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STAIR

From checkboxes to competitive edge - crafting effective programmatic assessments

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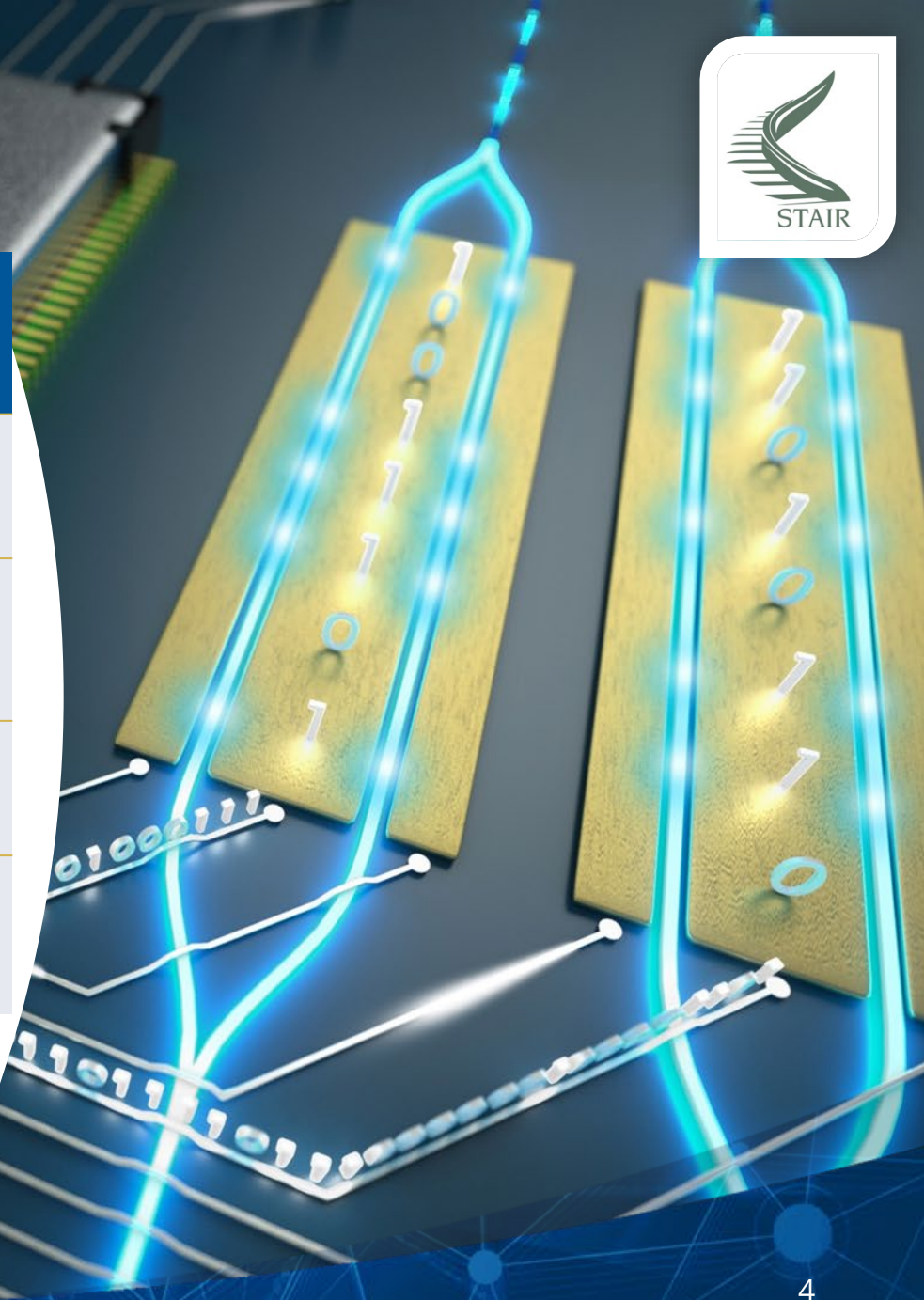
Objectives

Key components of a competitive assessment plan
How to innovate in assessment
How to integrate assessment seamlessly into your proposal
How to go beyond traditional educational metrics
Common pitfalls and how to avoid them
Leveraging external evaluation



Assessment vs. Evaluation

- **Evaluations** are designed to *document the level of achievement that has been attained*.
- **Assessment** is focused on measuring a performance, work product, or skill to offer feedback on strengths and weaknesses and to *provide direction for improving future performance.*
- Assessments are nonjudgmental and are designed and intended to be used to produce improvement.

Example: While evaluation may indicate that a project met its goals, assessment is needed to explain exactly what worked and why

Source: Starr S. Moving from evaluation to assessment. J Med Libr Assoc. 2014 Oct;102(4):227-9.

Assessment Vs. Evaluation

Assessment	Evaluation
• Focuses on individuals or groups • Uses tests, quizzes, and structured methods • Aims to improve learning and performance • Helps identify learning gaps • Can be formative, interim, or summative	• Focuses on systems or programs • Uses observations, surveys, and interviews • Aims to improve effectiveness and quality • Helps make judgments about programs • Involves collecting and analyzing information

Quick poll

How do you feel about assessment?

A. Love it! Data is my jam!

B. Necessary evil, but I get it.

C. Ugh, do we have to?

D. Wait, am I being assessed right now?

What's your go-to method for assessing a program?

A. Informal discussions with stakeholders.

B. Surveys, surveys, and more surveys

C. Mixed methods (surveys, interviews, observations)

D. Gut feeling (hey, it works!)

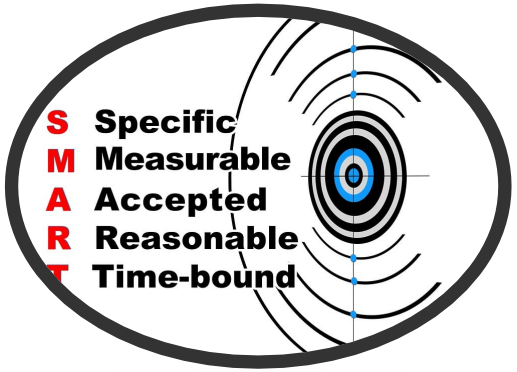
E. Hire consultant and hope for the best!

