Harnessing inter-institutional collaborations and interdisciplinary expertise to craft winning, large-scale grant proposals

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Virtual

Instructors

HUCK INSTITUTES CATALYSIS TEAM

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https://www.research.psu.edu/siro

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Huck Catalysis | The Huck Institutes (en-US)

Objectives

1. Overview of key components for large-scale grants: **securing partnerships**, **budget planning, broader impacts**, **organizational structure**, **assessment**, and **common pitfalls.**

2. Strategies for leveraging interdisciplinary expertise and building strong collaborative, inter-institutional teams, including with Minority Serving Institutions and Predominantly Undergraduate Institutions.

3. Practical advice for aligning research goals with funding priorities

4. Faculty and research administrator partnerships: We are in it together!

Large, complex proposals?

- Usually, $1 mil./year; 3 years or more
- Highly interdisciplinary and cross-institutional
- Involve the creation of Centers, Institutes, Consortia, or tackling big questions (e.g., cure cancer)
- The sum is larger than its parts
- Research (intellectual merit) is very important, expected to tackle problems and answer questions that cannot be answered by one discipline and one or two labs.
- Think big but be clear about what the outputs would be
- Big emphasis on team's ability to execute, governance, processes, and institutional support.
- Full proposal tends to have more space assigned to other sections than research
- Use the Goldilocks approach – just right.
- Be strategic- politics, geography, language use play an important role in final decision-making
- Engage with Program Director as early as possible

Aligning research goals with funding priorities
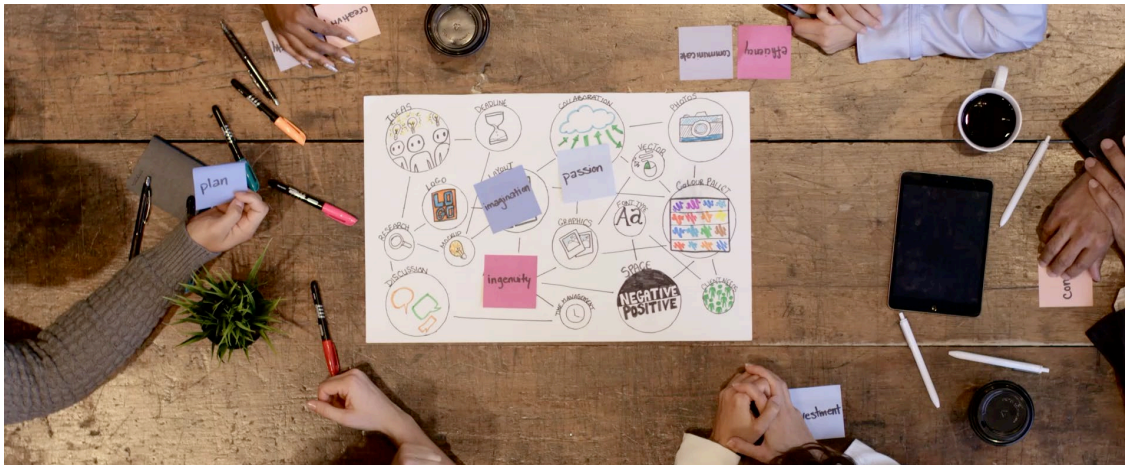
- Research and pay attention to funders' mission and goals

- Think global, act local!

- Review already funded projects

- Highlight innovation, feasibility, and sustainability

What to tackle first?

1. **Map your core team- organizational structure**

- Senior faculty lead

- Diverse core team – multidisciplinary, multi-institutional

- Decide co-PIs and draft Other Senior personnel list with areas of expertise and responsibilities

- Save spots in the core team for subaward PIs and integrate them well into the organizational structure

- Be creative about how Other Senior Personnel can still have leadership roles (e.g., Director of Education & Training, Broader Impacts lead, Assessment Director, etc.)

- Engage MSIs/PUIs from the beginning and leverage their faculty's expertise.

- Check with each individual/group to understand what they need to accomplish what you are proposing. Don't cut their assigned funding without checking with them.

- <u>Don't make final promises</u> until the budget is finalized and the research concepts are outlined with input from everyone.

Organizational structure- making your team!

