CARNEGIE FOUNDATION SUMMIT on IMPROVEMENT IN EDUCATION 2021 VIRTUAL

2B. Theory of Networked Improvement Community (NIC) Development

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The session will begin shortly.

Closed Captioning is available via the CC icon in your Zoom toolbar.

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Session Overview

NIC scholars and evaluators:

- Share Carnegie's current theory of NIC development
- Explore methods and findings through a case study of the Better Math Teaching Network (BMTN), a NIC which aimed to improve student engagement in high school algebra

You will:

- Practice applying the framework to your own organization

Before we get started:

- Please introduce yourself in the chat: Name / Role / Organization

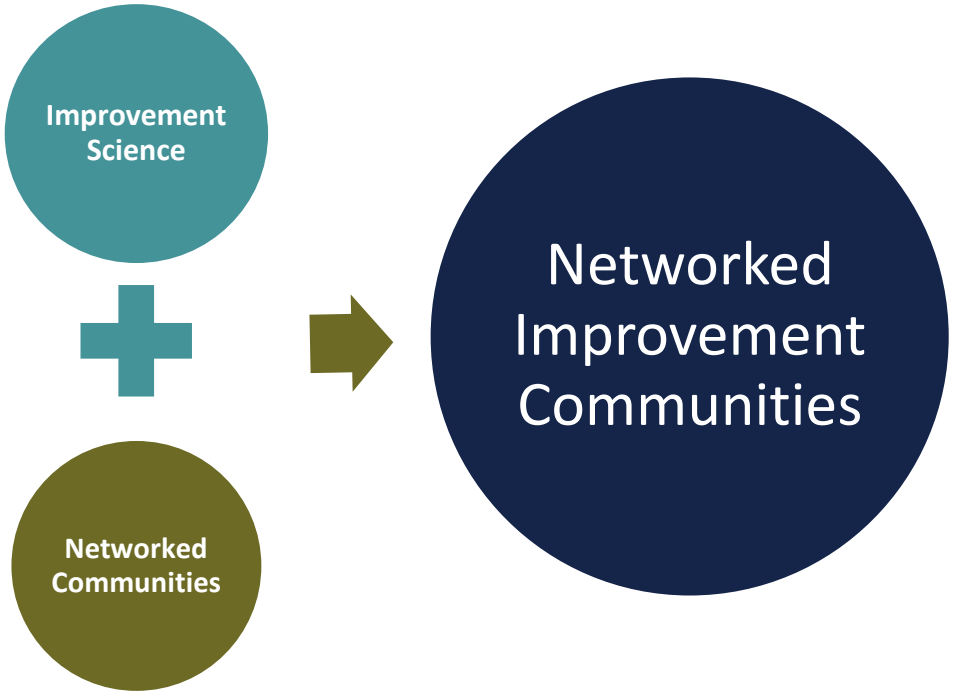
Networked Improvement Communities (NICs)

Integrating Two Big Ideas:

The tools and technologies of **Improvement Science**

joined with

The **Power of Networks**



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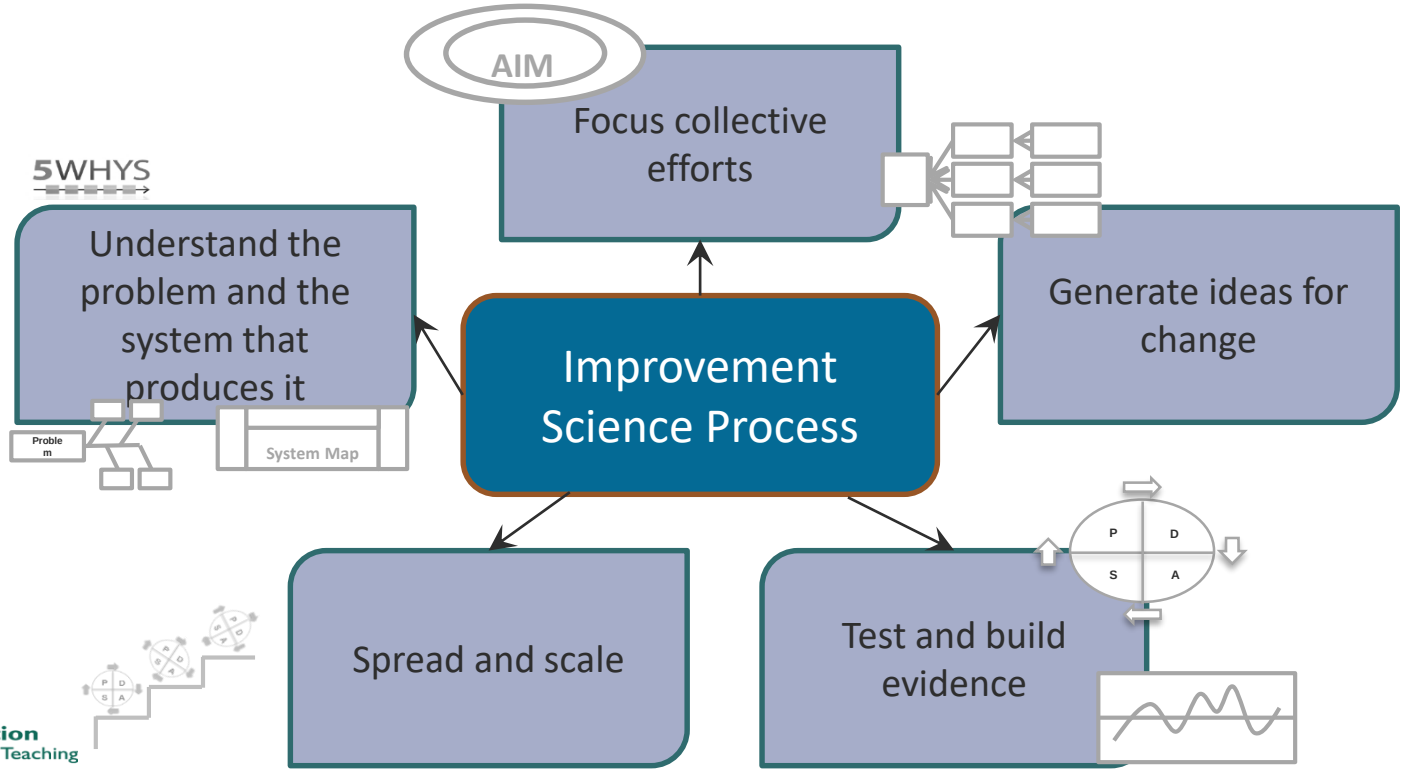