F. Interactive dashboards

G. Never assessed a program.

Key components of a competitive assessment plan

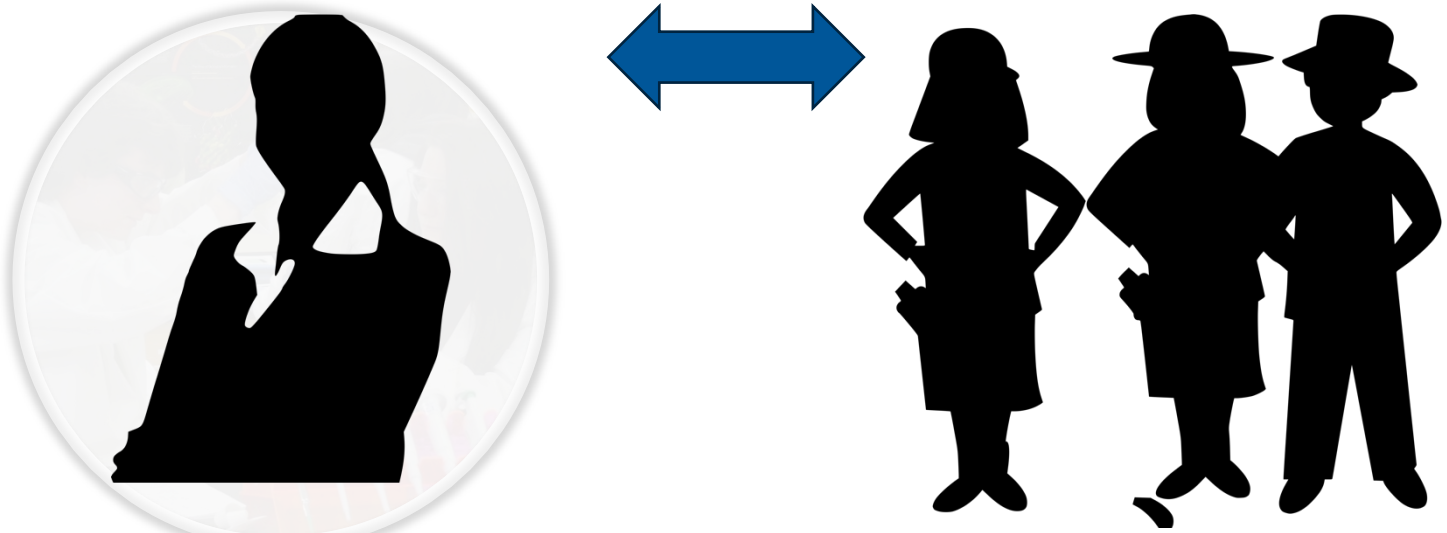
FORMATIVE ASSESSMENTS



Goals & Objectives Alignment	Key Performance Indicators (KPIs)	Evaluation metrics & Data Collection	Key Stakeholders Identification	Feedback Loop For Continuous Improvement

SUMMATIVE ASSESSMENT

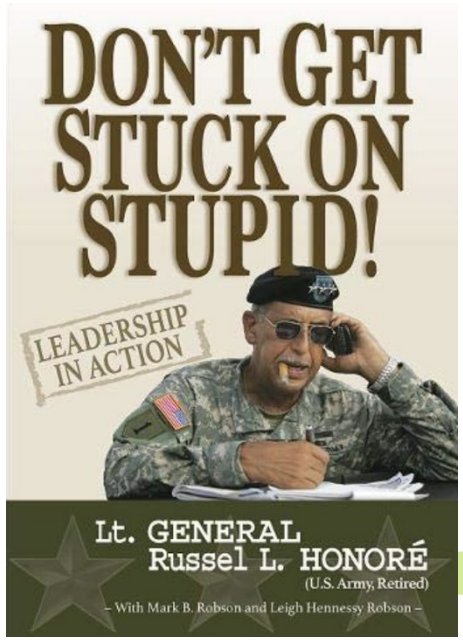
Who is responsible for programmatic assessment?

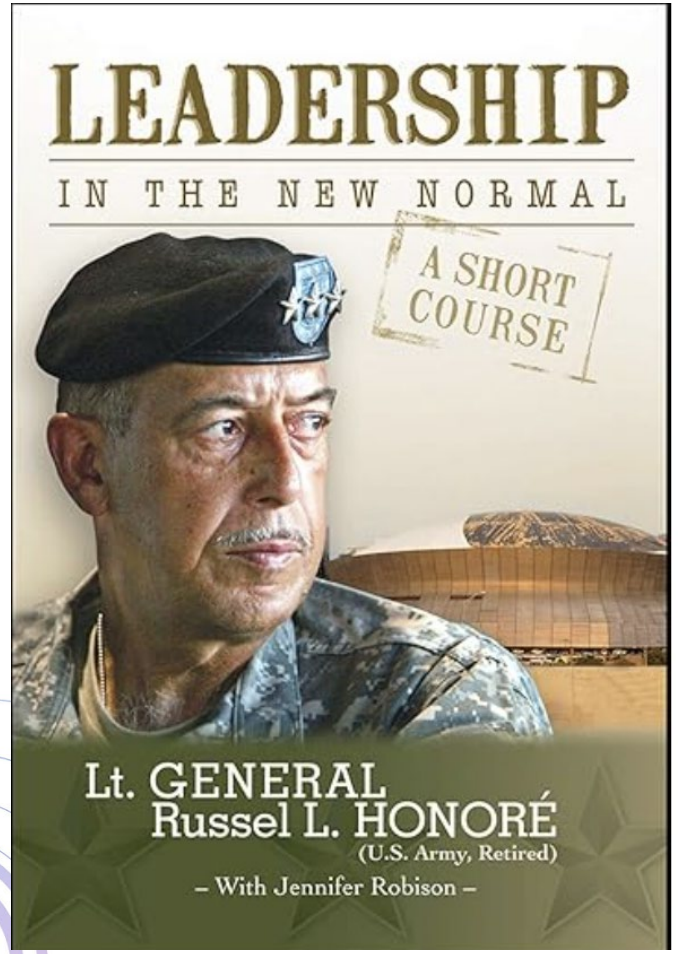


FUNDING AGENCY

Everyone

Goals & Objectives alignment





Goals: very short statements that clearly define what the organization wants to achieve.

Objectives: targeted tasks, deliverables and activities identified by programs to meet previously outlined program goal(s).

Alignment and Order: Goals accomplish the mission; objectives accomplish the goals.

'**Leadership** is working with **Goals** and **Vision**; **Management** is working with **Objectives**.'

-Russel Honoré

Example

Goal: We propose to establish the Pennsylvania Network to support Public Health Emergencies with Routine Environmental Surveillance.

