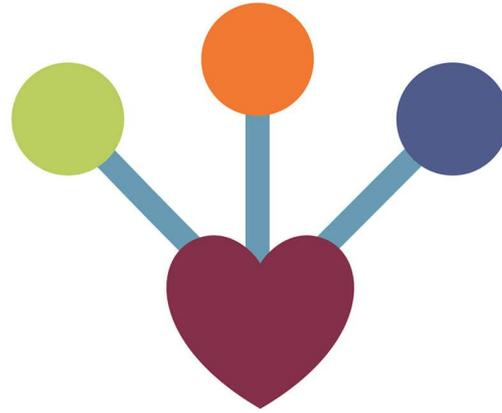# Poll

Please type in the chat:
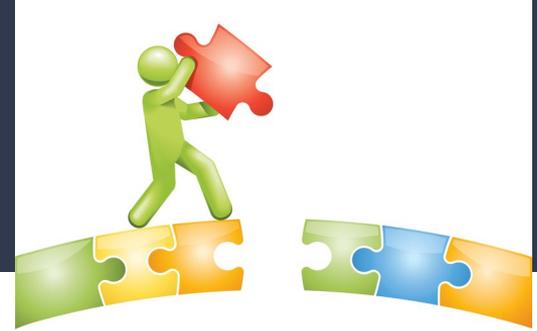– What area of outreach are you most interested in (K12, business, community group, other)?

- Agenda
  - Presentation - Inspire, Connect, Impact
  - Breakout in interest groups
  - Come back together - group discussion and questions

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Inspire

We are ... boundary spanners*

The Center for Educational Networks and Impacts (CENI) in the Institute for Creativity, Arts, and Technology at Virginia Tech. We have a network of liaisons for connecting outreach efforts in our region, and we'll be telling you about how we are developing this model.

Q: What is a liaison?

A: We are shared positions between Virginia Tech and local educational entities, such as a school system or museum. We spend part of our time at VT and part at our partner entity, so we can connect with the people and the needs of both entities.

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*Farley & McNair (2020) "Engagement in Practice: Exploring Boundary Spanning in a School-University Partnership." ASEE 2020.

Tell me more about liaisons...

Q: Why are liaisons important?

A: Because we spend time with both partners, we are truly in touch with the needs of both. Also, it is typical that the VT and educational entities we are trying to bring together have different languages and priorities. We serve as a translator to make sure that all needs and priorities are being met. We can make strong, lasting, mutually beneficial partnerships that are targeted to meet the needs of each partner.

Q: Are all the liaisons the same?

A: Our mission at Virginia Tech is the same as we are all trying to create mutually beneficial relationships between VT and our respective partners. However, our roles in our partner entity vary depending on the needs of the partner.

The High Quality Education Equation

Strong correlation between the educational attainment of a state's workforce and **median wages in the state**

Most students graduating from state institutions will **remain in the state** over their working lives

States can build a **strong foundation for economic success** by investing in strategies that make their people more productive, specifically higher education

Productivity & growth

1 2 3 4 5

Broader Impacts versus Outreach and Engagement

- Broader impacts usually NSF specific
- Outreach and engagement more generic

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Broader Impacts – Traditional Definition

- How well does the activity advance discovery and understanding while **promoting teaching, training, and learning**?

- How well does the proposed activity **broaden the participation of women and underrepresented groups**? (*Diversity*)

- To what extent will it **enhance the infrastructure for research and education**, such as facilities, instrumentation, networks, and partnerships?

- Will the results be **disseminated broadly to enhance scientific and technological understanding**?

- What may be the **benefits** of the proposed activity **to society**?

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What is your planned impact or impacts?

- Full participation of women, persons with disabilities, and underrepresented students in science, technology, engineering and mathematics (STEM).
- Improved STEM education and educator development at any level.
- Increased public scientific literacy and public engagement with science and technology.
- Improved well-being of individuals in society.
- Development of a diverse, globally competitive STEM workforce.
- Increased partnerships between academic, industry, and others.
- Improved national security.
- Increased economic competitiveness of the United States.
- Enhanced infrastructure for research and education.