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NIC Development Framework

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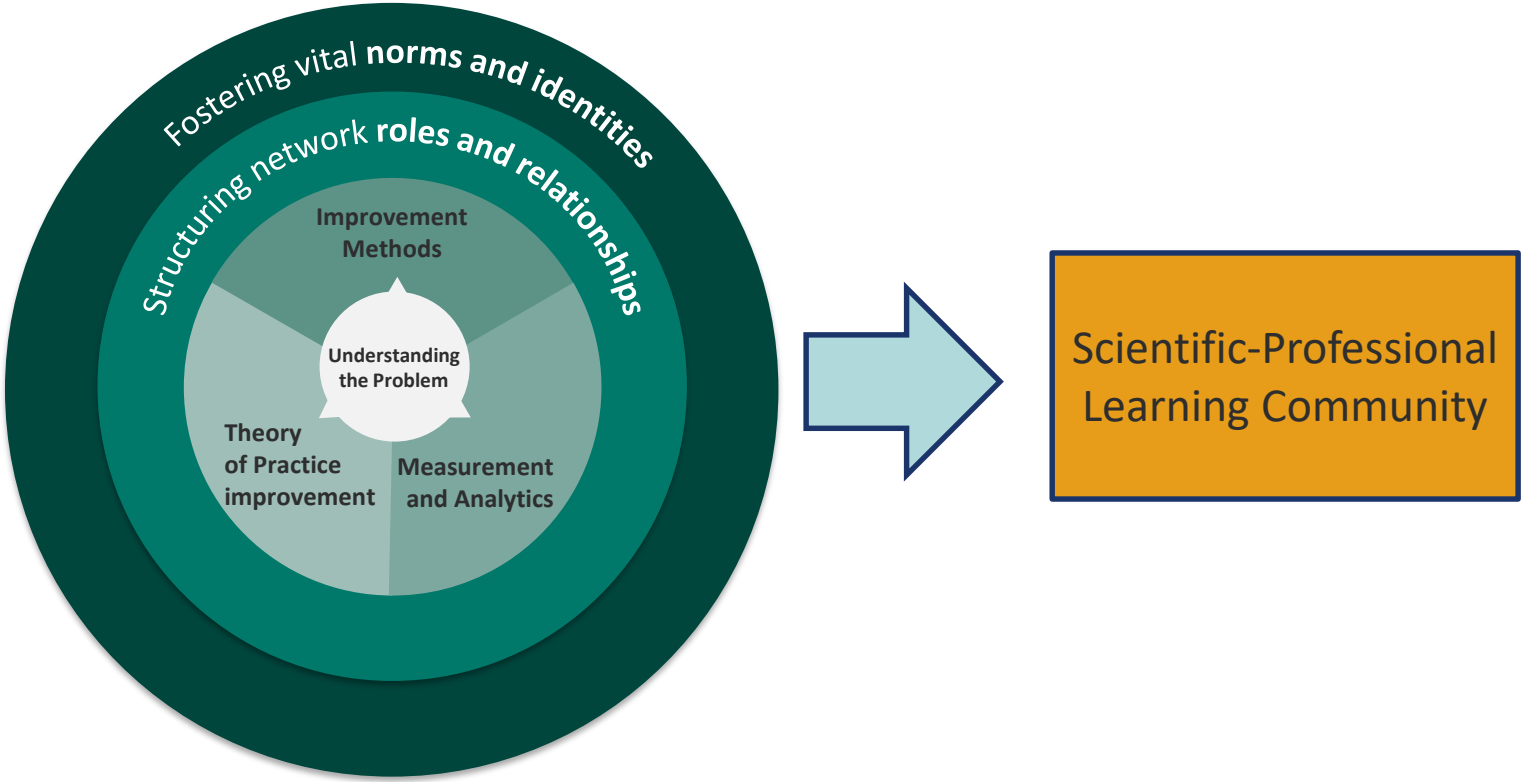
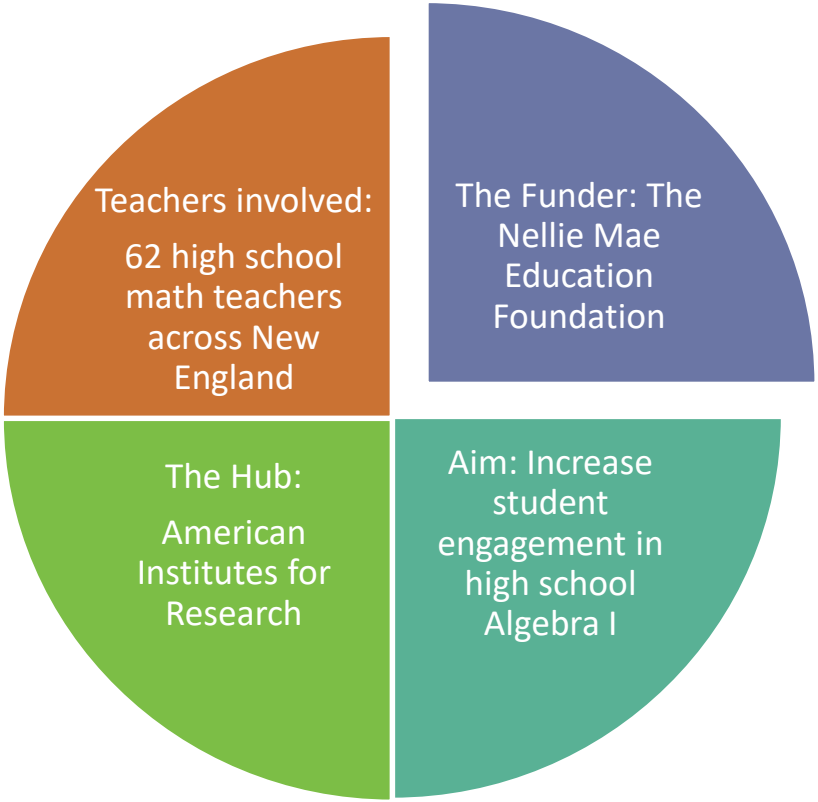
NIC Development Framework



The Better Math Teaching Network



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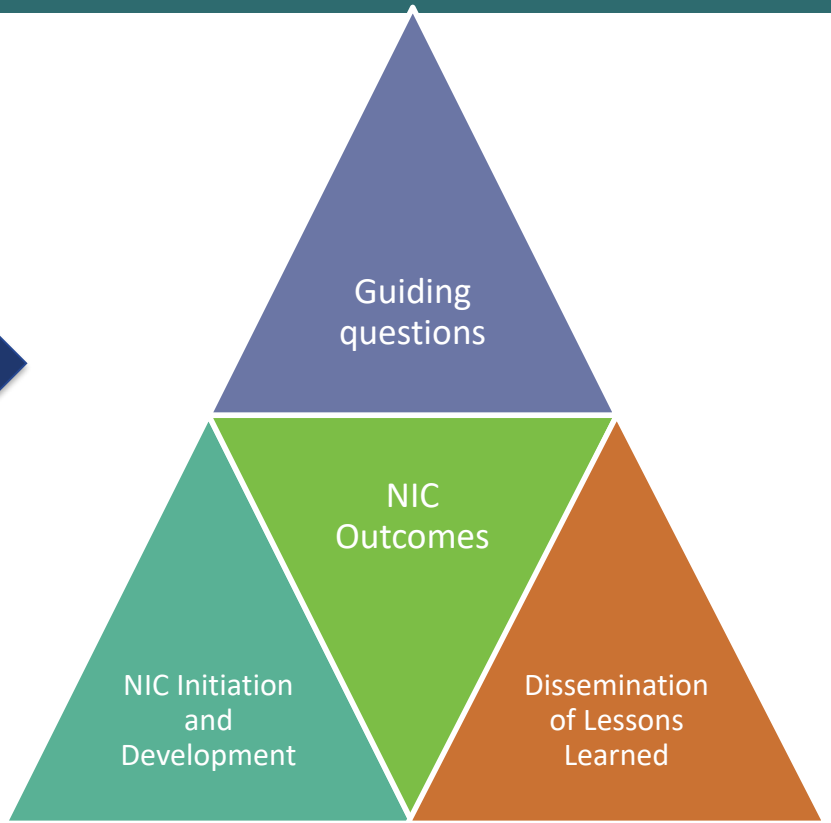
The Pitt Developmental Evaluation: Partners for Network Improvement (PNI)