Objectives:

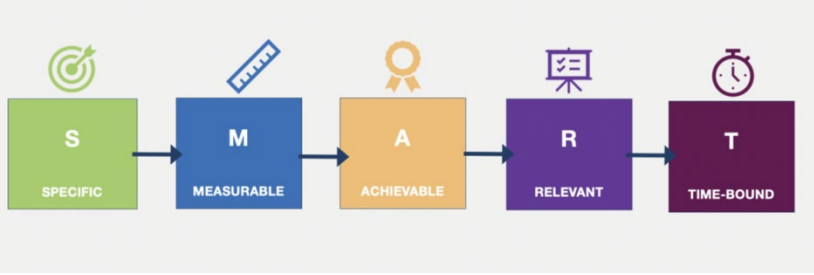
1. Develop a comprehensive After-Action Review of PSU's statewide COVID response across all 24 PSU Commonwealth Campuses.
2. Implement a common protocol for wastewater surveillance for SARS-CoV-2 and Influenza A/B at all PSU campuses.
3. Develop a centralized database of EMR records to increase available data sources to support respirator[illegible]wcasting and forecasting

4. Work Plan: Work Plan Table: RP = Responsible Personnel; **CD** = Completion Date

Outcome: After Action Review			
Outcome Measure: Gap analysis to documents areas of focus for outside technical assistance during PHEs; Landscape analysis report to documents decision maker needs for modeling			
Activities	**Process Measure**	**RP**	**CD**
SA.1: Standardize interview and metadata structure	Develop interview structure and items for unit head interviews; Develop interview structure and items for group interviews; pilot interviews	CE, KW, MF, TC	Nov 2024
SA.2: Conduct interviews	Hours of interviews completed; proportion of PSU units completed; total individual interviews (unit heads) completed; total group interviews	CE, KW, MF	Jan 2025
SA.3: Convene review meeting	Date selected; Participants identified and scheduled; Meeting completed; # of participants; # of fields/units represented	CE, KW, MF	Mar 2025
SA.4: Assemble & complete AAR	Report structure finalized; First draft; Report reviewed by stakeholders; Report finalized	CE, KW, MF	May 2025
SA.5 Complete interview and document archive	Finalize archive and metadata structure; Review documents and finalization of metadata; Finalize archive and document protocols	CE, KW, MF	Aug 2025
Outcome: Network of wastewater sampling locations distributed across PA			
Outcome Measure: Number of new data sources identified and utilized by PANetSPHERES to develop modeling and outbreak analytics tools			
Activities	**Process Measure**	**RP**	**CD**
S1.1: Identify sampling locations at campuses	# of sites finalized; completion of training for local staff; # of sites contributing samples; # of complete sampling weeks	MJ, SC	Jan 2024
S1.2 Standardization of wastewater collection protocols	# of protocols in place at campus locations; # of staff trained on collection and processing	MJ, SC MT	Jan 2025

Source: CDC proposal, Matt Ferrari

Specific Who will execute or deliver my program and how? Who is my program's target population? What are my program's outputs/products? What are the intended benefits or outcomes of my program?	**Measurable** How much change (positive or negative) should I expect from my program? What kind of data will I use to identify my program's changes? How will my program's data be collected (from whom/what)?
Achievable Exactly how will my program's objectives be accomplished? Does my program have the necessary resources required to accomplish the objectives? Are these objectives too great, too small, or just right? Can these objectives be accomplished within the budget and regardless of known external factors?	**Relevant** Will my program be helped by these objectives to meet its mission and goals? What specific need(s) of my program do these objectives address? Do these objectives have support from my institution leadership, staff, named participants, and other stakeholders (advisory boards, collaborators)? Do these objectives align with the broader organizational priorities for sustainability?



George Doran, 1981

Time-bound

- Exactly when will these objectives be achieved?
- If these objectives required stages for implementation, what is the time frame for each stage?
- Is the expected time frame for accomplishing the objectives too short, too long, or realistic?
- What internal and/or external deadlines/events should be considered to successfully achieve these objectives on time?

Source: Center for Research Evaluation

Course Correction: Based on the assessment findings:

- Identify gaps or areas of concern.
- Organize brainstorming sessions to devise solutions or alternative strategies.
- Implement changes in the program design, content, or delivery method.
- Monitor the impact of the changes made in the subsequent assessment cycles.

Assessment Tools:

Surveys: Annual community pre- and post-training surveys to gauge the change in knowledge, attitudes, skills, and behaviors.

Interviews & Focus Groups: Semi-structured interviews with select participants, faculty, and other stakeholders. Focus groups with trainees or educators to collect qualitative data.

Self-Report Indices: To measure individual perceptions and self-evaluations of learning and engagement.

Digital Analytics: Monitor engagement rates, reach, and interactions on the social media platform and other digital outreach initiatives.

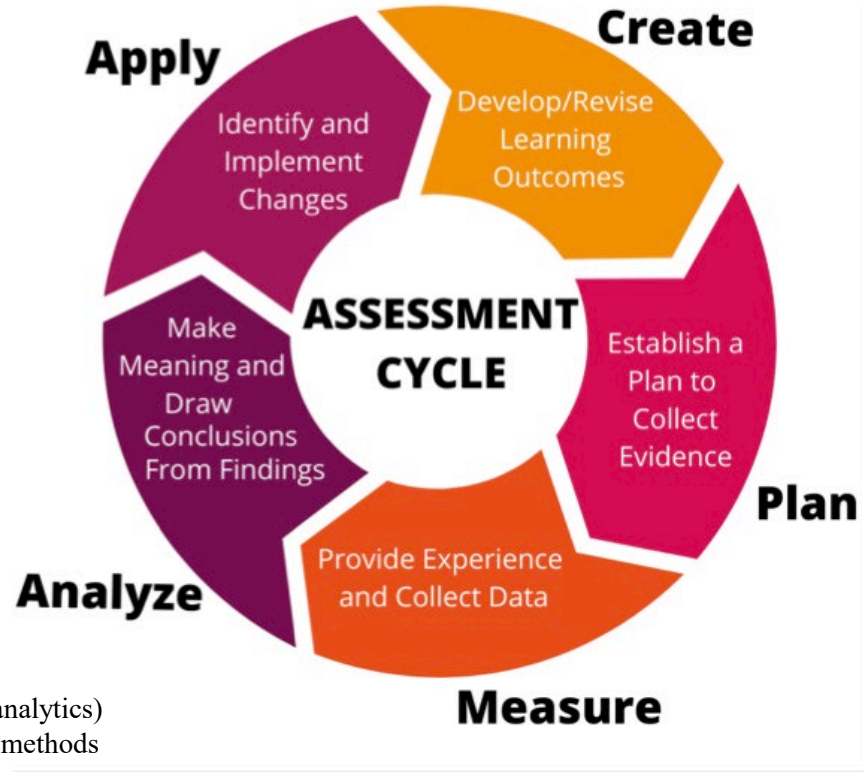
Document Review: Scrutinize PTAF completion rates, workshop attendance sheets, and other relevant records.