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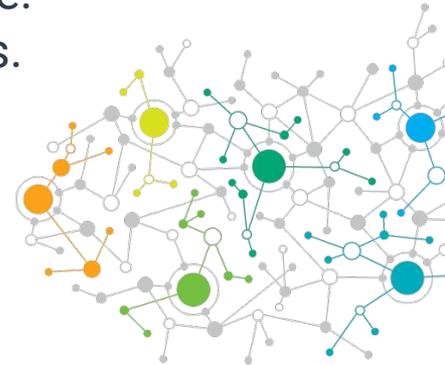
Characteristics of Broader Impacts/Outreach Plan

Must have a strategy to achieve impact!

- Have a well-defined set of outcome objectives
- Make results meaningful and valuable
- Make consistent with technical project tasks
- Have detailed tasks for implementation and evaluation (did it work & why?)
- Have a well stated relationship to the audience or audiences

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Connect
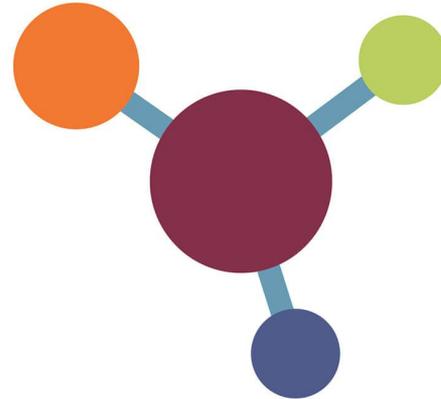
Who is your audience?

- Identify key stakeholder groups who can assist with your research and who will benefit from the research such as:
  - PK12 students
  - PK12 teachers, counselors, administrators
  - Community college students
  - Community college faculty
  - Community education programs such as camps
  - Business and industry
  - Others?

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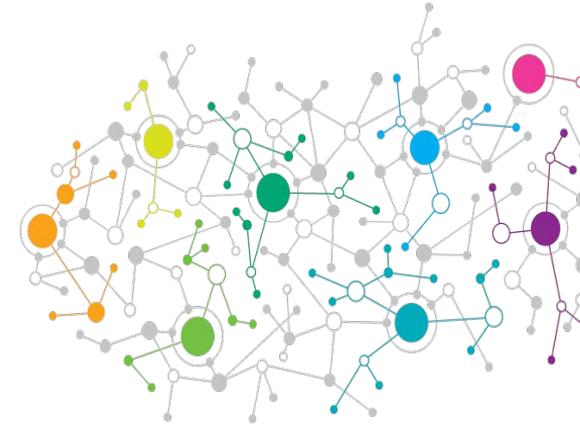
Meet, meet, meet!

- Investigate existing partnerships; find out history, needs, etc.
- Look for mutual goals and benefits
- Be honest about what you need from the beginning
- Present a timeline as well as a formative and summative evaluation plan

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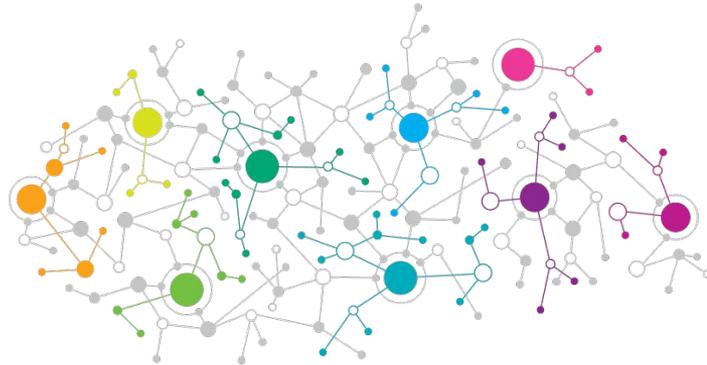
Tips for Connecting