Nellie Mae
The Hub
Pitt PNI Team



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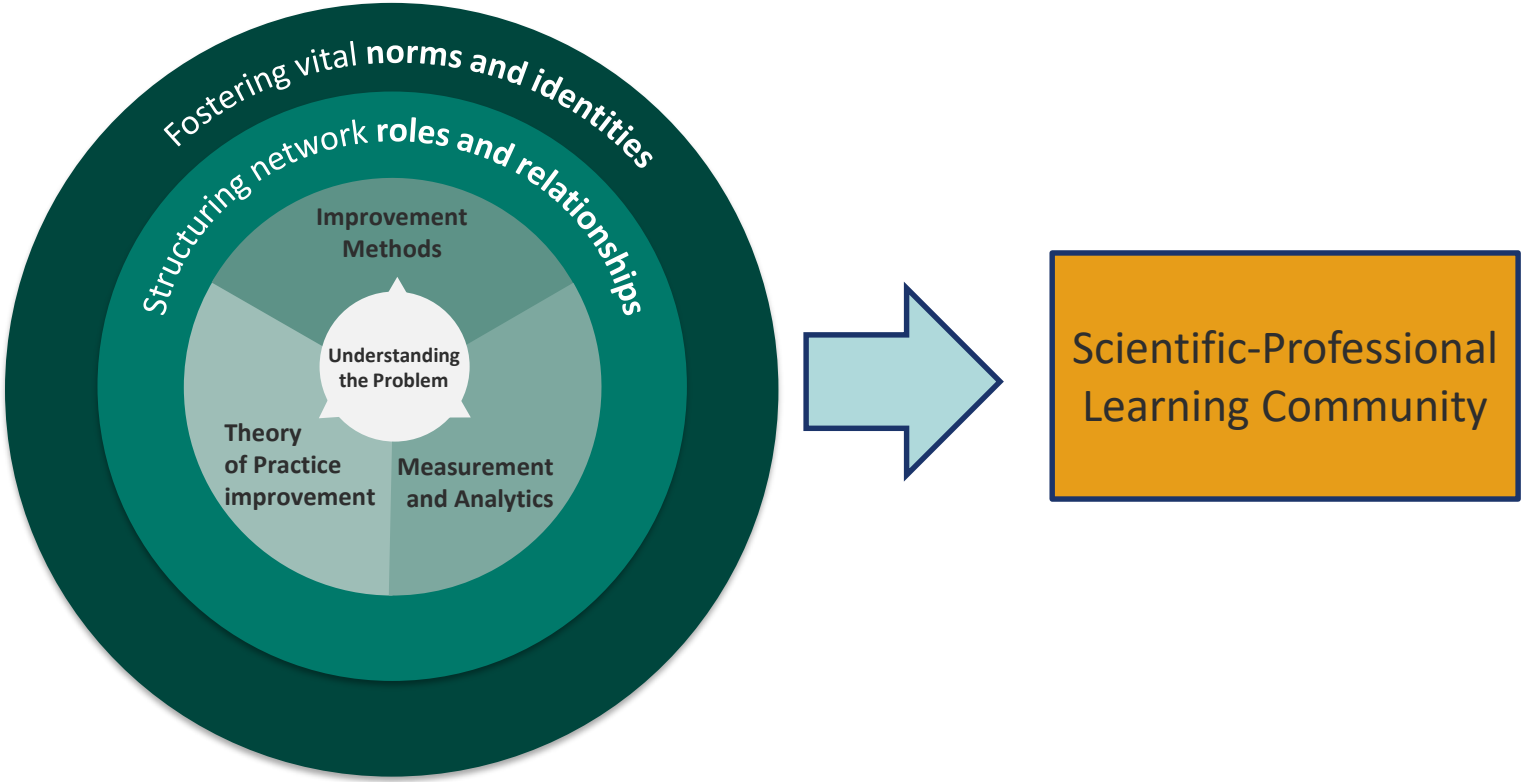
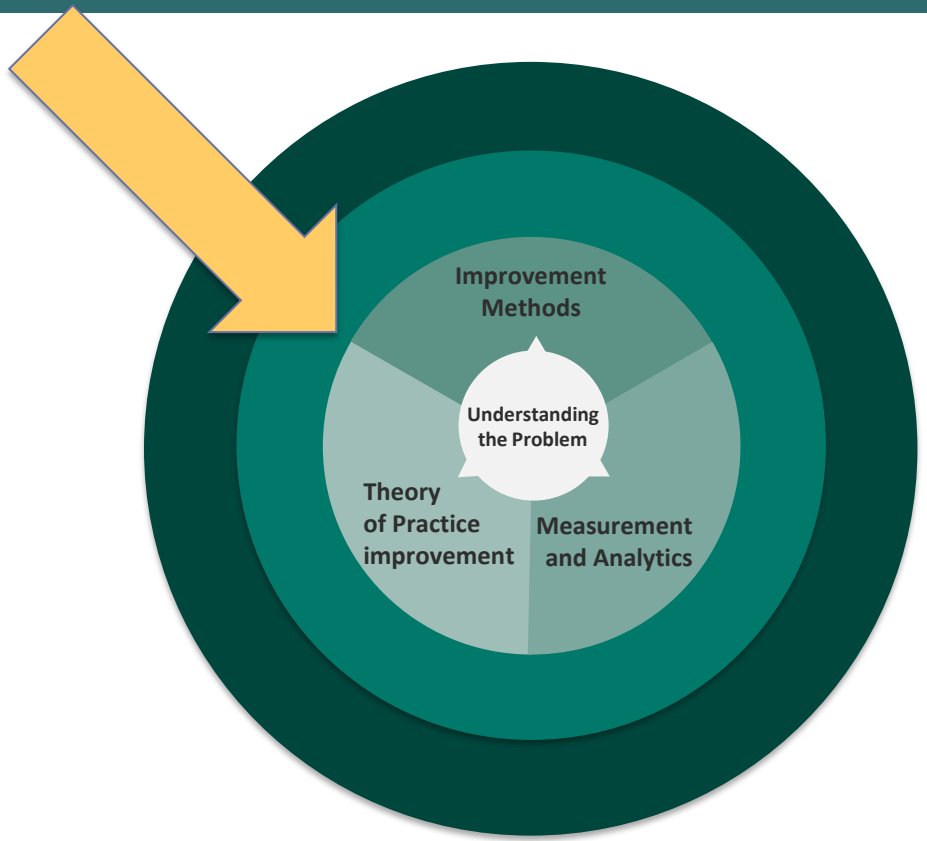
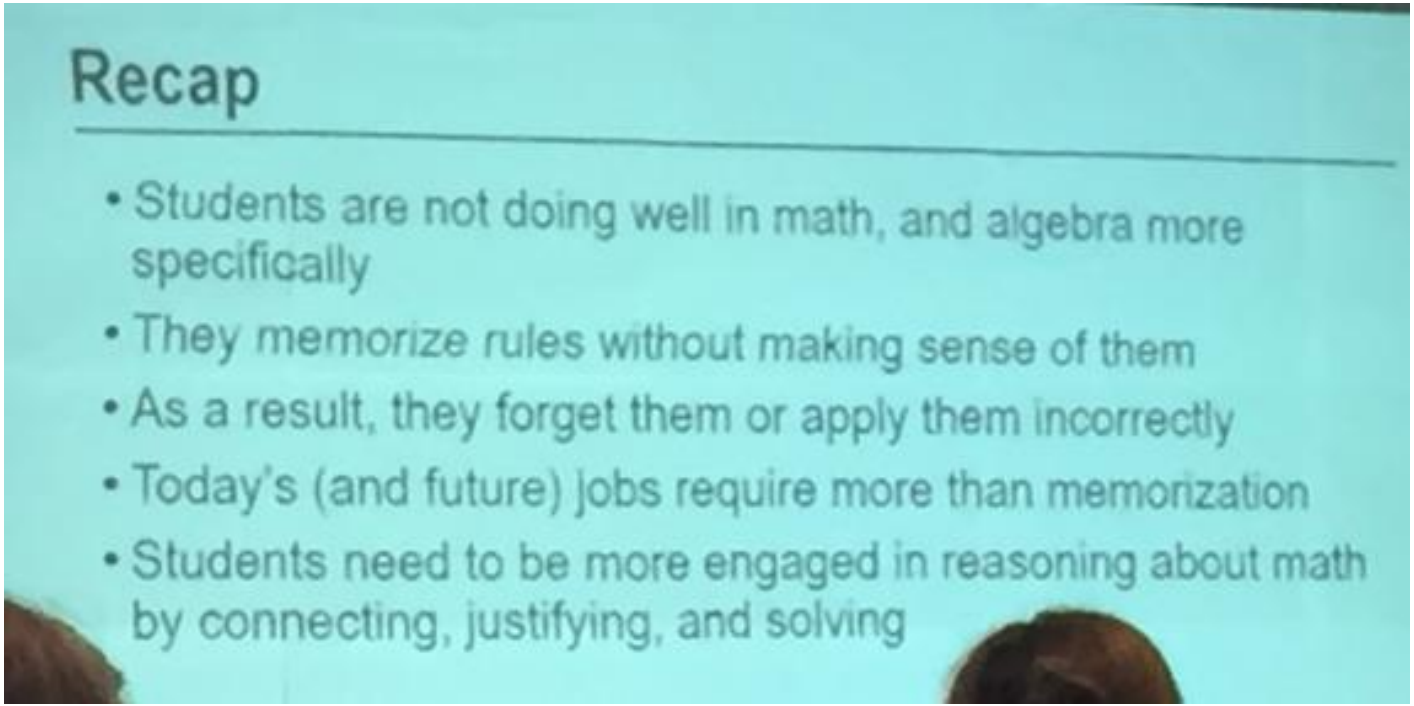
Critical domains of effort for operating a NIC



The NIC technical core



Understanding the problem

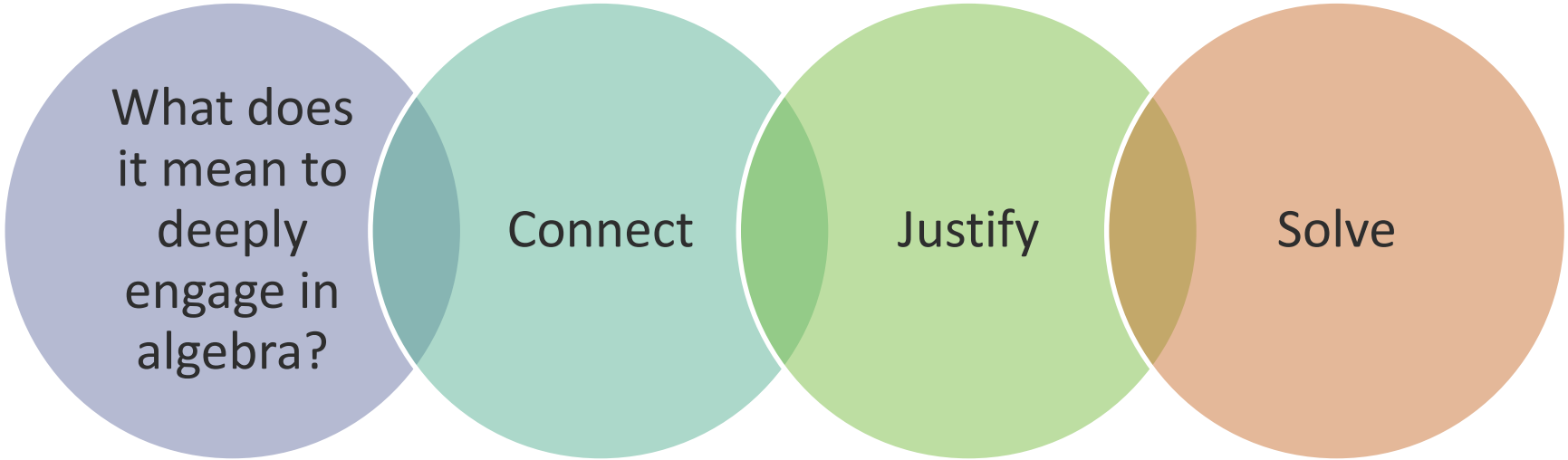


Understanding the problem

- High school students are not doing well in math, algebra more specifically.
  - Why?
  - They are disengaged in math.
  - Why?
- Math teaching is not student centered, and it is not high quality.
  - And so, the DEAs were created