Feedback Loop:

Internal Review Meetings: Hold bi-annual meetings with key stakeholders and project teams to discuss the assessment findings.

Stakeholder Workshops: Organize annual workshops where preliminary findings are shared with the broader community for feedback.

Report Generation: Create an annual comprehensive assessment report highlighting successes, challenges, and recommendations



Data Collection Schedule:

Quarterly Check-ins: Brief online surveys or quick interviews to gather progress data and identify potential areas of concern.

Annually:

- Administer the detailed pre- and post-training surveys.
- Conduct focus group sessions.
- Review the number of new partnerships and engagements.

Data Analysis:

Quantitative data (from surveys and digital analytics) will be analyzed using appropriate statistical methods to identify patterns, trends, and deviations from expected outcomes.

Qualitative data (from interviews and focus groups) will undergo thematic analysis to understand participants' experiences, challenges, and suggestions.

Documentation:

Will maintain a central repository where all assessment tools, data, findings, and reports are stored. This will facilitate year-on-year comparisons and longitudinal studies.

How to integrate assessment seamlessly into your proposal

Some people think assessment magically appears at the end… but real pros build it in from the start!

Formula for success:
Clear goals + Measurable KPIs+ Right tools = Strong proposal

Key Performance Indicators (KPIs)

- Measurable values that help track progress toward specific goals and objectives. They provide insight into a program's *effectiveness, impact, and areas for improvement*.
- **Measurable:** KPIs must be quantifiable (not just "we did a great job!").
  Relevant: Align KPIs with program goals, don't just track things because they're easy to measure.
  Actionable: Data should help inform decisions, not just sit in a spreadsheet.
  Time-bound: Set realistic timelines for measuring progress.
  Balanced: Include a mix of **output** (what you did) and **outcome** (what changed) indicators.

Example of KPI

Goal: Improve participant engagement in interdisciplinary research.

KPI	How It's Measured
Number of participants	Count of attendees per session
Engagement level	% of attendees actively participating in discussions
Application of skills	% of participants implementing what they learned in projects
Satisfaction rate	Survey results on program usefulness (e.g., 80% positive feedback)
Retention rate	% of participants returning for follow-up sessions

KPIs are like New Year's resolutions, ambitious, well-intended, and usually forgotten by Q2.

You know your KPI is bad when your best metric is "number of meetings attended" instead of "actual progress made."

Key Performance Indicators

Objective 1: Conduct integrative research across career stages
Metrics: Engagement of all participants in at least one synthesis research project.
Measurement Tools: Annual community surveys, AITCS, and PTAF.

Objective 2: Build cross-disciplinary communities
Metrics: 80% frequent contributions to the synthesis network. 90% increased knowledge and engagement in cross-disciplinary research.
Measurement Tools: Quantitative and qualitative metrics including annual community surveys (May), assessment of center publications (SciVal by June), team science sociological research tools, and multilevel & longitudinal path analyses.

Objective 3: Train in Open Science Best Practices
Metrics: Full participation of students in two Center training sessions.. Customized Learning Pathway creation by all participants.. Skill acquisition in technical areas. 90% improvement in soft skills and leadership abilities.
Measurement Tools: Annual community surveys (May), workshop attendance records, PTAF completion tracking, and team science sociological research tools (interviews, focus groups).

Objective 4: Support undergraduate research.
Metrics: Maintain and expand undergraduate partnerships with nationwide colleges. Sustain engagement of undergraduate students and mentors. Engage new teaching-intensive colleges yearly. Maintain active social media presence (3 posts/week).
Measurement Tools: Annual community surveys (May), formative evaluation tools, engagement tracking, new partner tracking, and social media activity logs.

Objective 5: Conduct sociological research on Synthesis Research
Metrics: Improved best practices to enhance the Center's efficiency and impact.
Measurement Tools: Monitoring completion of research projects, evaluating team dynamics, using team science sociological research tools including multilevel & longitudinal path analyses.

Logic model

Source: NCEMS

High level goals

- Accelerate research into emergence
- Establish a decadal dynamic and community-led molecular and cellular sciences research agenda
- Build and sustain catalysis research, education, and training activities
- Build capacity and new communities of NCEMS researchers from diverse backgrounds

- Improve synthesis science and data integration
- Innovative open science and team science approaches
- Cross-disciplinary collaborations
- Increase awareness of and access to synthesis resources

INPUT

- Scientific expertise
- PSU Huck and ICDS financial, logistical, and media resources
- RISE team
- CyVerse computational and training infrastructure
- JetStream2
- Team meeting facilitation
- SROP
- Univ. Partners
- External evaluation

OUTPUT

ACTIVITIES

- Catalyst meetings
- Working groups
- Team leads and members recruitment
- Community events
- Team science sociological research tools and results (feedback loop)
- Adapted Assessment of Interprofessional Team Collaboration Scale (AITCS).
- PhD Training Assessment Framework (PTAF)
- Engagements with other colleges

PARTICIPATION

- Number and quality of scientific outputs (journal articles, white papers, book chapters)
- Number of postdocs and grad students receiving support
- Percentage of team members who have not previously collaborated
- Distribution of the participant disciplines (disciplinary diversity)
- Number and diversity of disciplinary expertise
- Community events

OUTCOME

SHORT-TERM

- Defined community-wide research agenda for synthesis science
- Develop team science sociological research tools
- Preliminary Open Science Policies
- Effective Center organization and allocation of funds and resources
- Outreach and engagement of all stakeholders for activities implementation
- Develop detailed assessment plan

MEDIUM-TERM

- Identify new emergent areas to pursue and accelerate discovery through catalysis
- Increased participation from postdocs, grad students and working group scientists
- Enhanced national capacity to address cellular and molecular biology data synthesis
- Improved mentorship, training and professional dev. across career stages
- More effective workflows and data

LONG-TERM

- Established national capacity to address and advance cellular and molecular biology data synthesis
- Innovative team science sociological research
- Reduced barriers to synthesis discovery
- Effective models for mentorship, training and professional dev. across career stages and disciplines
- Broadley implemented Open Science Policies
- Profound impact on science and society

ASSUMPTIONS

- Community members are motivated to participate and do research that may have broad relevance
- NCEMS will identify and access additional resources (internal and external) to add more incentives to interdisciplinary team formation and collaboration.

