:

- Document the availability and planned use of technological resources to support both the scientific and collaborative process.

- UI resources to support scientific processes:
  - Central Catalog of Research Computing Resources
  - Office of Technology Transfer
  - Growing Team Research Community (IMCI, IBEST)

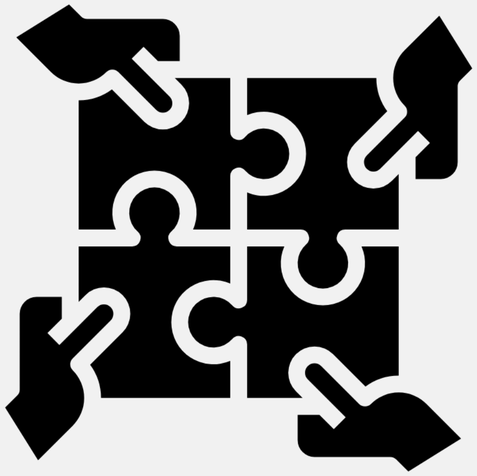


- Support for collaborative processes:
  - Comparison of research networking tools
  - Collaborative platforms (e.g., HubZero, Trellis)
  - Distributed Science - resources for science collaboration at a distance (UT Austin)

4) TEAM FUNCTIONING

CONSIDERATIONS, STRATEGIES:

- Document strategies to be used to support and grow effective team functioning
- Strategies:
  - Creation of glossaries of key terms, summaries of key concepts to promote cross disciplinary understanding
  - Creating shared vision, mission, and goals statements
  - Visualizations of the scientific problem space
  - Face-to-face meetings and interactions (virtually or in person)
  - Annual strategic planning/advisory board meetings
  - Surveys to reflect on team effectiveness and efficiency
  - Periodic assessment of Collaboration Plans



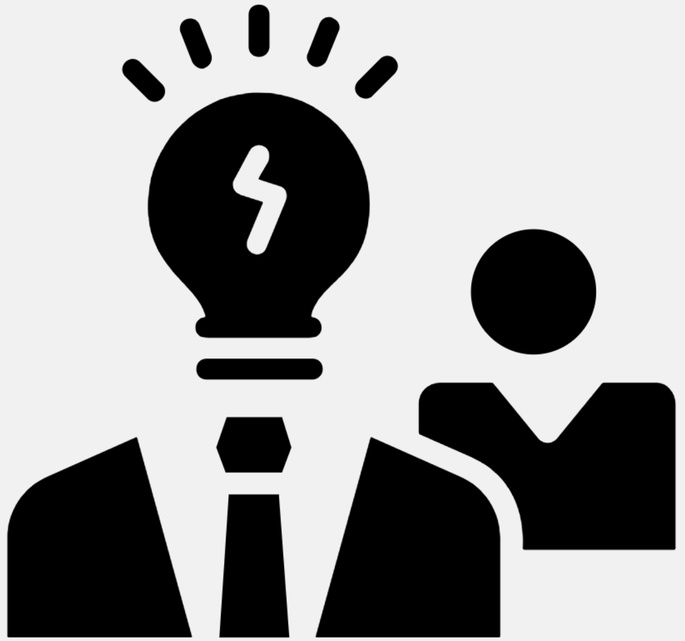
5) COMMUNICATION & COORDINATION

CONSIDERATIONS, EXAMPLES:

- Describe potential challenges to and plans for effective team communication (e.g., frequency, modality, method)
- Describe strategies to coordinate day-to-day operations and approaches
- Tools:
  - Toolbox Dialogue Initiative (Michigan State University)
  - TDI workshops

6) LEADERSHIP & ADMINISTRATION

CONSIDERATIONS, RESOURCES:



- Describes approaches used to facilitate the other components of the plan, as well as strategies for managing administrative and financial support for the project (e.g., recruitment, hiring, reporting, etc.)

- Things to consider:
  - Leadership approaches (e.g., hierarchical, heterarchical, transactional, etc.)
  - Leader Integrative Capabilities – skills and behaviors to bridge intellectual distance and enable knowledge sharing and integration

7) CONFLICT PREVENTION

CONSIDERATIONS, EXAMPLES:

- Identify factors that may lead to conflict (e.g. data ownership, intellectual property rights, authorship order, etc.)
- Describe strategies to prevent, manage, **and** resolve conflicts at the individual, team, and institutional levels.
- Examples:
  - Onboarding letters (Bennett et al., 2014)
  - Pre-collaboration agreement templates
  - Center-level manuals of operations (Team Science Toolkit)
  - Mediation Clinic Resources (UI College of Law)

8) TRAINING

CONSIDERATIONS, APPROACHES:

- Outline training strategies to enhance scientific collaboration and integrate knowledge across disciplines
- Tailor trainings to the needs and characteristics of the team
- Map training goals, skills, approaches, formats, and expectations
- Things to consider:
  - Pedagogical approaches (e.g., problem-based, team-based, metacognitive)
  - Workshops, mentoring, coursework, journal clubs, collaborative writing retreats
  - Online tutorials and certifications (e.g., COALESCE - teamscience.net)

9) QUALITY IMPROVEMENT

CONSIDERATIONS, EXHIBITS, RESOURCES:

- Describe plans to facilitate reflection about team performance and how resulting information will be used for quality improvement
- Strategies and tools to assess team function:
  - Use outside facilitators, evaluators to design and implement formative and summative assessment strategies
  - Team Diagnostic Survey
  - Collaboration Success Wizard (UC Irvine)