Think about your Organizational Structure

- Team structure
- Decision-making process
- Oversight and accountability
- Project management
- Risk management
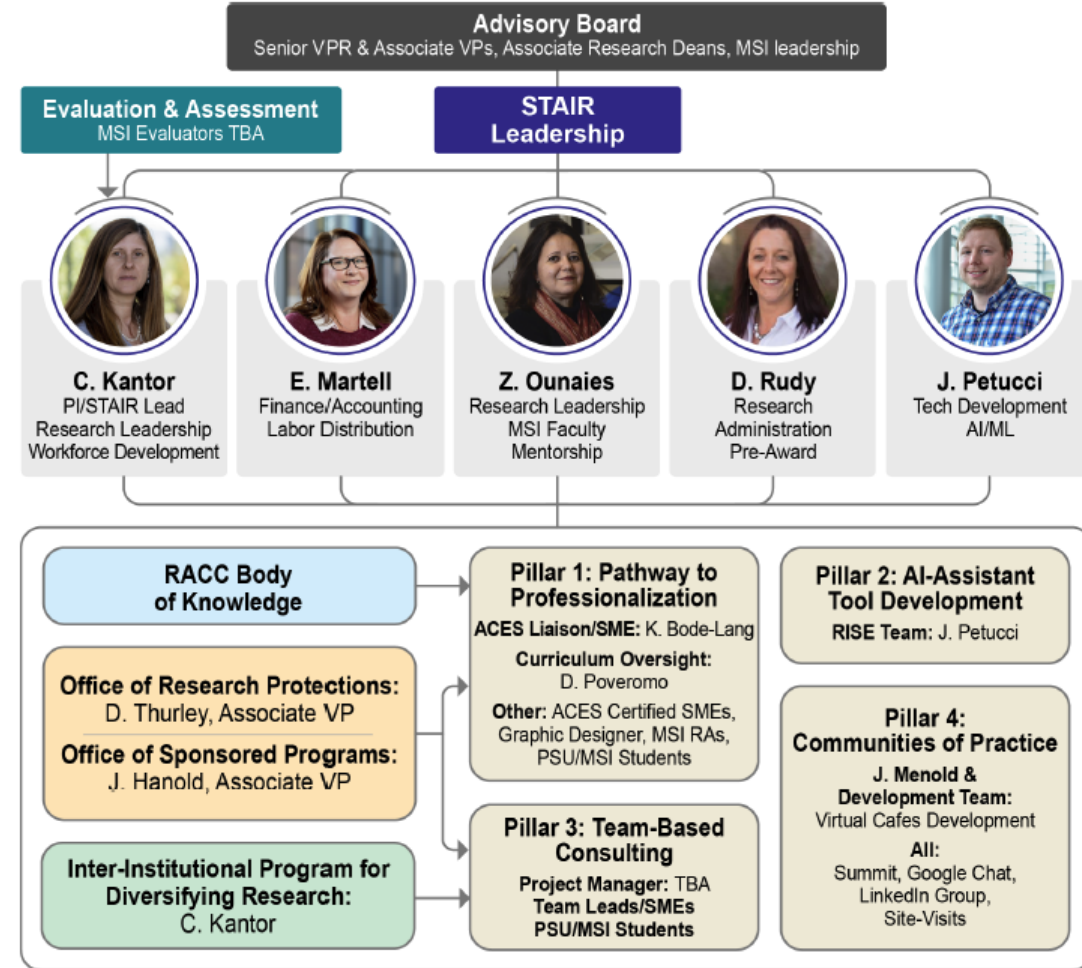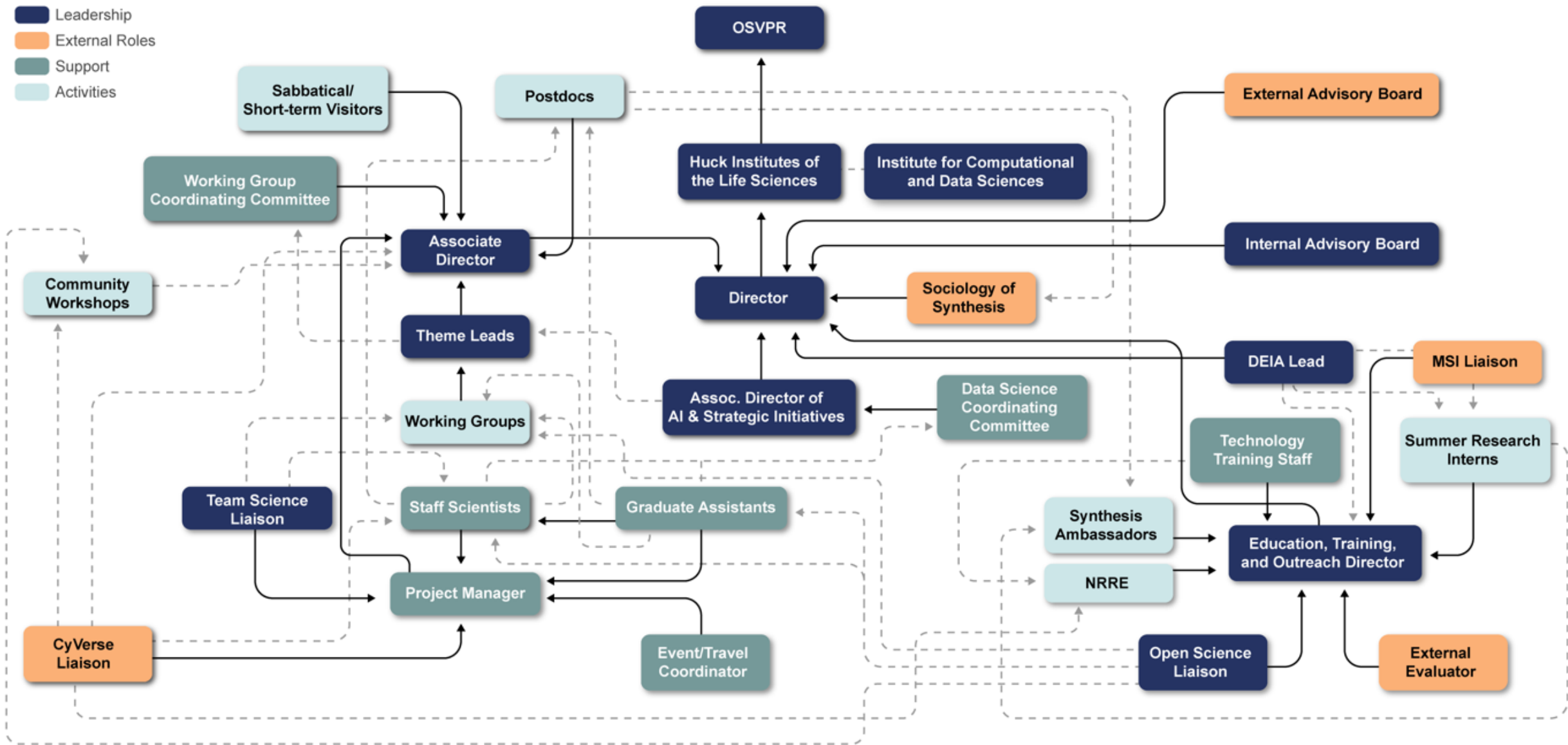- Evaluation and reporting