[Deep engagement in Algebra: Solve, Justify, Connect]

DEA: Deep Engagement in Algebra



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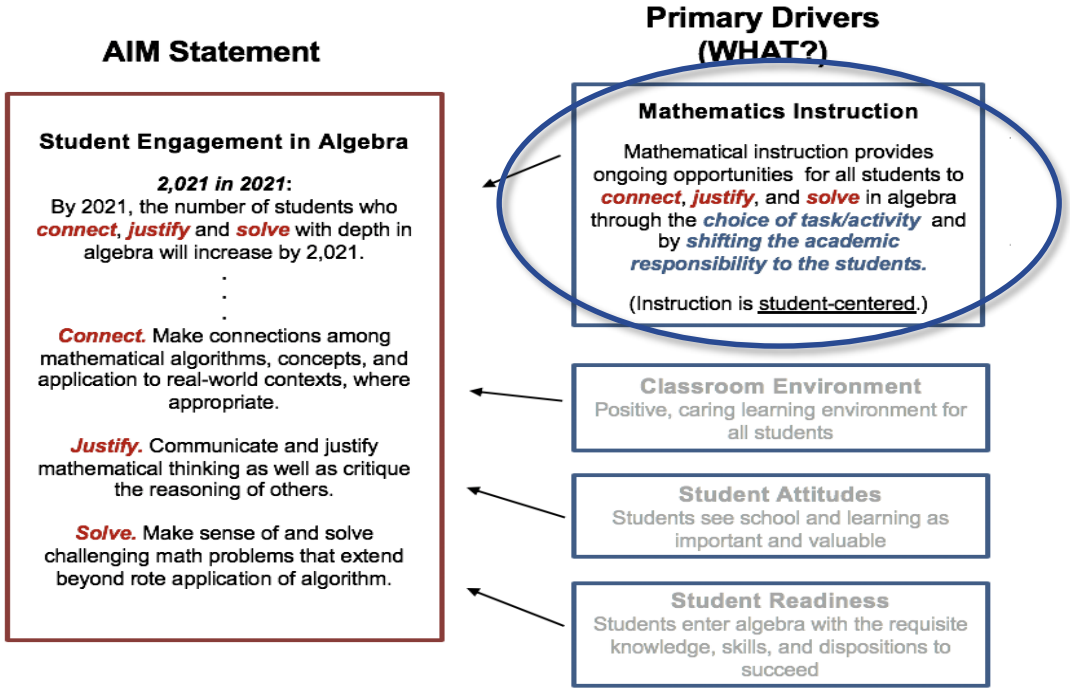
The BMTN driver diagram



How BMTN designs and enacts the technical core

Theory of practice improvement

- Press on Mathematics Instruction driver
- Clear vision of Deep Engagement in Algebra (DEA)
- Increase opportunities for students to engage, with depth, in Connect, Justify, and Solve

Improvement methods

- Process maps
- PDSA training
- Template to scaffold steps
- Coaching meetings each cycle

Measurement and analytics

- Annual surveys of students and teachers
- Practical measurement: Rubrics for Connect, Justify, and Solve

Technical core challenges in BMTN

Improvement methods challenges: General

- Steep learning curve (teachers new to the network)

Improvement methods challenges: Practical measurement

- Designing practical measures of algebra engagement
- Collecting and analyzing practical measure data
- Interpreting and using data

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Student-centered learning with depth

Kirk and Toni talk more about how they supported student-centered learning with depth in a pre-recorded session:

Improving the Core: Features and Challenges of Instructionally-Focused NICs

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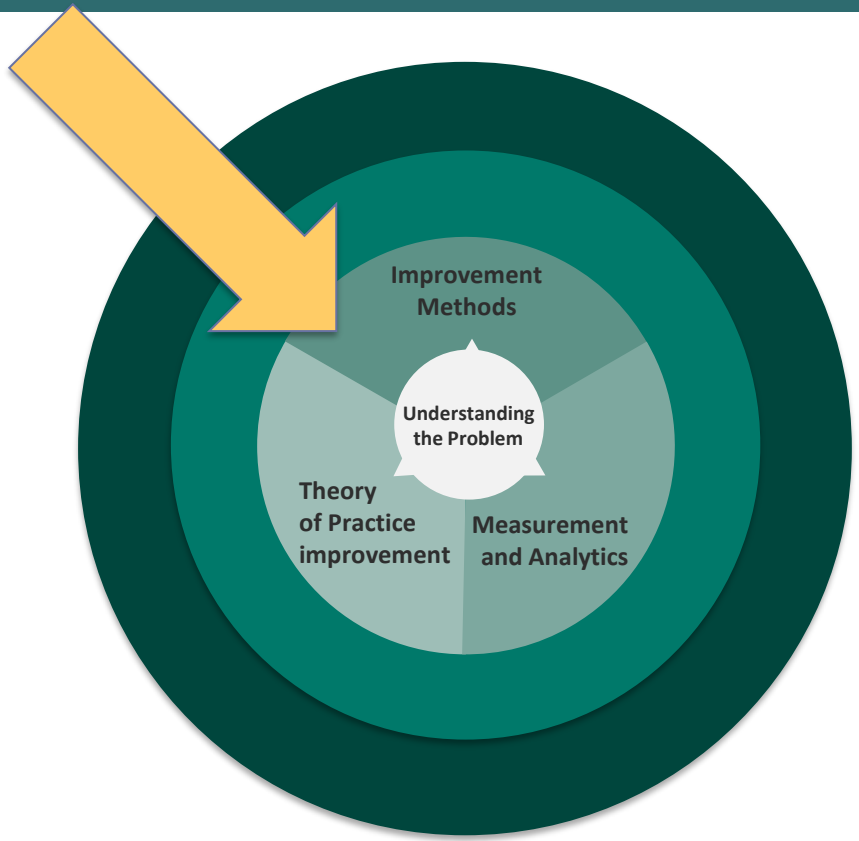
Reflection: The NIC technical core