- Time
  - Many groups request 6 weeks advance notice
  - Many require approval by a board, which takes time
- Clarity
  - What are you asking them to do?
  - What is expected of their employees?
  - What resources do you need?
- ROI
  - What's in it for them?
  - What's the sustainability plan?
- Respect
  - Avoid making demands & assumptions
  - Explore requirements for working with minors
  - Treat them as an equal partner

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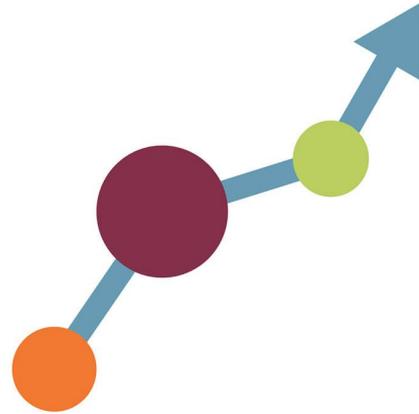Networks and Impacts
Inspire. Connect. Impact.
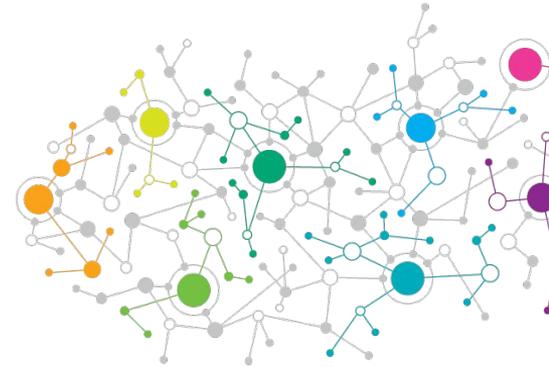
Communicate, communicate, communicate!

- Develop a Memorandum of Understanding (MOU)/Letter of Agreement
- Project management
- Develop a logic model
- Implement a formative and summative evaluation plan

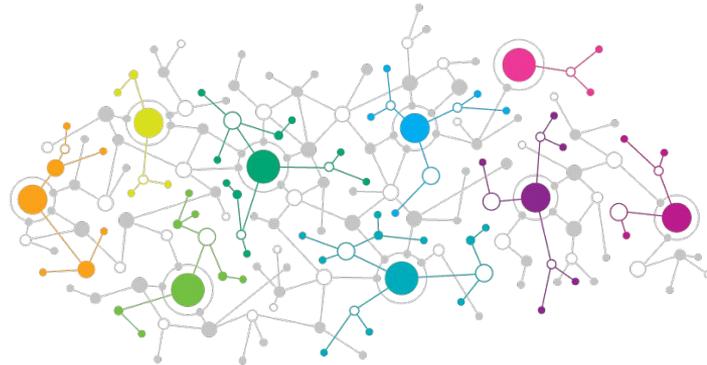Center for Educational
Networks and Impacts
Inspire. Connect. Impact.
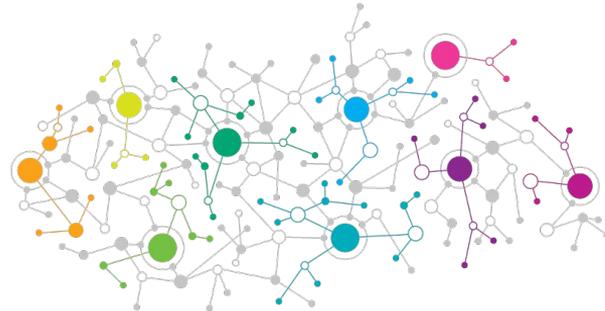
Impact

Evaluation is...

A great tool for communicating to your stakeholders about the resources, goals, and impacts of your project.

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Program evaluation is...

Systematic collection of data about the activities, characteristics, and results of programs to:

1. make judgments about the program,
2. improve or further develop program effectiveness,
3. inform decisions, and/or
4. increase understanding.