Fig. 5 *STAIR* Team- organizational chart

SHOW CONNECTIONS!

STEM Research is not enough!

Education & Training- training students for careers that do not exist yet

Broader Impacts

Broadening Participation

Team Science

Open Science

SciArt

Humanities/Business/Law

User-inspired translational research

Enhancing Diverse Perspectives

Public engagement

BE CREATIVE!

Broader Societal Contributions-Impact

- Establishing partnerships across diverse institutions and community organizations

- Collaborative research with communities as equal partners

- Enhancing human subject recruitment from diverse, underrepresented groups

- Supporting geographic and regional diversity through planned partnerships

- Diversifying applicant pools for training programs

- Using research infrastructure to support career growth for early and mid-career researchers

- Encouraging transdisciplinary research collaborations

1. **Inclusion**: Increasing the participation of women, persons with disabilities, and underrepresented minorities in STEM

2. **STEM Education**: Enhancing education and educator development in science, technology, engineering, and mathematics at any level

3. **Public Engagement**: Improving public scientific literacy and increasing public engagement with STEM fields.

4. **Societal Well-being**: Positively impacting the well-being of individuals in society

5. **STEM Workforce**: Developing a diverse and globally competitive STEM workforce

6. **Partnerships**: Strengthening partnerships between academia, industry, and other sectors

7. **National Security**: Contributing to the improvement of national security

8. **Economic Competitiveness**: Enhancing the U.S.'s economic competitiveness

9. **Infrastructure**: Building infrastructure for research and education

TIP: Build on past experiences and leverage all complimentary resources.

One institution cannot do it all!

To be competitive, partnerships are vital.

- Build feasible networks with other academic institutions, industry, national labs, foundations.
- Leverage their known strengths (e.g., U.of Pittsburgh animal research; Carnegie Melon U-AI/ML/computing).
- Engage MSIs/PUIs because they tend to be the closest to the usually negatively impacted and underserved communities, understand them and their culture, and are trusted by those communities.

Common pitfall:

DON'T OVER DO IT! Stay within the scope and the budget.

Figure 2. Team members across three universities and the state-wide Geisinger Health system and their contributions to the address the six challenges described in Figure 1.

What to tackle next?

Define vision, goal, and research questions (and maybe hypotheses) with input from the whole group.
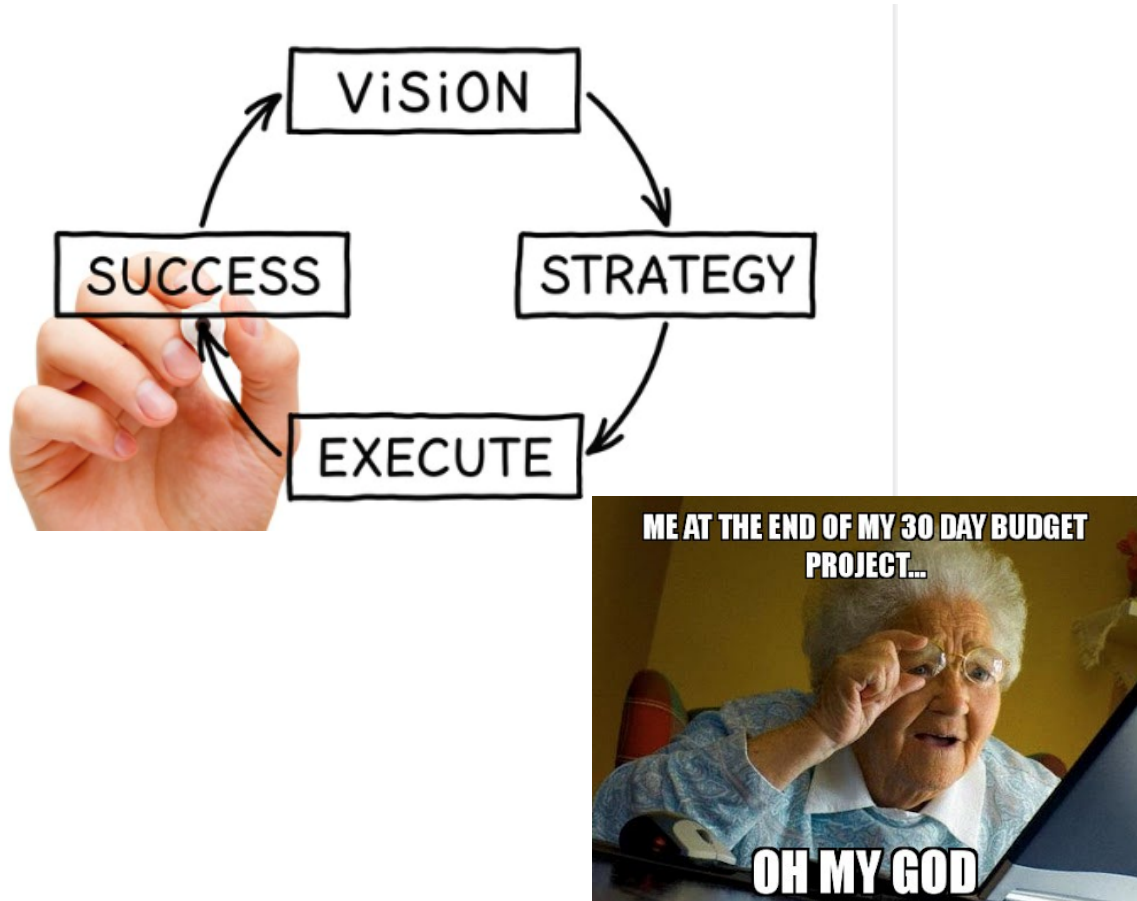
Start working on your draft budget.