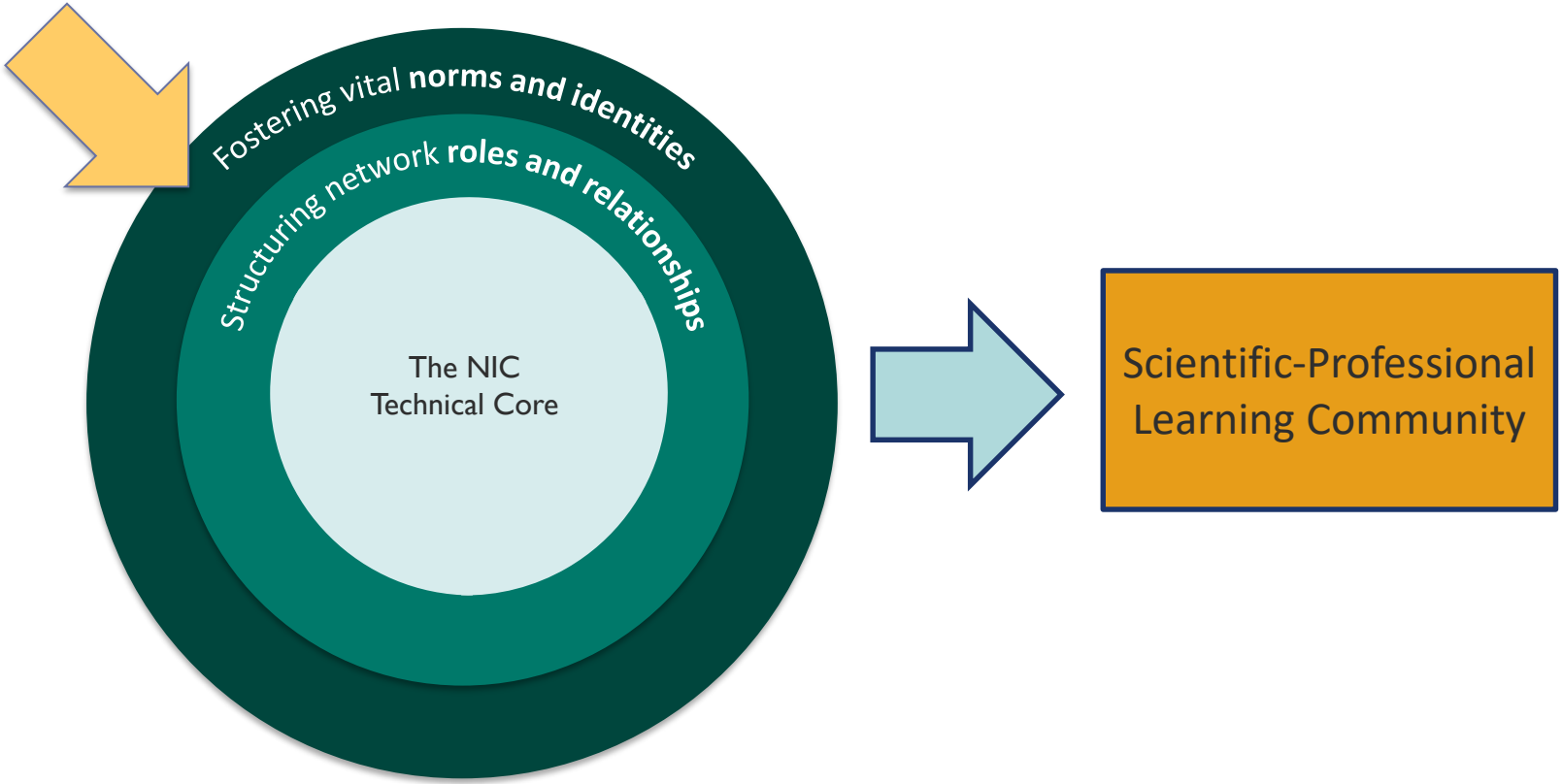


Take a minute and reflect on what you have learned about the NIC technical core.

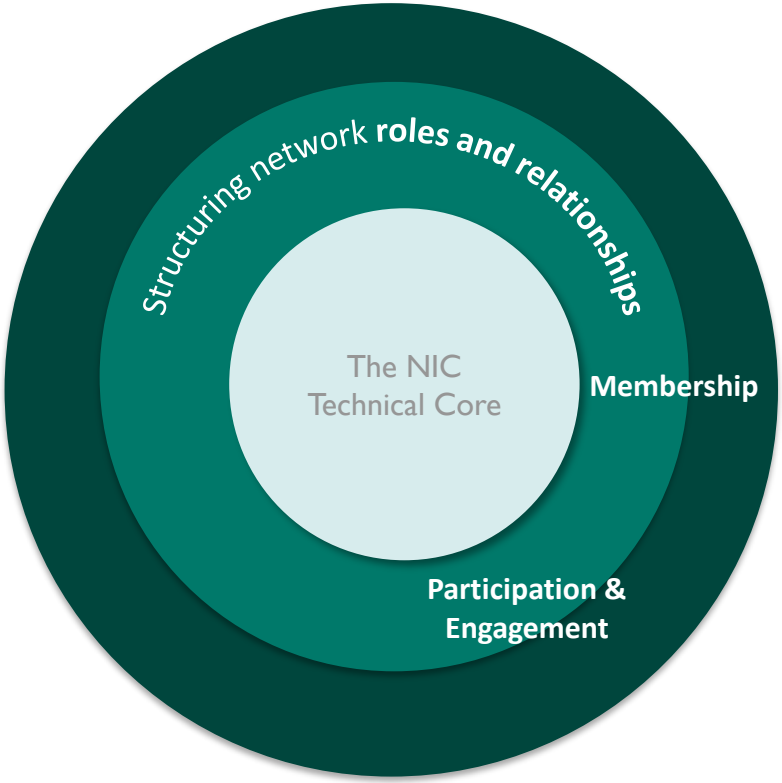
Then, put in the chat:

1. What's an "ah-ha" that you had about NICs, BMTN, or the technical core?
2. What questions do you still have about the technical core?

Structuring network roles and relationships



How do you get people engaged in improvement work and learning together?



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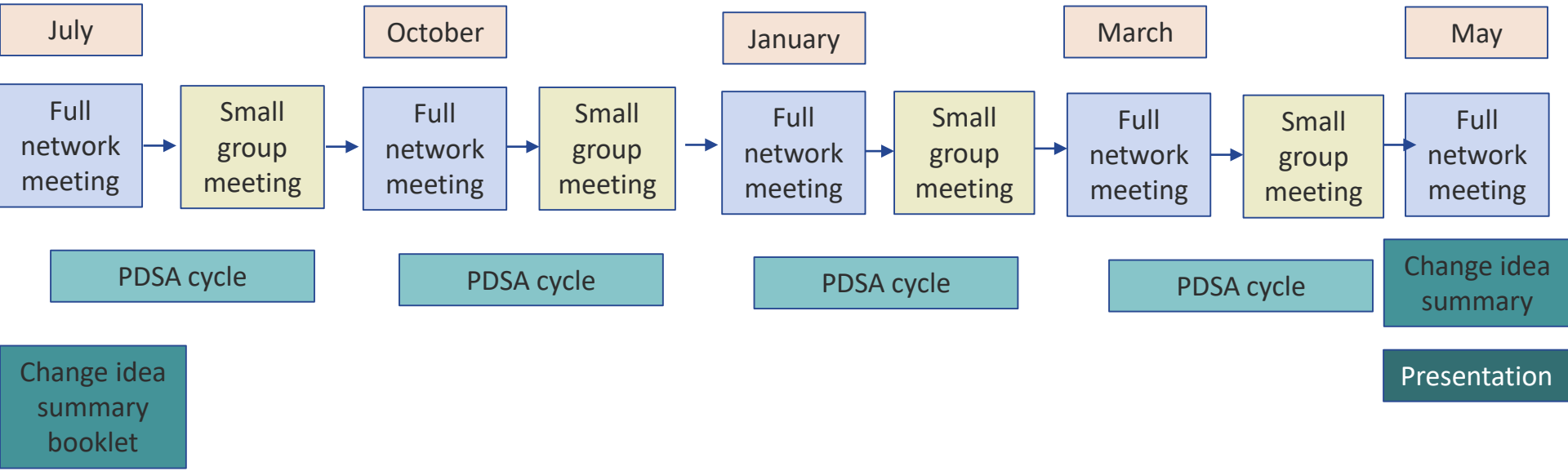
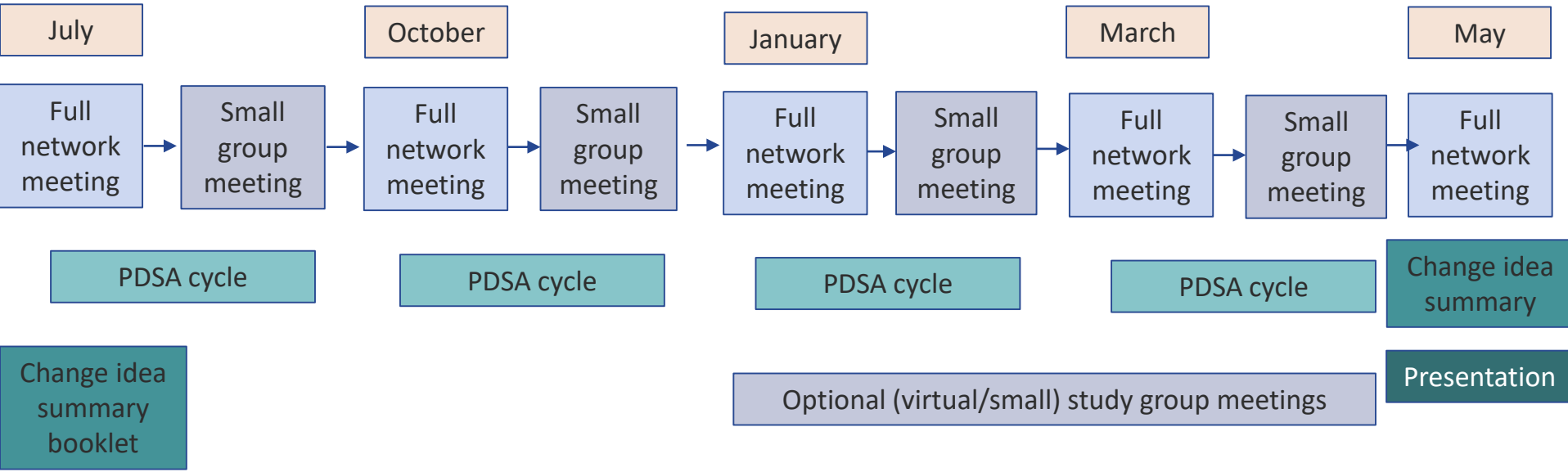
How BMTN designed participation structures