EXTERNAL FACTORS

- Intermittent meetings happening due to multiple engagements
- Issues of power dynamics and team leads/members inflexibility
- Funding disruption at the national level

LOGIC MODEL

How to innovate in assessment

Flowchart

Customer Journey Mapping

Learning Loop Retro

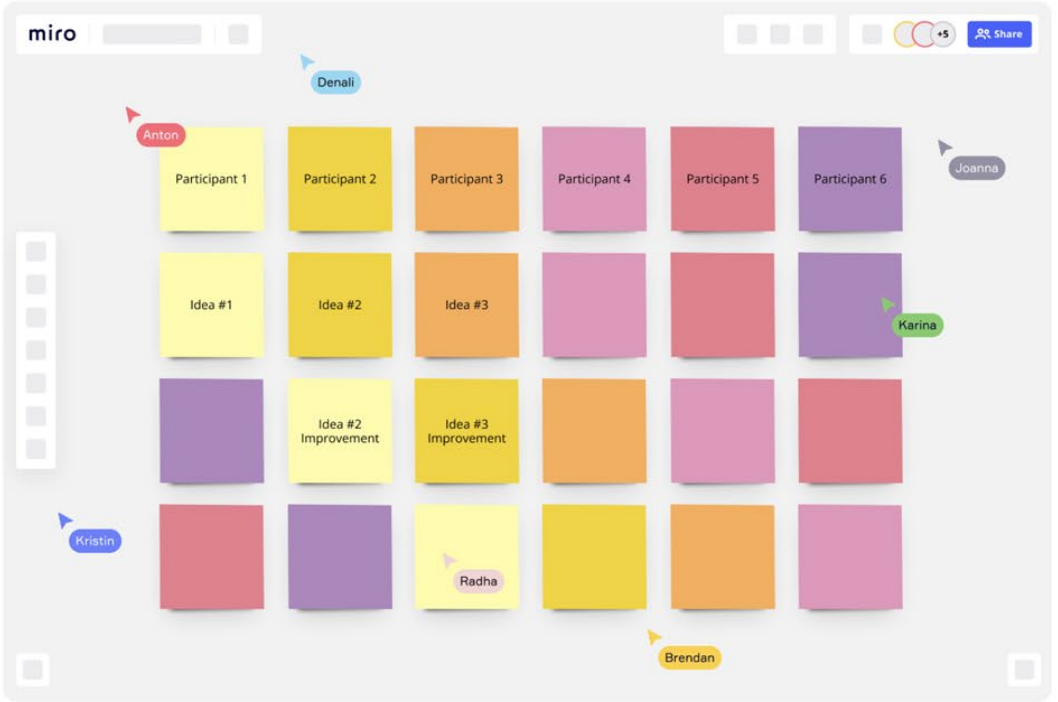
Roadmap Planning

Kanban Framework

Mind Map

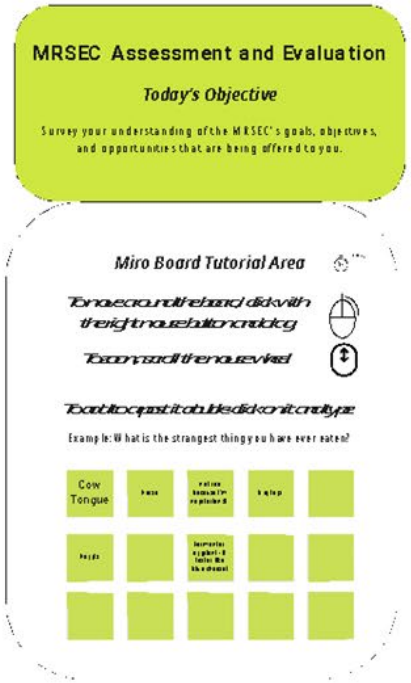
Brainwriting
Add quiet ideation to your brainstorming sessions to generate and improve upon ideas.