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Source: NIMBIOS/NISER Program Evaluation 101 Webinar
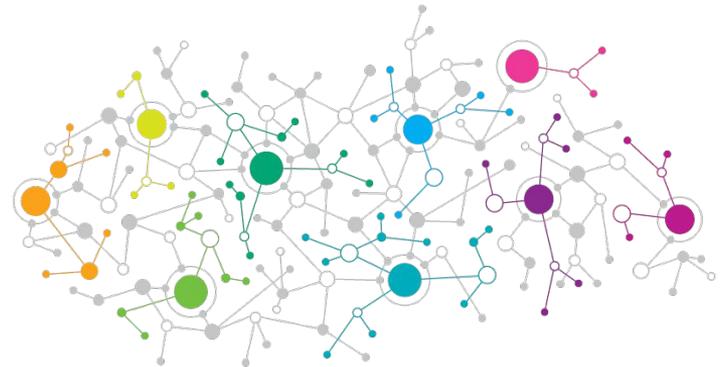
Why is evaluation important?

- Strengthens the project
- Identifies problems AND provides information on how to address them
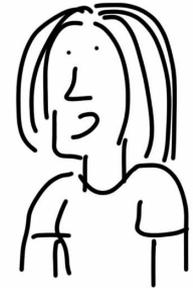- Supports sustainability
- Provides evidence to support future funding
- Ascertain impact of the project

What kind of evaluation did you need?

Our 3 year project is coming to an end and were told we needed an evaluation.

What kind is that?

freshspectrum.com

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Types of Evaluation

Summative Evaluation

Mmm, tasty.

Formative Evaluation

Needs salt.

Developmental Evaluation

Farmers Market

What looks good for tonight's menu?

freshspectrum.com
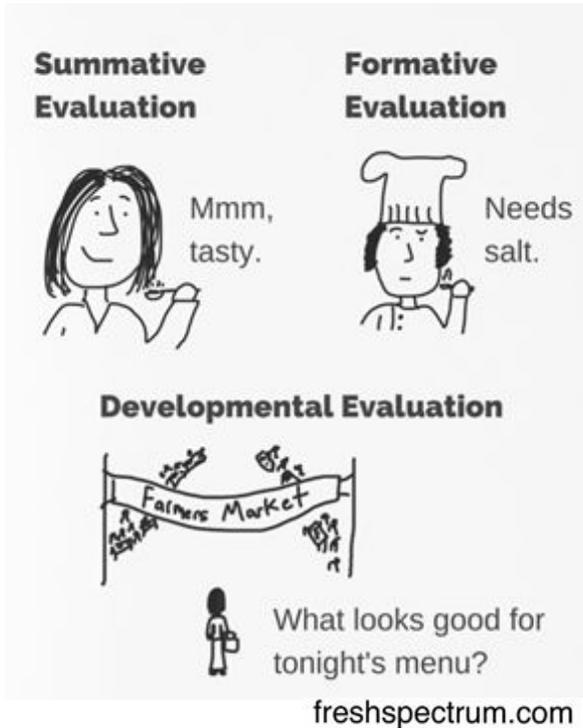
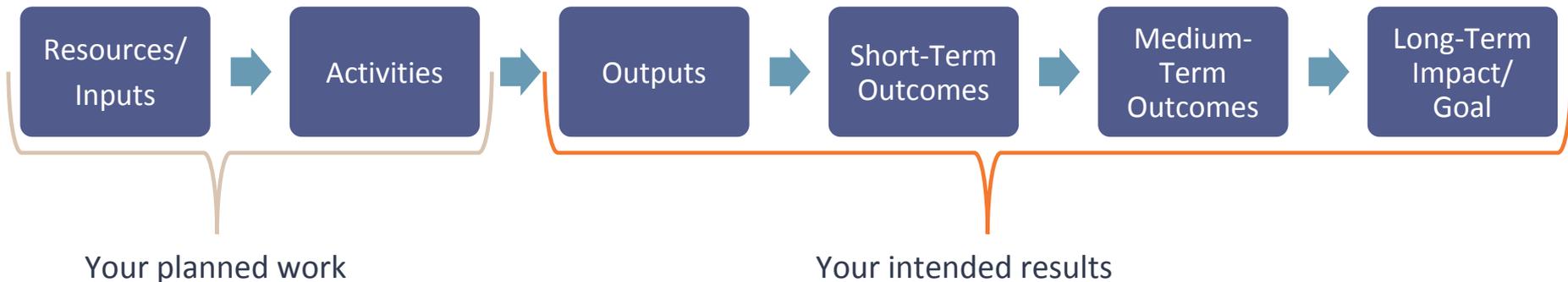- Formative – Learn about project elements that could be improved as the project is implemented
- Summative – Gives conclusions about the quality/impact of the project's achievements at the end of project
- Developmental – Evaluator helps to develop the project; allows for quick feedback in complex or uncertain environments