How BMTN designed participation structures

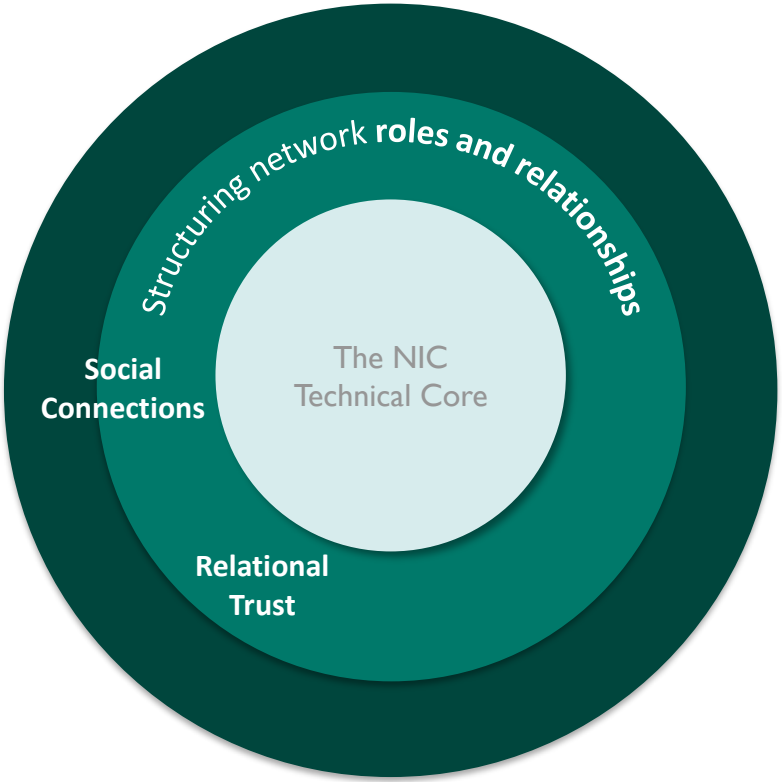


Challenges of structuring network roles and relationship challenges in BMTN

Participation challenges

- Time: Balancing BMTN work with other professional responsibilities
- Meaningful collaboration: Balancing schedules and opportunities for joint work

How do you get people engaged with each other in a meaningful and consistent way?



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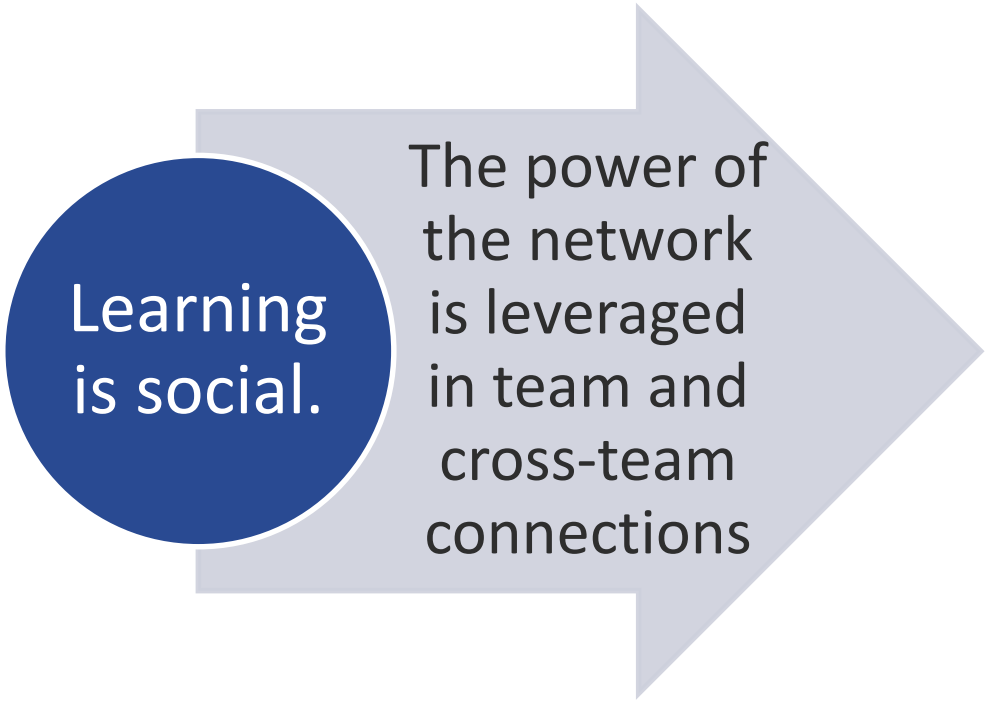
Team and Cross-team Connections



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Team and Cross-team Connections

How do network leaders design for these opportunities?

In BMTN, network leaders organized small groups by similar math focus (solve, justify, connect).

They shared a booklet each summer with change idea summaries from the previous year.

Teachers spent extended periods of time together and informally shared ideas

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Team and Cross-team Connections

How do network leaders design for these opportunities virtually?

Offering optional weekly times to join for targeted discussions, affinity groups, ...

Platforms such as Basecamp, Sales Force...

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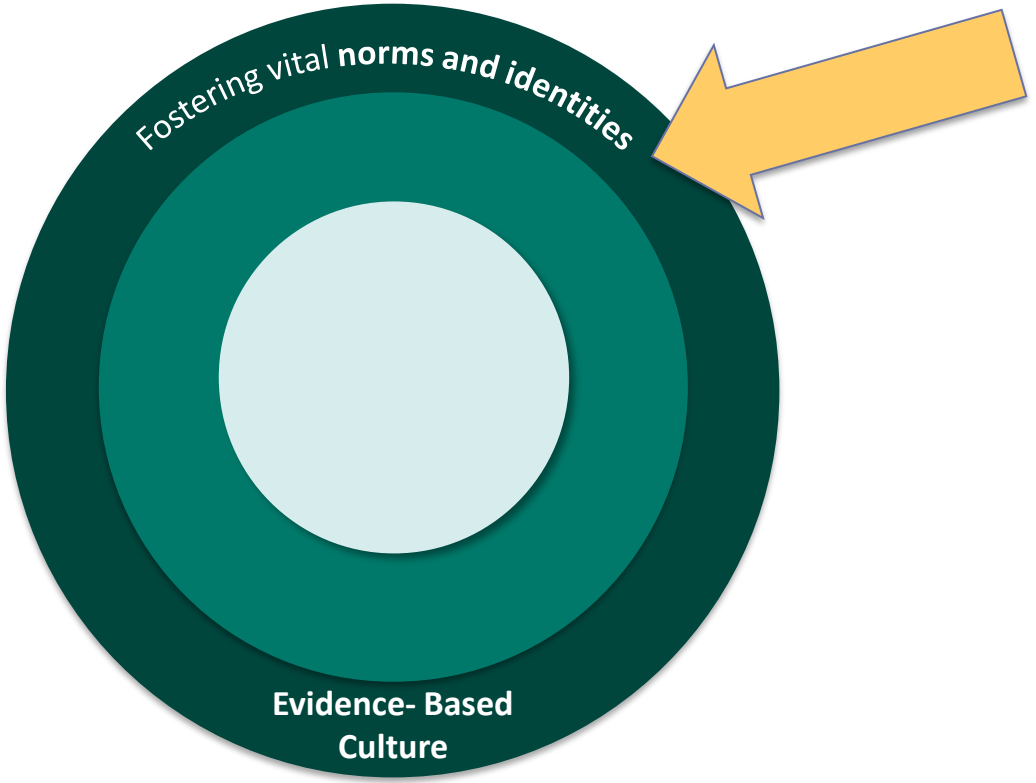
Reflection: Structuring network roles & relationships

Take a minute and reflect on what you have learned about structuring network roles & relationships.

Then, put in the chat:

1. What's an "ah-ha" that you had about structuring network roles and relationships?
2. What questions do you still have about how to support networked learning?