- Assign effort for senior personnel

- Budget a full-time project manager

- Budget event coordinator

- Budget technician(2), if applicable

- Assign number of postdocs and grad students

- Estimate how much you would give to subawards (check with them)

- Add estimates for any equipment …

NOT MUCH LEFT…! HOW AM I GOING TO DO ALL OF THIS?

Understand Cost Share Needs and Request it Early!

Definition: Contribution from the institution or other sources towards the total cost of a research project.

Types of Cost Sharing

1. Mandatory Cost Sharing
   - Required by funding agency as a condition for receiving the award.
   - Example: Specific percentage of project costs.

2. Voluntary Committed Cost Sharing
   - PIs offer contributions that are included in the proposal but are not required by the sponsor.
   - Example: Additional personnel, equipment, or resources.

3. Voluntary Uncommitted Cost Sharing
   - Contributions that are not included in the proposal and are not promised but may occur.
   - Example: Unused time from faculty members.

Importance of Early Planning
   -Engage with SIRO early to determine and make cost share requests.
   - Collaborate early to identify potential cost-sharing needs.
   - Ensure compliance with funding agency requirements.
   - Avoid misunderstandings and miscalculations during budget preparation.

Assessment

- Need to develop well-thought and well-integrated assessment plans.
- Programmatic assessment, not only student assessment!
  - **What do you assess?** Identify your large categories to assess- **Key Performance Indicators (KPIs).** They are used for specific, measurable metrics to evaluate different aspects of the project.
- Provide a *clear timeline* for how often assessments will be conducted and reported and **who will be responsible for their execution**.
- Set up regular check-ins and feedback loops, then show how you will incorporate the received feedback in an agile manner.

TIP: Identify, engage, and name your evaluators prior to submission. Allocate approximately five percent of your project budget for assessment (minimum).

We're in it together!

What does the Strategic Interdisciplinary Research Office (SIRO) do?

Proposal Development Services:
- Provision of technical document templates based on the solicitation
- Assistance developing broader impacts, workforce development, and facilities/equipment sections
- Support drafting and collecting letters of support
- Management of a reference library for core document(s), including formatting/organization
- Organization of a pre-submission "Red Team" review
- Line editing and proofreading of technical documents
- Graphics Support

Research Administration Services:
- Budget Development
- Personnel Document Coordination (Biosketches, Current & Pending, Support Letters, etc.)
- Subaward Proposal Coordination (Collection of required documents)
- Preparing Proposal Application to be submitted to Sponsor
- Final Proposal Submission to Sponsor

Project Management Services:
- Proposal Phase support
- Award Phase support

What Huck Catalysis does

- High-level guidance, including project conceptualization
- Work with PI and unit to find space for the project
- Marketing and communications support
- Meetings scheduling support
- Mentorship and guidance on the development of the complete package, sense-making
- Internal Red Team reviews and feedback
- Examples of grant text from successful proposals and boilerplate text
- Help with forming and engaging the teams, internal and external
- Contacts and connections with potential collaborators
- Mentorship on organizational governance, strategies, and management
- Post-submission organization of reverse site visits
- Additional support and guidance

We also act as advocates and liaisons where the senior personnel team or SIRO cannot get support or traction from partners.
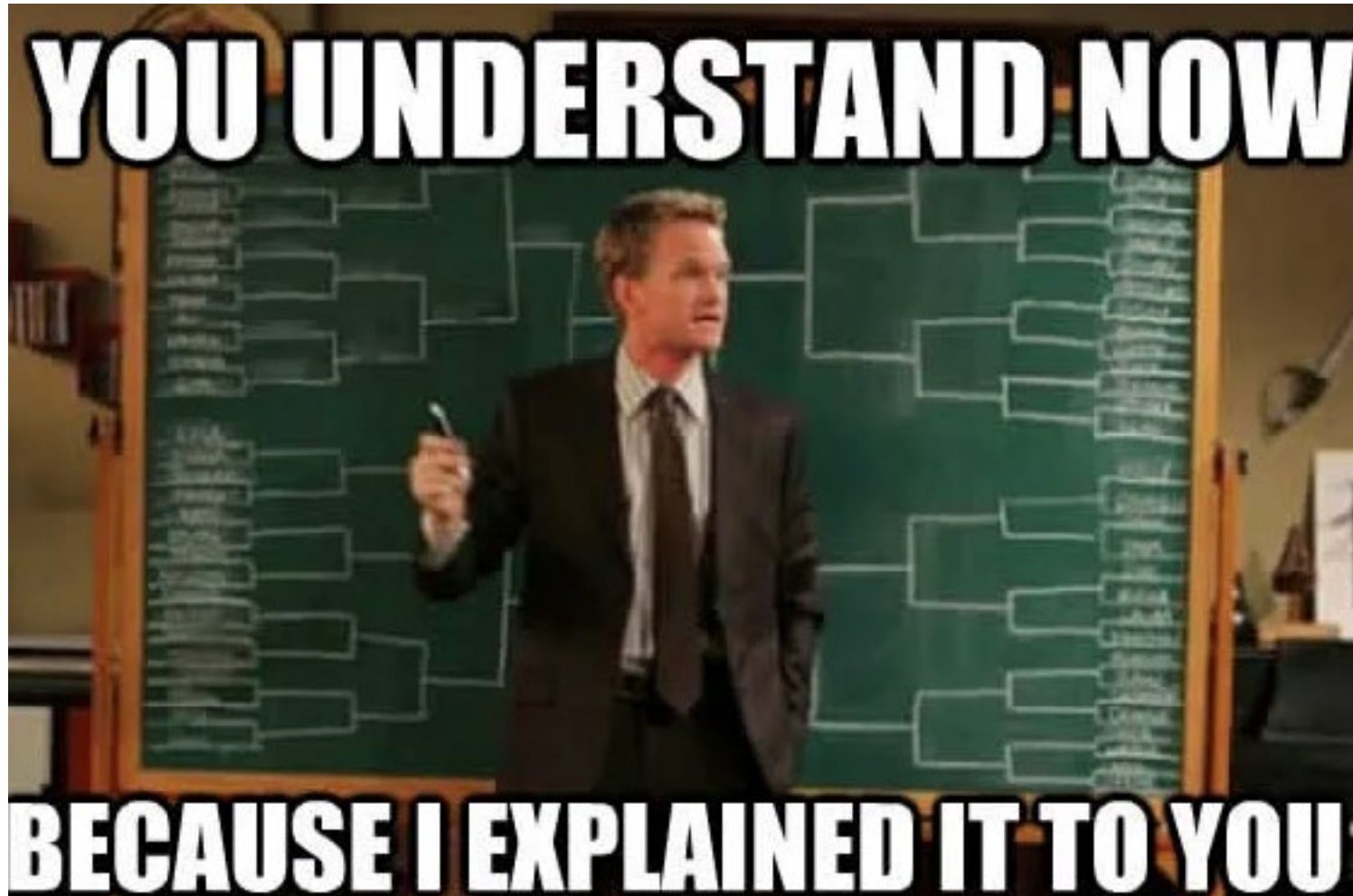
With unit match:
- Course buyout (one semester with unit match)
- Jointly sponsor a site visit (with unit match)

In conjunction with SIRO support:
- Funding to hire a technical editor
- Access to a graphic artist or paid design license
- Budget set-up advice and reviews (SIRO creates the budget)

Questions?

...BUT IF NOT, STAY ALERT FOR MORE
IN-DEPTH FUTURE TRAINING!

Feedback

Survey link: https://redcap.ctsi.psu.edu/surveys/?s=CF3TAKNW8MCNMKRJ

Note: Anonymous survey provided by Danielle Symons Downs, Ph.D. (OSVPR). Contact: dsd11@psu.edu