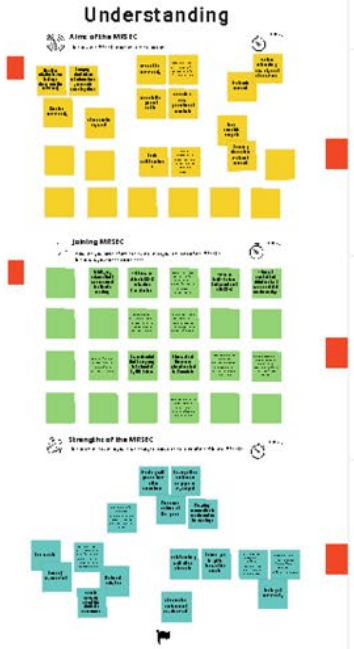
I want to start from scratch

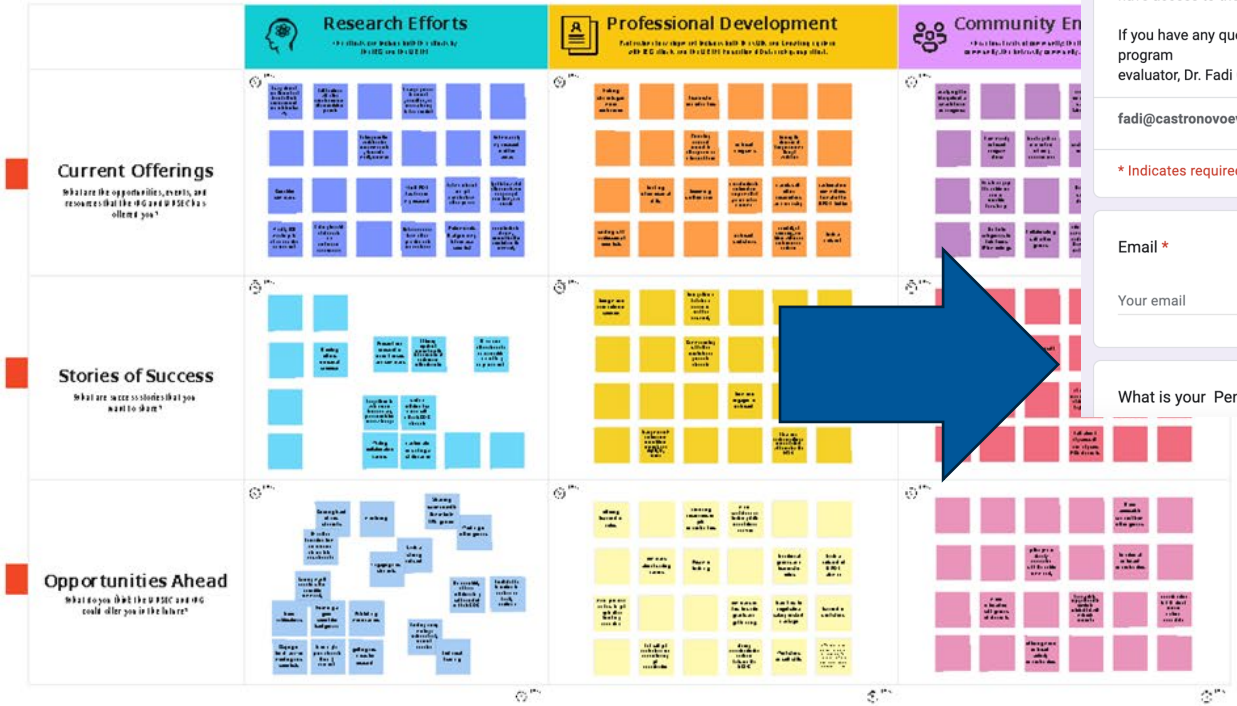


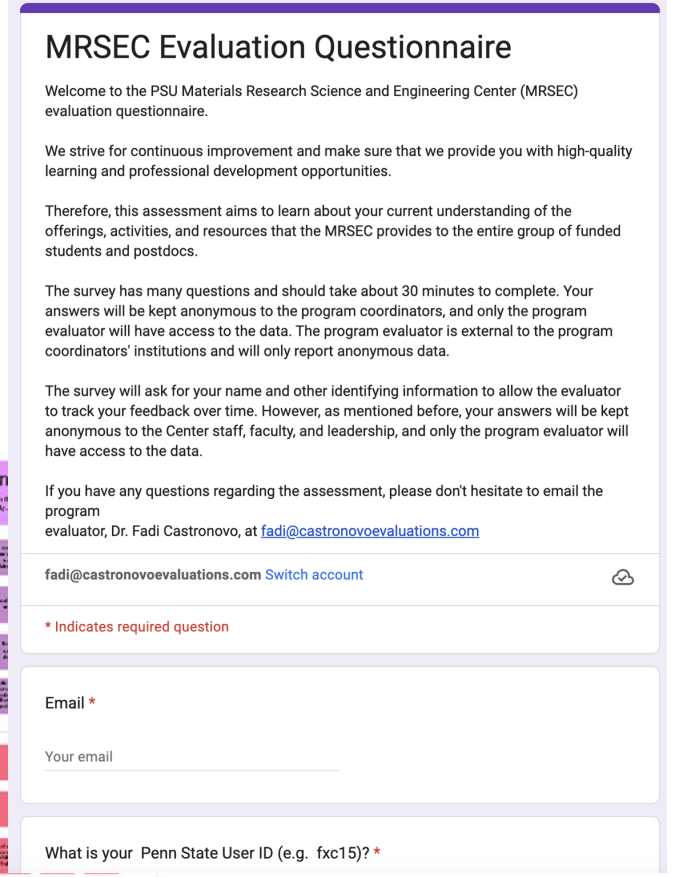
How to innovate in assessment

- Build the assessment with the participants








MRSEC Evaluation Questionnaire

Welcome to the PSU Materials Research Science and Engineering Center (MRSEC) evaluation questionnaire.

We strive for continuous improvement and make sure that we provide you with high-quality learning and professional development opportunities.

Therefore, this assessment aims to learn about your current understanding of the offerings, activities, and resources that the MRSEC provides to the entire group of funded students and postdocs.

The survey has many questions and should take about 30 minutes to complete. Your answers will be kept anonymous to the program coordinators, and only the program evaluator will have access to the data. The program evaluator is external to the program coordinators' institutions and will only report anonymous data.

The survey will ask for your name and other identifying information to allow the evaluator to track your feedback over time. However, as mentioned before, your answers will be kept anonymous to the Center staff, faculty, and leadership, and only the program evaluator will have access to the data.

If you have any questions regarding the assessment, please don't hesitate to email the program evaluator, Dr. Fadi Castronovo, at fadi@castronovoevaluations.com