Social organization: Norms & identities



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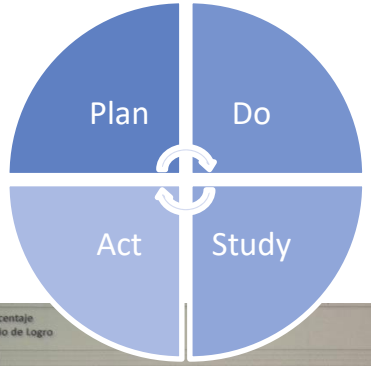
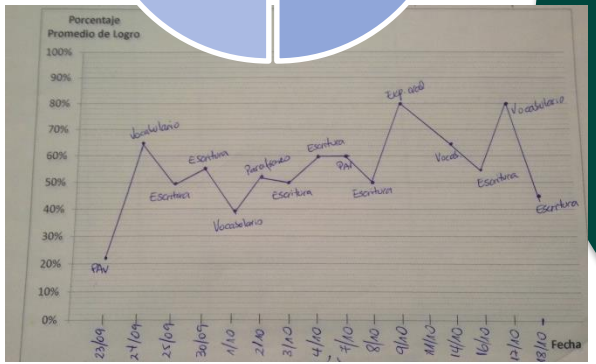
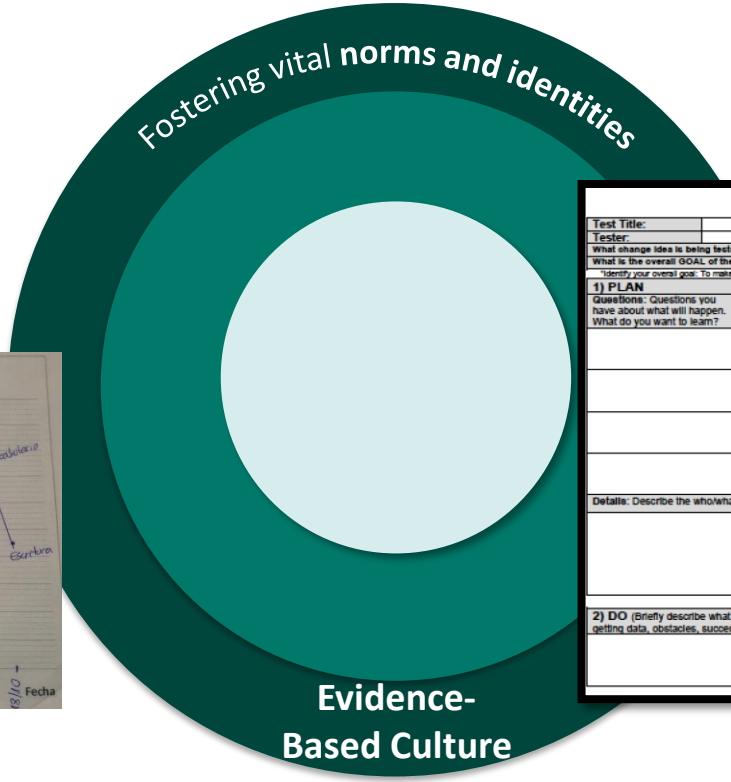
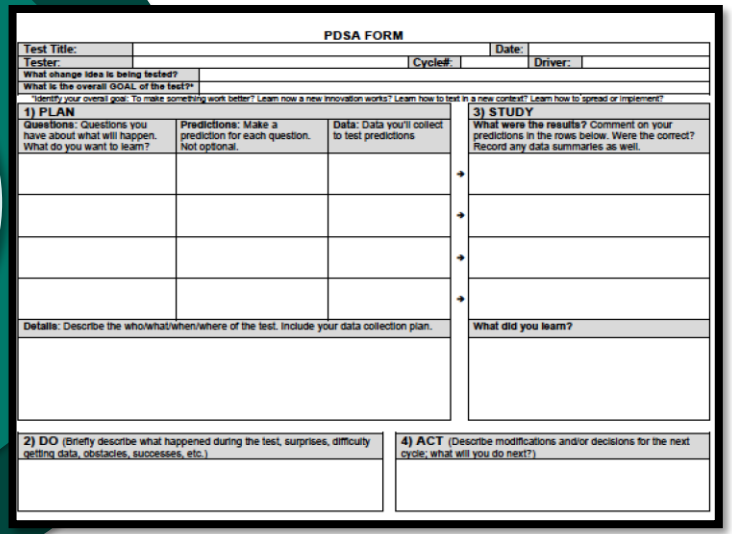
How do you build an evidence-based culture?









PDSA FORM

Test Title:		Date:	
Tester:	Cycle#:	Driver:	
What change idea is being tested?			
What is the overall GOAL of the test?*			

*Identify your overall goal: To make something work better? Learn how a new innovation works? Learn how to test in a new context? Learn how to spread or implement?

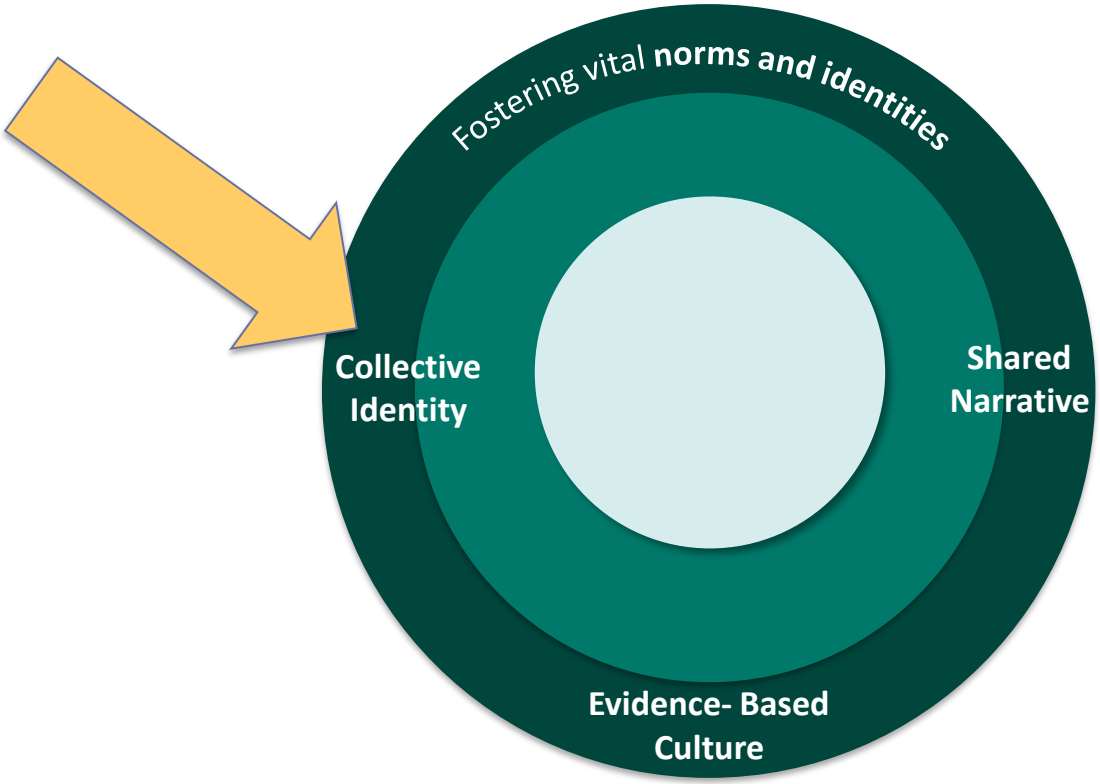
1) PLAN			3) STUDY
Questions: Questions you have about what will happen. What do you want to learn?	**Predictions**: Make a prediction for each question. Not optional.	**Data**: Data you'll collect to test predictions	**What were the results?** Comment on your predictions in the rows below. Were the correct? Record any data summaries as well.
Details: Describe the who/what/when/where of the test. Include your data collection plan.			**What did you learn?**

2) DO (Briefly describe what happened during the test, surprises, difficulty getting data, obstacles, successes, etc.)	4) ACT (Describe modifications and/or decisions for the next cycle; what will you do next?)

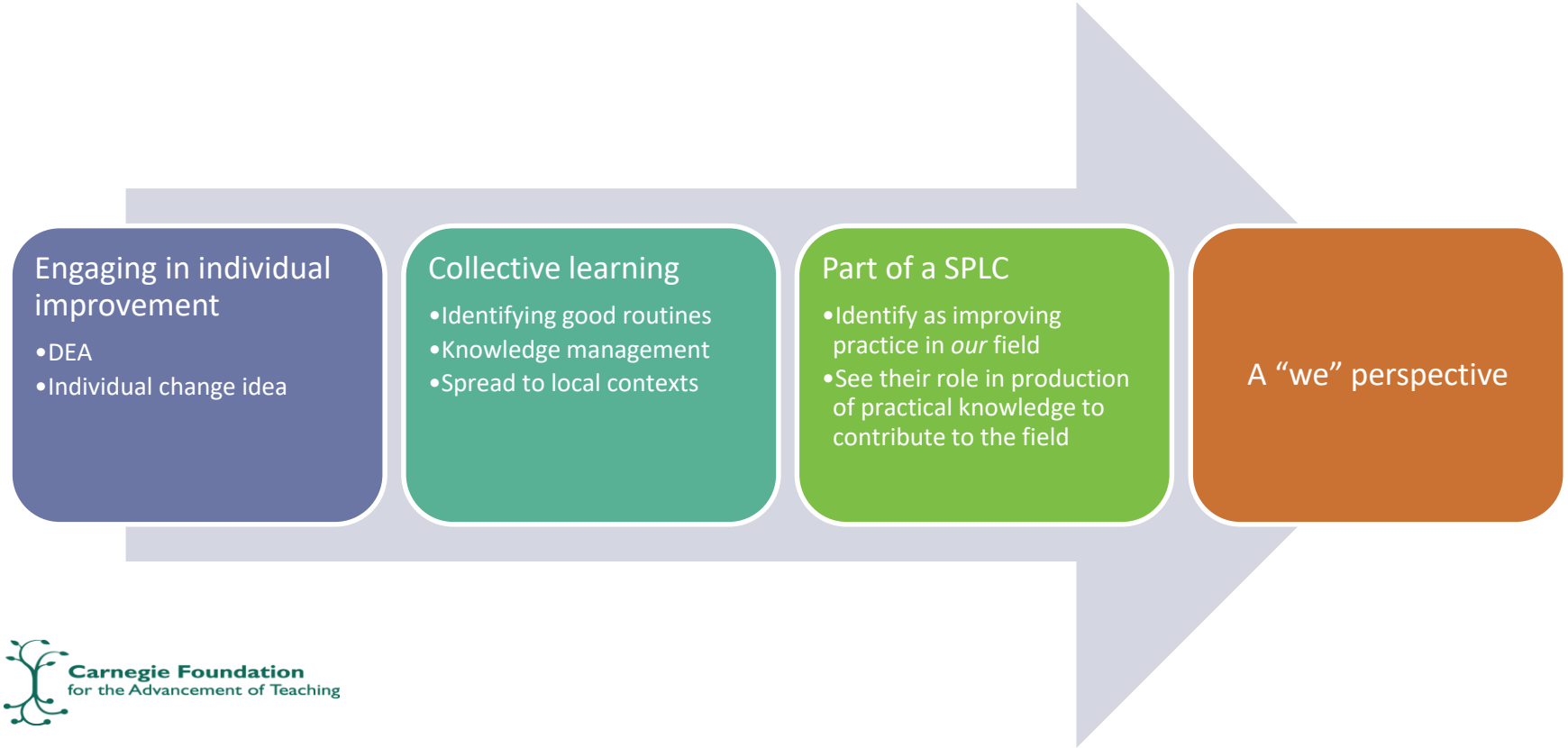
Challenges of developing an evidence-based culture