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What is a logic model?


```
Resources/   →   Activities   →   Outputs   →   Short-Term   →   Medium-   →   Long-Term
Inputs                                              Outcomes        Term          Impact/
                                                                    Outcomes      Goal
```
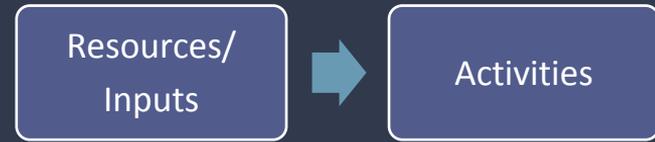
Your planned work   Your intended results

Logic models help to plan your project, determine how your project works, outlines expectations and facilitates communication between partners, and support evaluation of your project.

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Your Planned Work

1. Resources/Inputs include the human, financial, organizational, and community resources.

- Examples: Money, staff

2. Activities are what the program does with the resources. **Activities** are the processes, tools, events, technology, and actions that are part of the program implementation. These interventions are used to bring about the intended program changes or results.

- Examples: Workshops, undergraduate classes

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Your Intended Results

3. Outputs are the direct products of program activities and may include types, levels, and targets of services.

- # in workshop, # in class

4. Outcomes are the specific changes in program participants' behavior, knowledge, skills, status, and level of functioning.

- Short-term – changes in knowledge, skills, attitudes (increased knowledge/comfort with implementing modules in the classroom)
- Medium-term – changes in behavior (increased student enrollment in STEM majors)

5. Impact is the change occurring in organizations, communities, or systems as a result of program activities.

- Long-term change in condition (higher retention of STEM majors)

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Source: W.K. Kellogg Foundation Logic Model Development Guide, 2004

Logic Model Development Methods

- **If…then**
  - IF I have staff, THEN I can use them to teach workshops.
  - IF I have workshops, THEN I can teach 100 teachers how to use laboratory modules.

- **How?**

  - I want to increase retention of college STEM majors. HOW do I make that happen? - By having them involved in undergraduate research.

  - I want to have more STEM majors involved in undergraduate research. HOW do I make that happen? - By having them take a class to expose them to more research efforts.

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Evaluation Resources

- Freshspectrum.com
- http://www.nimbios.org/IncludesConf/
- https://www.wkkf.org/resource-directory/resource/2006/02/wk-kellogg-foundation-logic-model-development-guide
- https://www.nationalservice.gov/sites/default/files/upload/OpAC%20Logic%20Model%20draft%20in%20progress.pdf

Thank you!

Julee Farley | VT-K12 Liaison, Montgomery County Public Schools

Kim Keith | VT-K12 Liaison, Floyd County Public Schools

Jamie Little | VT-K12 Liaison, Radford City Public Schools

The Path to Lasting Broader Impacts

Identify Partners → Define Objectives → Create Plan → Identify Stakeholders → Define Partnership Roles → Conduct Evaluation → (cycle back to) Goal

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