fadi@castronovoevaluations.com Switch account

* Indicates required question

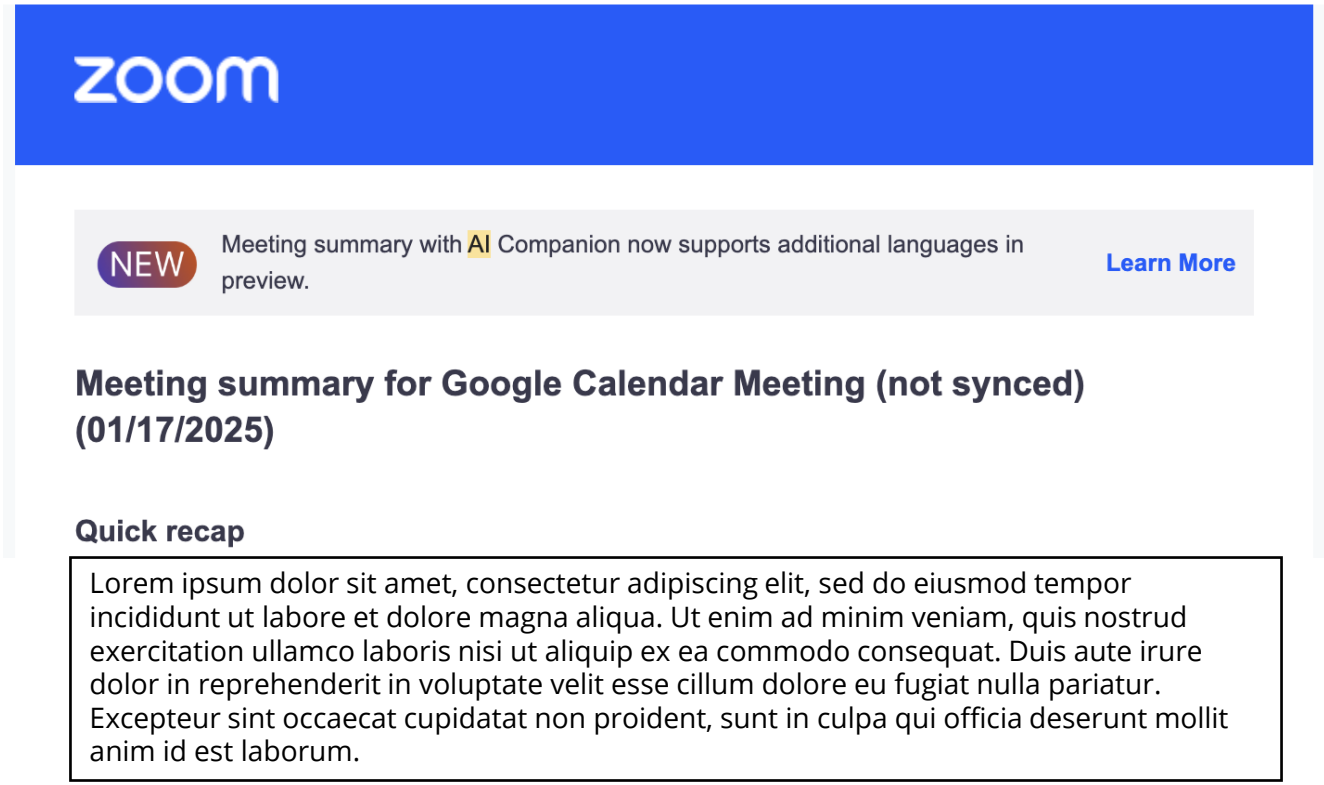
Email *

Your email

What is your Penn State User ID (e.g. fxc15)? *

How to innovate in assessment

- AI as an assistant
  - Finding validated assessment instruments
  - Meeting note-taking
  - Interview note-taking
  - Cross-referencing thematic analysis
  - Cross-referencing statistical analysis
  - **Always address privacy concerns**

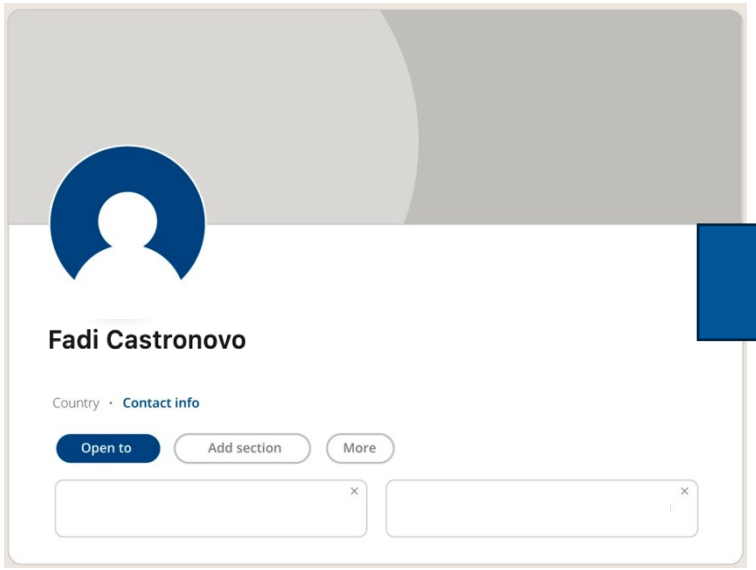


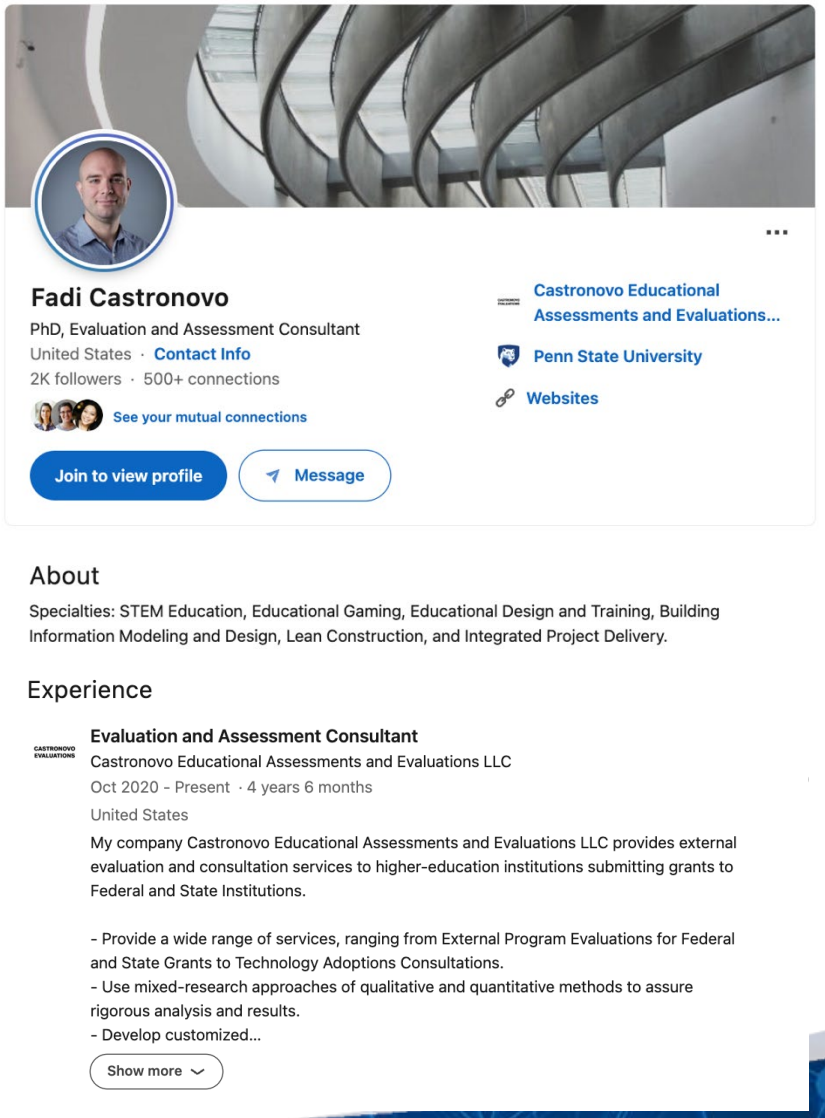
How to innovate in assessment

- Story Telling
  - **Case studies with narrative arcs**: can craft individual or organizational case studies with a narrative structure
    - A story can follow an individual from their first interaction with the program, their challenges, moments of growth, and eventual outcomes.
  - **Digital storytelling and testimonial videos**: collect video or audio interviews where participants, staff, and community members share their experiences.
    - A short video testimonial can describe how participants' skills improved, using before-and-after stories to highlight key impacts.
  - **"Day in the Life" Storyboards**: use illustrated or written narratives to show program impact through the lens of different stakeholders.