- Are teachers able to move from intuition to data-driven decision making?
- How does the documentation enable and constrain the learning and practice?
- How best to support the design and use of practical measurement?
- Are the ideas teachers are testing high-leverage and research-based?

How do you build a collective identity?



Collective identity



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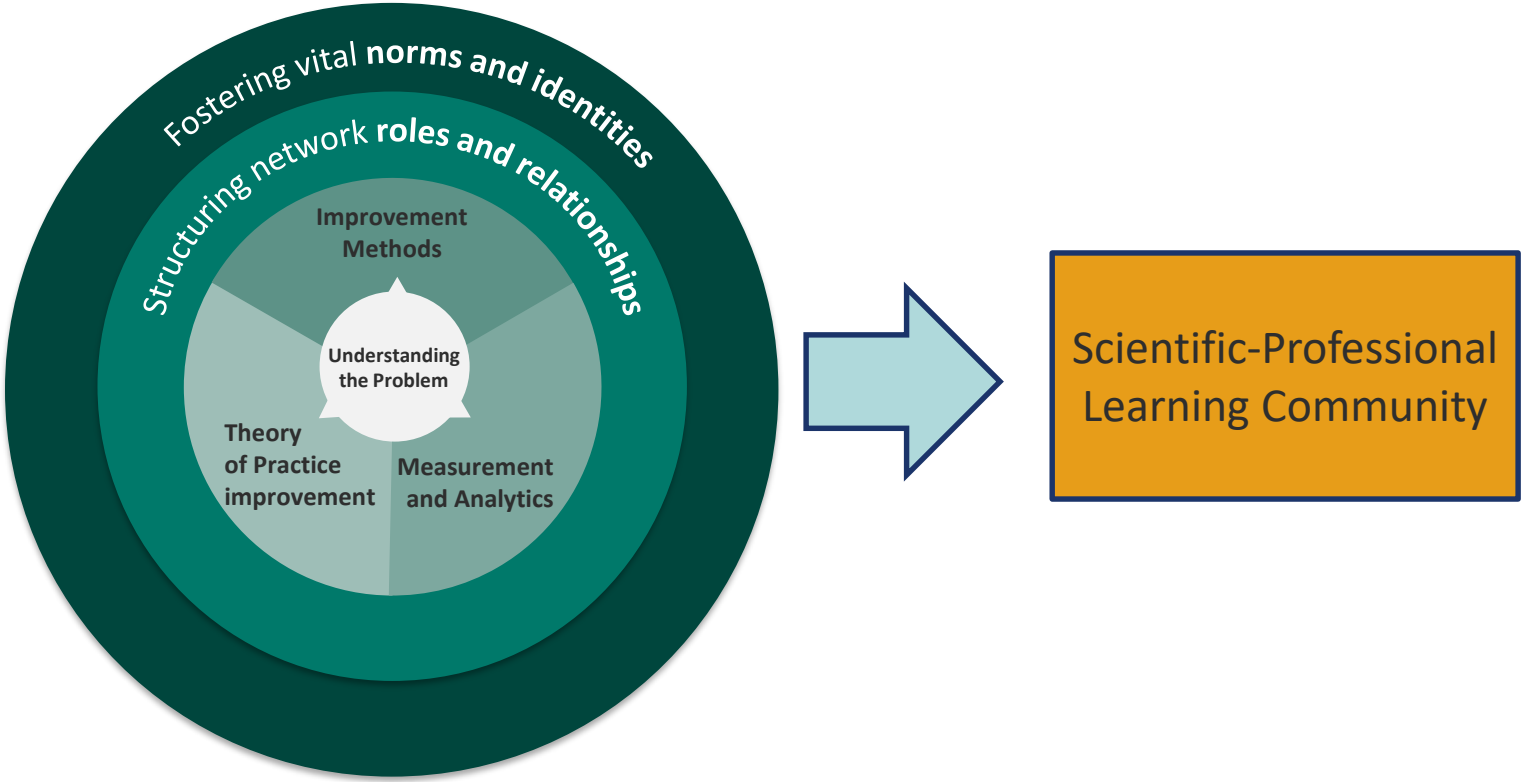
NIC Development Framework



Learning communities

- **Learning** communities
  - Network members are learning how to solve complex problems (Bryk, Gomez, Grunow, & LeMahieu, 2015)

Professional learning communities

- **Learning** communities
  - Network members are learning how to solve complex problems (Bryk, Gomez, Grunow, & LeMahieu, 2015)
- **Professional** learning community
  - Draw on and build a specialized and technical knowledge base (Stoll & Louis, 2007; Hiebert, Gallimore, & Sigler, 2002)
  - Communities that can access and distribute knowledge as a vehicle for continuous improvement (Dolle, Gomez, Russell, & Bryk, 2013)

Scientific-professional learning communities

- **Learning** communities
  - Network members are learning how to solve complex problems (Bryk, Gomez, Grunow, & LeMahieu, 2015)
- **Professional** learning community
  - Draw on and build a specialized and technical knowledge base (Stoll & Louis, 2007; Hiebert, Gallimore, & Sigler, 2002)
  - Communities that can access and distribute knowledge as a vehicle for continuous improvement (Dolle, Gomez, Russell, & Bryk, 2013)

Scientific-professional learning communities

- Methods for building knowledge through replication and observation across repeated trials (Mayer, 2000)
- Processes for verifying the learning produced by the community & infrastructure for recording, sharing, and accumulating knowledge (Hiebert, Gallimore, & Stigler, 2002)

Back to end goal…scientific-professional learning community

Scientific-Professional Learning Community

- NICs are communities grounded by shared goals, norms, theories, and practices
- NICs are professional communities engaged in disciplinary inquiry
- NICs coordinate and accelerate learning through strategic knowledge management

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Applying the framework

- Think about your own organization.
- How does it approach problem solving and collective learning?
- In what ways does it look like a scientific professional learning community?
- Purpose of this activity:
  - Help you deepen your understanding of the framework
  - Generate some ideas about how your organization might develop the characteristics of a scientific professional learning community.

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A. Shared goals, norms, theories, and practices

-Members have a clear, common understanding of their objectives and shared hypotheses about how to achieve them.

-Members have a collective commitment to their work and a sense of shared responsibility (as opposed to individual responsibility).

1. How would you rate your organization on this feature?

Weak			Moderate			Strong
1	2	3	4	5	6	7

2. What evidence leads you to that rating?

C. Strategic knowledge management

- Certain members harvest and manage the learning of others in the organization and make this learning visible.

-Certain members facilitate the spread of the most promising ideas that emerge from the collective learning of the organization.

1. How would you rate your organization on this feature?

Weak			Moderate			Strong
1	2	3	4	5	6	7

2. What evidence leads you to that rating?

B. Disciplined Inquiry

-Members use systematic methods of inquiry to test their theory about what strategies will be most effective at achieving their goals.

1. How would you rate your organization on this feature?

Weak			Moderate			Strong
1	2	3	4	5	6	7

2. What evidence leads you to that rating?

Questions for reflection

Thinking about these three features of scientific professional learning communities…

1. **What are your organization's relative strengths?**
2. **In what areas could your organization improve?**
3. **What action steps might you take to improve these aspects of your organization?**

Note: You can use the framework on page 2 to generate ideas about what action steps you might take.

Reflection Activity

- Read the handout, rate your own organization on the three components of an SPLC, and reflect on the provided questions
- Discuss your responses with a colleague
- Each person should share their areas of strength and challenge.
  - Then, talk about the challenge together and brainstorm possible next steps for network development.

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- Questions and Discussion

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For more information on the framework

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