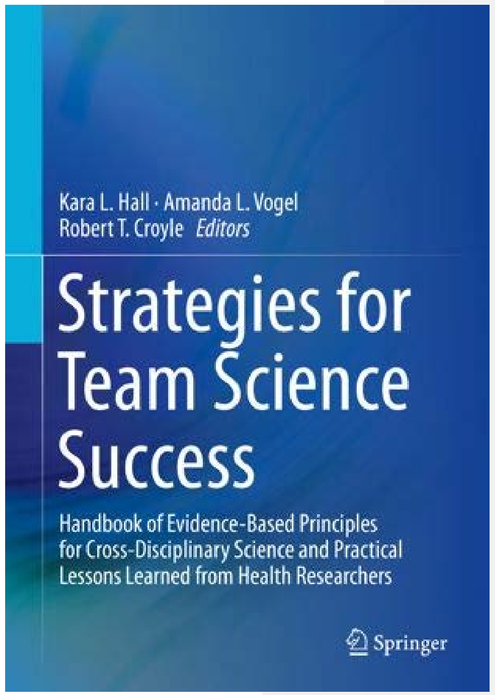
10) BUDGET/RESOURCE ALLOCATION

CONSIDERATIONS:

- Identify specific budget lines or items needed to support the activities included in the plan.

PROJECT MANAGEMENT PLANS

Use Collaboration Planning Approach to inform PMPs :



- PI and team are architects and writers
- Most useful if developed before the start of an initiative or in concert with proposal
- PMP - subset of strategies from a more comprehensive Collaboration Plan
- Proposal guidelines still used as a checklist

TAKEAWAYS

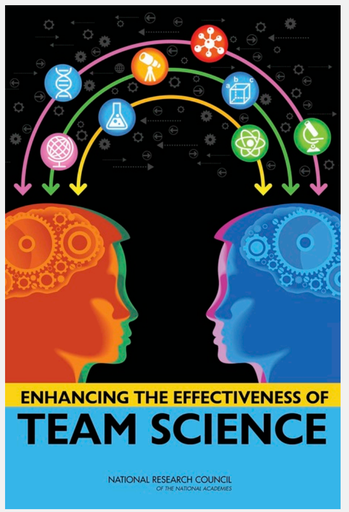
Large Teams

- Internal facing - Project → **Collaboration Planning Framework**
- External facing - Proposal → **Project Management Plan**

- Collaboration Plans - Roadmap to effective team formation and functioning
- Project Management Plans - Present key points of more comprehensive Collaboration Plans for the funder
- May see elements of Collaboration Planning approach represented in federal team science grant initiatives

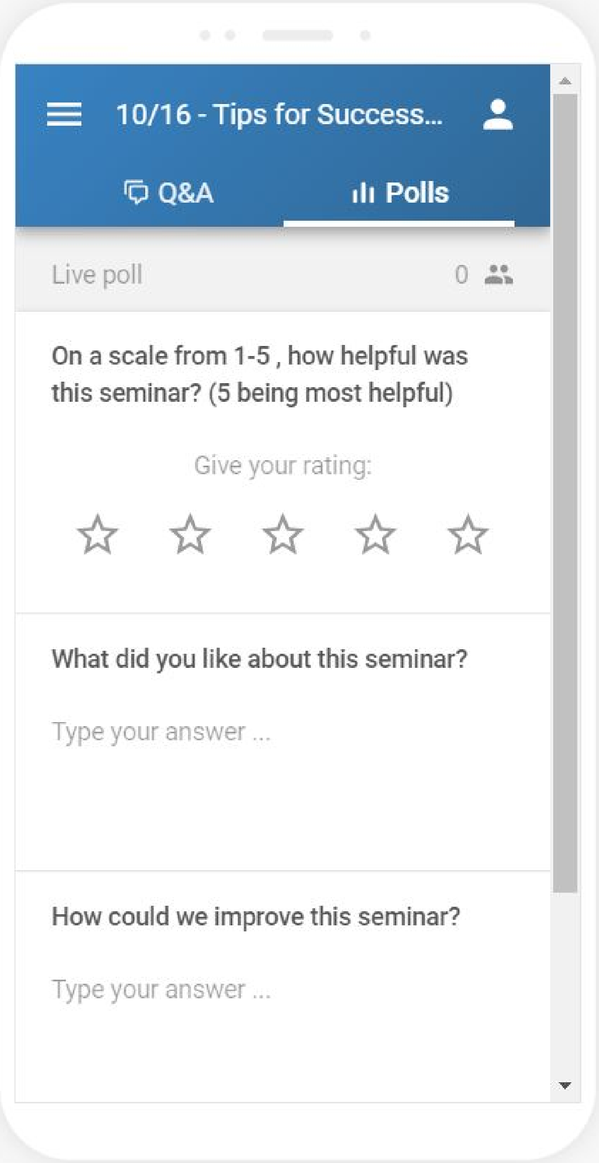
RESOURCES

- University of Idaho Growing Team Research Community (IMCI, Slack channel)
- International Network of the Science of Team Science (INSciTS)
- Comprehensive list of Collaborative Funding Mechanism (NORDP)
- Enhancing the Effectiveness of Team Science (NRC, 2015)
- Collaboration & Team Science: A Field Guide (NIH, 2010)
- COALESCE (TeamScience.net)



THANK YOU FOR COMING!

QUESTIONS?



BEFORE YOU GO…

Please take a brief 3-question sli.do poll

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