How to innovate in assessment

- Social Media Analysis
  - **Linked-In Tracking**





Goal: Measure the effectiveness of an interdisciplinary research program.

Innovation	How It Works
AI Sentiment Analysis	Analyze participant feedback (emails, chat logs, open-ended survey responses) to detect engagement and satisfaction.
Digital Whiteboards (Miro, MURAL)	Participants visually map their learning, collaboration, or impact.
Gamification (Badges, Points, Competitions)	Award points for participation, implementation of skills, and contributions to team projects.
Instant Polling (Mentimeter, Slido, Kahoot)	Collect real-time opinions and reactions during webinars or events.
Chatbot-Driven Feedback (TARS, Drift)	Automated, conversational surveys instead of long forms.
Social Media Engagement Tracking	Measure mentions, shares, and discussions about the program.
Quick Video Testimonials (Flip, Loom, Vidyard)	Participants submit 1-minute videos instead of typing long responses.

If assessment was truly innovative, we'd just let ChatGPT write the reports while we sip coffee.

Source: ChatGPT ☺

Poll

How often do you tailor assessment specifically for each proposal?

Always

Sometimes

Never

I do not do any assessment

I have no idea

Leveraging external evaluation to go beyond traditional metrics

- Finding good evaluators is not easy
- If expertise is not available internally, seek external
- Budget, budget, budget….don't be cheap!

THE EES EVALUATION CAPABILITIES FRAMEWORK

1. Evaluation knowledge

1.1 Appreciates the distinctive role played by evaluation in society

1.11 Exhibits familiarity with evaluation theories, schools and approaches
1.12 Shows awareness of evaluation history and trends
1.13 Appreciates the linkages between evaluation and the social sciences
1.14 Understands program theory and its implications for evaluation
1.15 Aims at evaluation independence and excellence in all contexts

1.2 Masters the antecedents of evaluation quality

1.21 Uses appropriate evaluation concepts and correct evaluation terms
1.22 Displays a capacity to identify relevant evaluation questions
1.23 Knows how to engage constructively with all stakeholders
1.24 Comprehends the value of diverse evaluation approaches
1.25 Adapts evaluation designs and methods to specific contexts

1.3 Understands the potential and limits of evaluation instruments and tools

1.31 Data collection and analysis
1.32 Experimental and quasi experimental methods
1.33 Qualitative, participatory and mixed methods
1.34 Case studies, surveys, interviews, expert panels
1.35 Indicators, rating and monitoring systems

2. Professional practice

2.1 Demonstrates capacity to manage and deliver evaluations

2.11 Responds to legitimate stakeholders' needs and concerns
2.12 Assesses the evaluation context and identifies the program logic
2.13 Manages resources and skills prudently so as to achieve results
2.14 Gathers, uses and interprets evidence with care and judgment
2.15 Reports fairly and encourages effective use of evaluation results

2.2 Displays interpersonal skills

2.21 Writes fluently and communicates clearly
2.22 Values team work and leads by example
2.23 Uses sound negotiating and conflict resolution skills
2.24 Demonstrates gender awareness and cultural sensitivity
2.25 Nurtures professional relationships

3. Dispositions and attitudes

3.1 Upholds ethical standards and democratic values in the conduct of evaluations
3.2 Reaches out to clients and stakeholders
3.3 Evinces independence of mind and appearance
3.4 Displays self-awareness and pursues continuous professional development
3.5 Contributes to the evaluation community

Common pitfalls and how to avoid them

- **Not have an evaluator engaged early**
  - How to avoid this?
  - Ask: How can the evaluator support us in the grant writing?

  Identify a strong evaluator early in process

  Ask how strong is the assessment and evaluation plan

  Don't wait until the end of the writing process to engage with an evaluator
- **Engage with the evaluator throughout the program life**
  - How to avoid this?
  - Ask: How can we maximize the evaluator's knowledge?

  Read the reports, they provide valuable feedback

  Address feedback for continuous improvement

Common pitfalls and how to avoid them

- **Not having a logic model**
  - How to avoid this?
  - Ask: What are our inputs, activities, participants, and short, medium, long-term outcomes?

  Prioritize clarity versus quantity

  Connect the logic model to the narrative, intellectual merits, and broader impacts
- **Broken research or program golden thread**
  - How to avoid this?
  - Ask: Are the research/program objectives, questions, and assessment aligned?

  Align the gaps with the objectives

  Draw a path between the objectives and the metrics

  The metrics must be measurable with validated instruments

Common pitfalls and how to avoid them

- **Measuring the wrong thing** (easily countable but meaningless metrics). E.g., # of events held rather than impact of the events.
  - How to avoid this?

  Ask: what decisions will this data help us make?

  Prioritize quality vs. quantity (measure depth of impact)

  Use outcome-based metrics (E.g., How did knowledge/behavior change?)
- **Overdoing it** (collecting too much data, overly complex questions) and **not doing anything with it** (no use for decision-making)
  - How to avoid this?

  Ask: What are the 3 most important things we need to learn from this assessment?

  Focus on KPIs that matter!

  Set a clear path on how data will be used

  Regularly review and adjust the program (feedback loop)

Common pitfalls and how to avoid them

- **Only measuring "after"** without the "before" (Our program improved X…)
  - How to avoid this?

  Ask: Would this improvement have happened without our program?

  Collect baseline data before starting the program.
- **Only relying on surveys and ignoring qualitative insights**
  - How to avoid this?

  Combine quantitative (surveys) with qualitative (stories, experiences) data

  Use testimonials, quotes to add depth

  Consider tech-based assessments (sentiment analysis, social media engagement

Q&A

Next Steps

- Not sure about your program evaluation?
  - Check Huck Catalysis
  - Reach out to Mindy Cain at msc5592@psu.edu to schedule a free initial consultation session with Dr. Kantor.
- If you're interested in joining the STAIR Subject Matter Group, please complete this brief form:

We'd greatly appreciate your feedback! Please let us know how we did today: