Collaboration and Team Science: Mindset Matters

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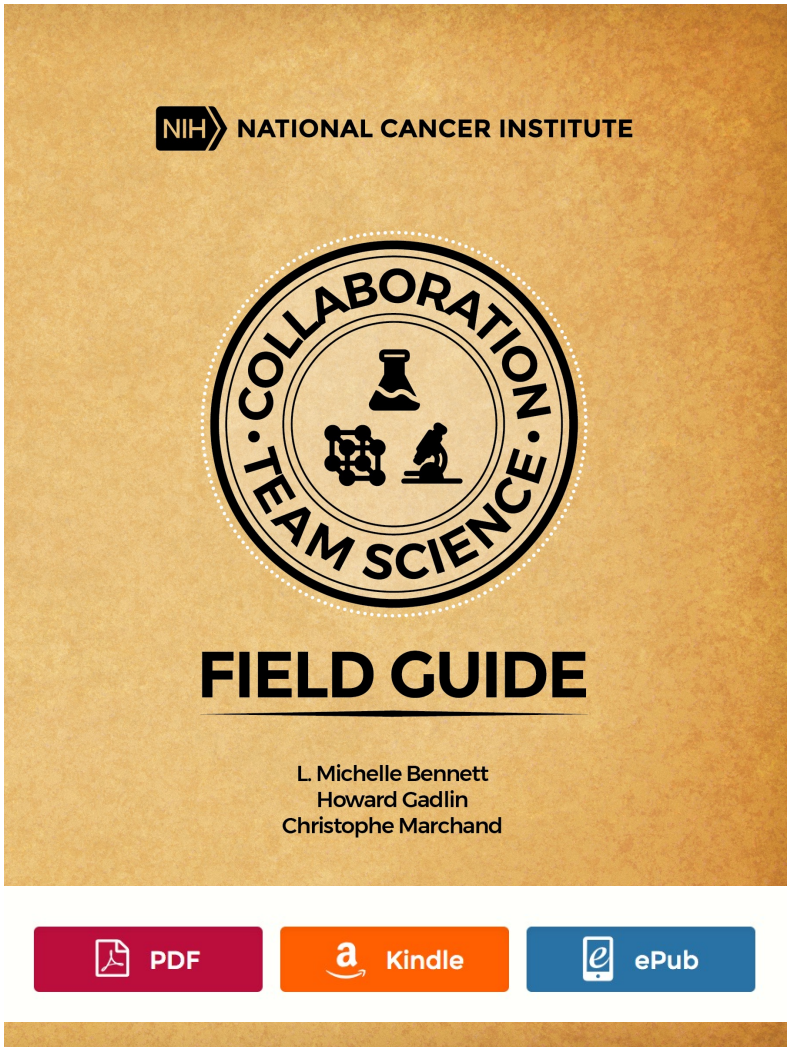
Interagency Modeling and Analysis Group

What Contributes to Successful Team Functioning?



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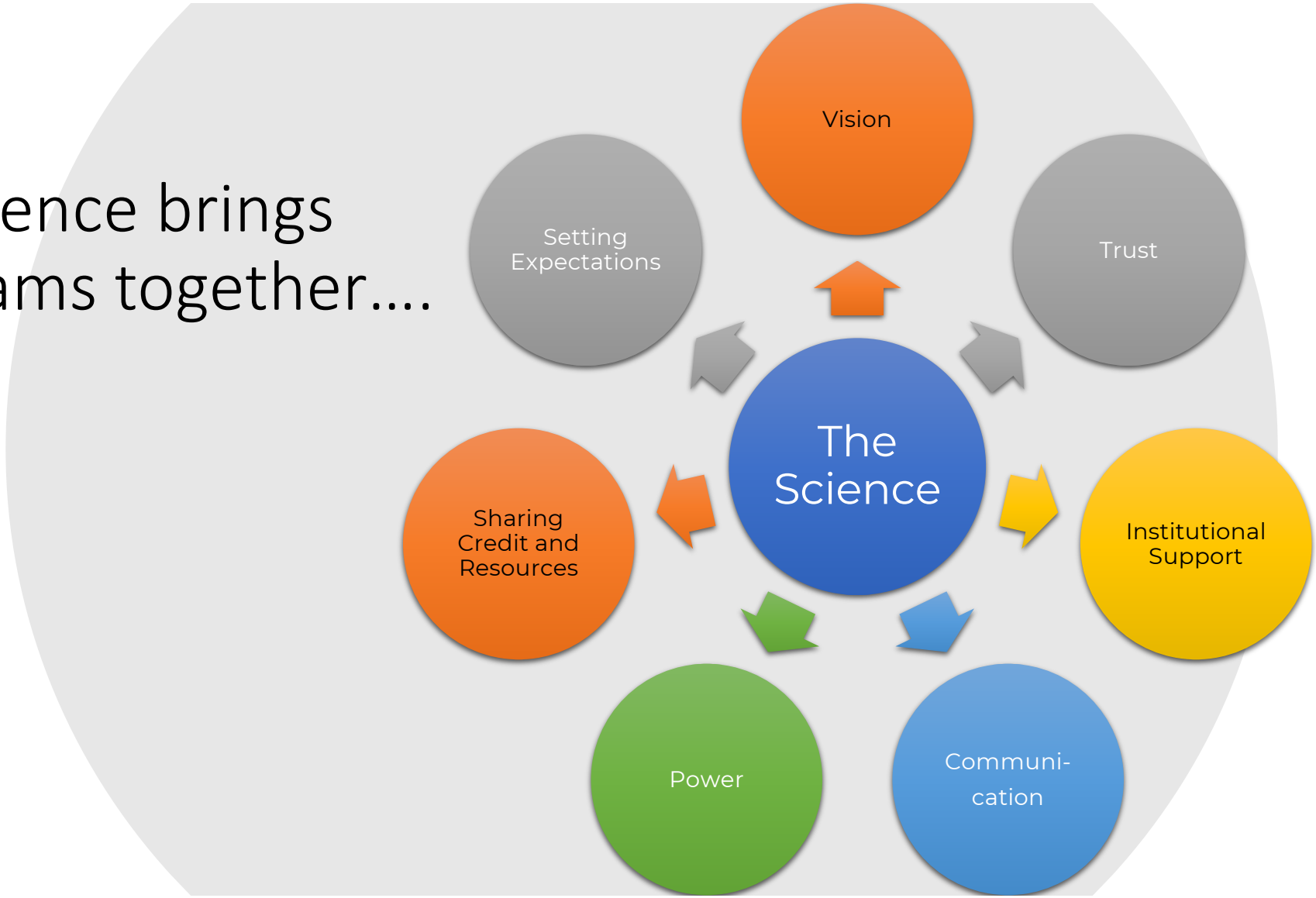
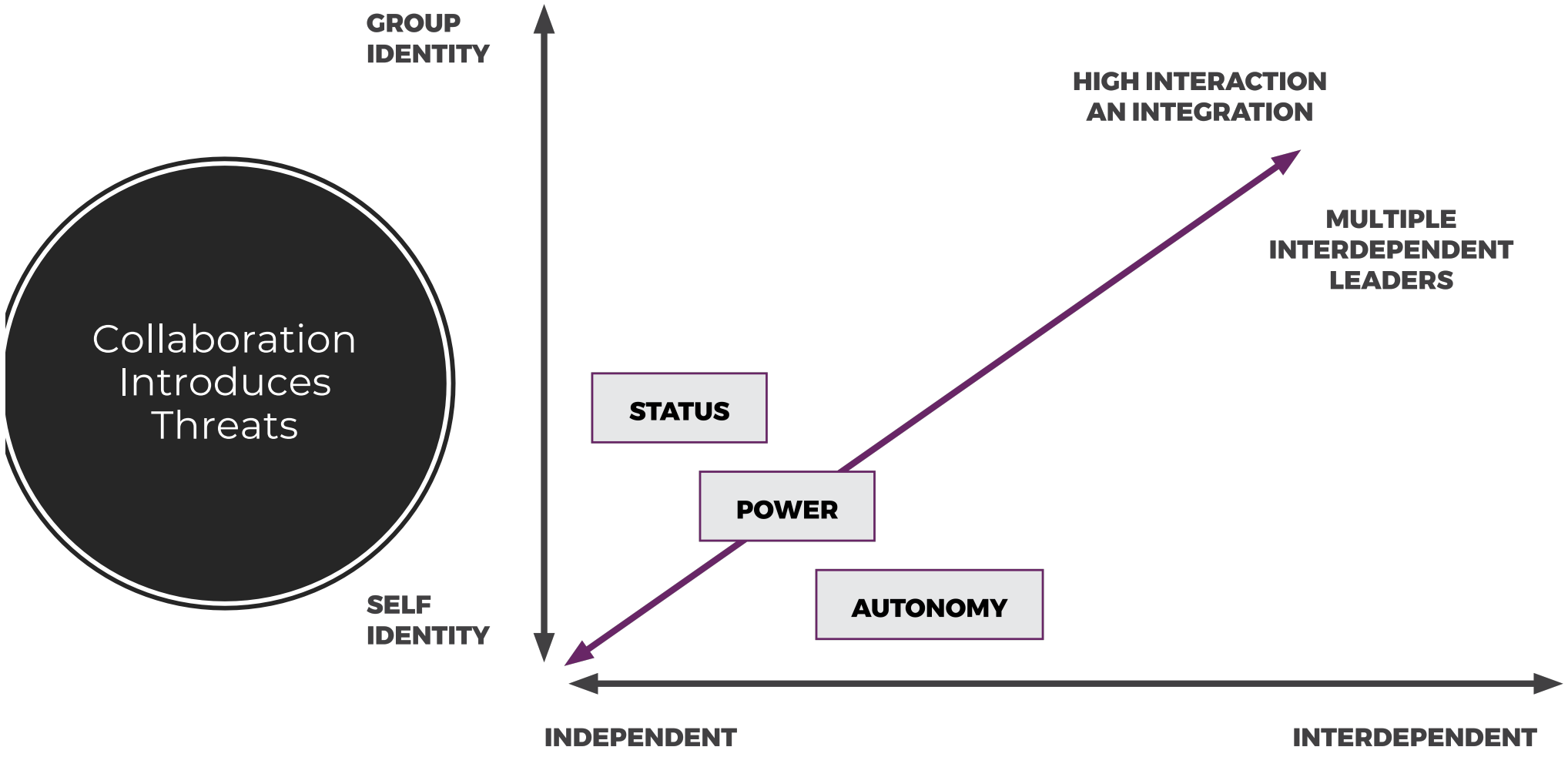
Science brings teams together….




GROUP IDENTITY
HIGH INTERACTION AN INTEGRATION
MULTIPLE INTERDEPENDENT LEADERS
Collaboration Introduces Threats
STATUS
POWER
AUTONOMY
SELF IDENTITY
INDEPENDENT
INTERDEPENDENT

Two Essential Areas of Focus

Science

Relationship

Let's Explore....

- Shared Vision
- Establishing Trust
- Setting Expectations
- Team Development
- Diversity
- Mindset – Behaviors - Results
- Effective Leadership

Shared Vision/Goal

- Key to successful leadership
- Sets the course for the team members to travel
- Improves group effectiveness
- Should be revisited regularly with the team –
  - Are we on track?
  - What has changed?

Trust

https://commons.wikimedia.org/wiki/File:Circus_Smirkus_-_Static_Trapeze.jpg

Types of Trust

Calculus based trust – built on calculations of the relative rewards for trusting or losses for not trusting

Competence based trust – built on the confidence in people's skills and abilities, allowing them to make decisions and train others

Identity based trust – built on an assumption of perceived compatibility of values, common goals, emotional/intellectual connection

Tools for Setting Expectations

[and creating a scaffold for building trust]

Collaborative Agreement

- Jointly created agreement among collaborators: can be formal or informal in its creation

"Welcome Letter"

- A scaffold for building deeper trust including: expectations and conflict

Institutional Agreements

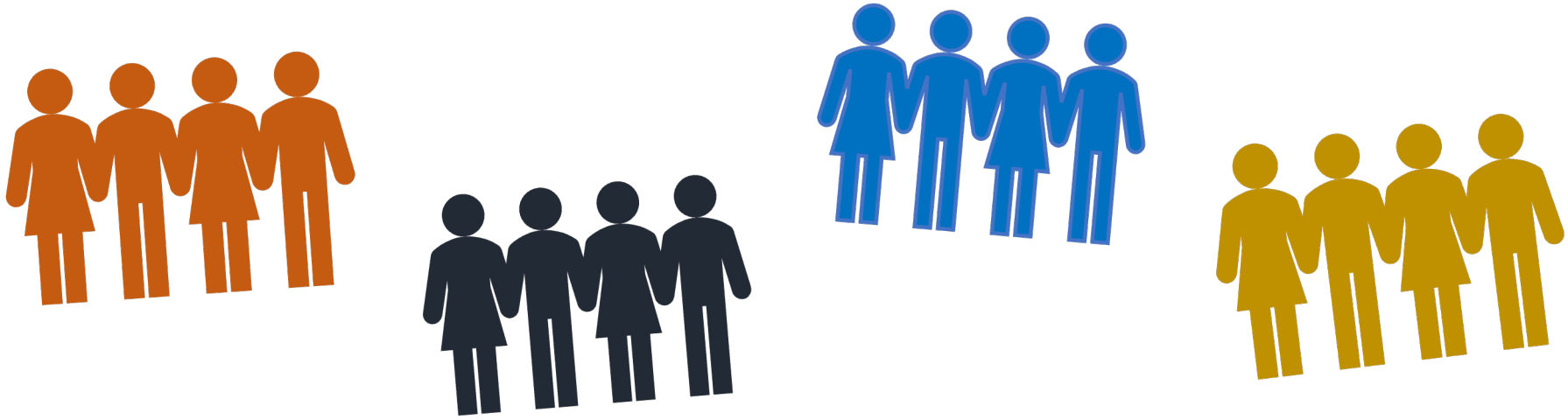
- Language in an offer letter or pre-tenure agreement
- Joint appointment agreements

Consortium Agreements

- Biospecimen collection/use; Publications; Data storage and sharing; etc..

Collaboration Agreement

Collaboration agreement developed by:
L. Michelle Bennett,
Michael O'Rourke,
and Edgar Cardenas



What about diversity?

Team Science is an Exercise in Diversity

- New perspectives
- Varied experiences
- Spectrum of lived expertise
- Demographics
- Challenging methodologies/ approaches/ assumptions
- Questioning interpretations, results, and proposed next steps
- Different values and views

Problem Solving

- A diverse group is more effective at solving problems than a homogenous group
- Random selection of intelligent participants from a diverse group results in teams that can outperform a team of the "best"-performers
- *Note: Identity diverse teams are more likely to run into challenges with communication, have more conflict, and take longer to build trust*

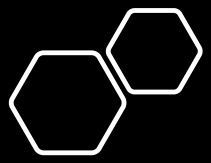
Hong and Page (2004) PNAS Vol 101: 16385

A Team of Experts

An Expert Team

“The greater the proportion of experts a team had, the more likely it was to disintegrate into nonproductive conflict or stalemate.”

Gratton and Erickson, HBR, November 2007
https://hbr.org/2007/11/eight-ways-to-build-collaborative-teams



More Women: Smarter Teams

"There is little correlation between a group's collective intelligence and the IQs of its individual members. But if a group includes more women, its collective intelligence rises."

Anita Woolley and Thomas Malone, HBR, June 2011

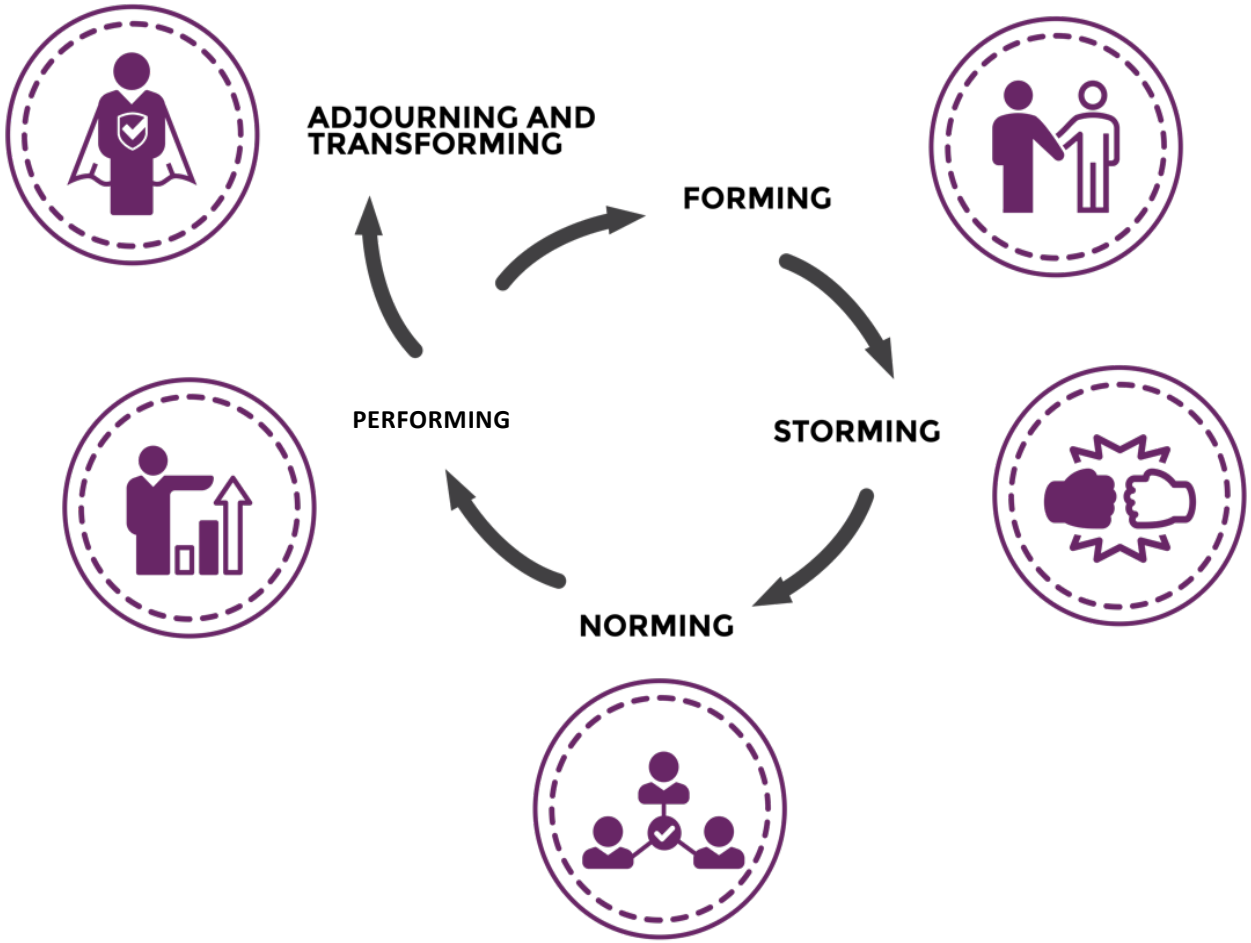
What's the Bottom Line?

When you bring a diverse group of people together to achieve a goal, you face an essential question:

How can the team benefit from the diversity without it undermining the team's functioning and performance?

Schwarz and Bennett, 2021 JCTS
https://pubmed.ncbi.nlm.nih.gov/34527296/

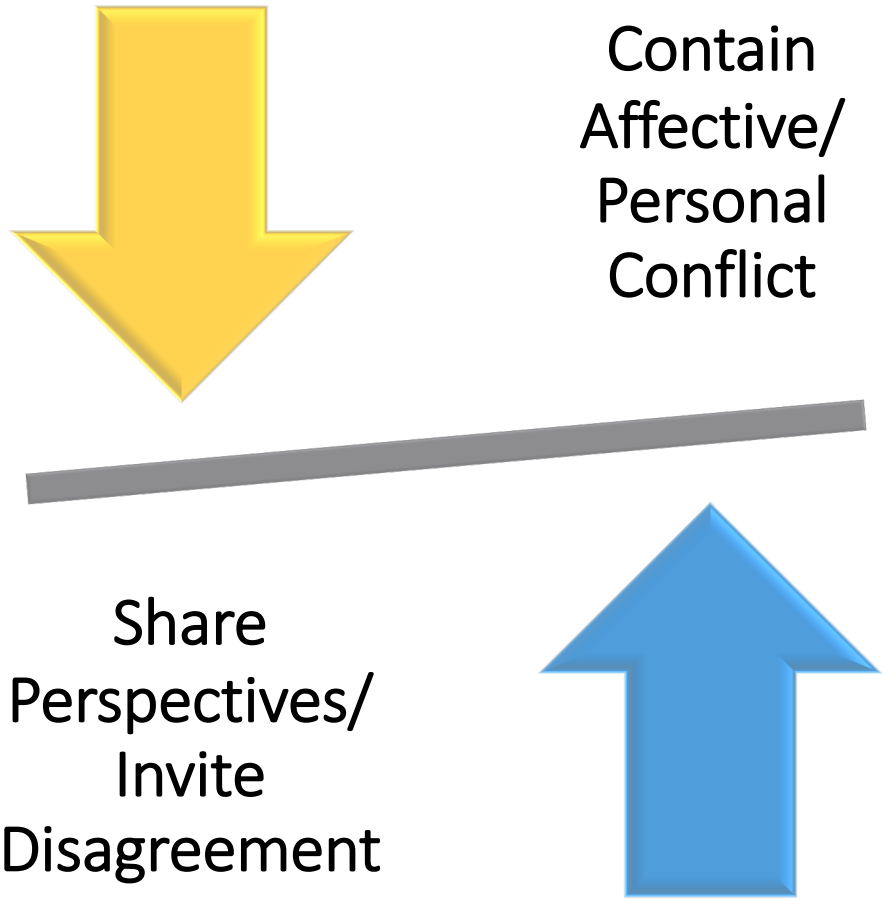
Model of Team Development



Current Challenge in Team Science

- Team Science models often describe the behaviors, skills, and characteristics needed for effective team functioning, such as trust, shared vision, and managing conflict.
- Through these models, teams may understand *what* they need to create, but don't learn *how*.
- How do teams:
  - Create and sustain trust?
  - Effectively integrate multiple divergent views to develop a shared vision?
  - To discuss, resolve, and sustain an open dialogue about core issues that are causing tension?

Productive Collision: In Science and in Relationship



Team Effectiveness Model for Science (TEMS)

TEMS seeks to answer two related questions

1. What are the variables that contribute to effective teams?

2. How do each of these variables need to be designed to ensure that each one makes its relevant contribution?

Schwarz and Bennett, 2021 JCTS
https://pubmed.ncbi.nlm.nih.gov/34527296/

TEMS Results

Scientific Productivity	Examples include: ▪ High-quality decisions ▪ Greater Innovation ▪ Shorter Implementation time ▪ Reduced costs (resource, time, etc..)
Working Relationships	▪ Greater commitment ▪ Increased trust ▪ Increased learning ▪ Reduced defensiveness ▪ Productive conflict ▪ Appropriate dependence on others
Individual Well-Being	▪ Increased motivation ▪ Increased satisfaction ▪ Richer development opportunities ▪ Reduced stress

Schwarz and Bennett, 2021 JCTS
https://pubmed.ncbi.nlm.nih.gov/34527296/

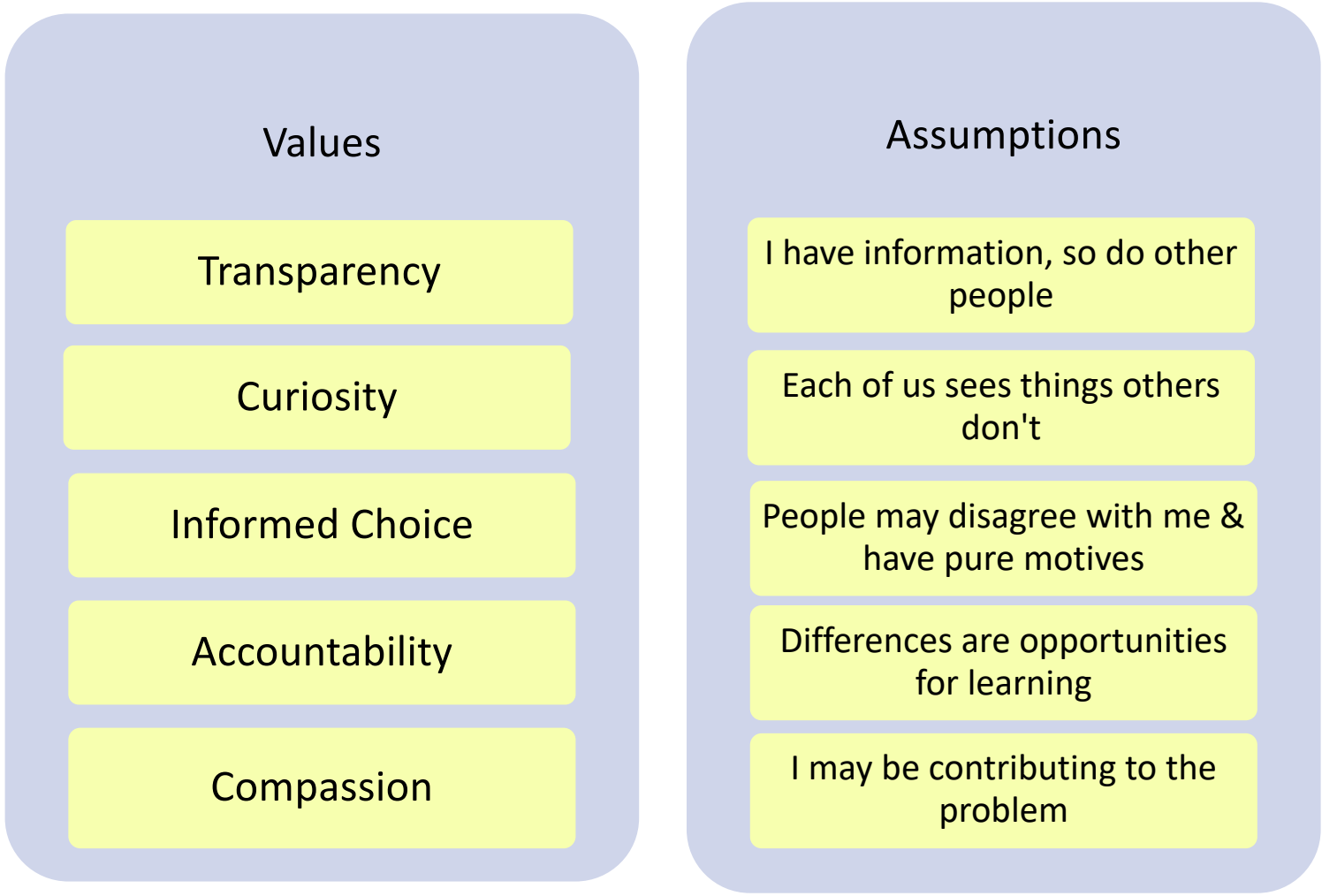

Mindset
Behaviors
Results

Unilateral Control Approach

Values	Assumptions
Win, don’t loose	I understand, those who disagree, don't
Be right	I am right, those who disagree are wrong
Minimize expressions of negative feelings	I have pure motives, those who disagree don’t
Act rational	My feelings and behavior are justified
	I am not contributing to the problem

Based on work by Roger Schwarz and Associates

Mutual Learning Approach



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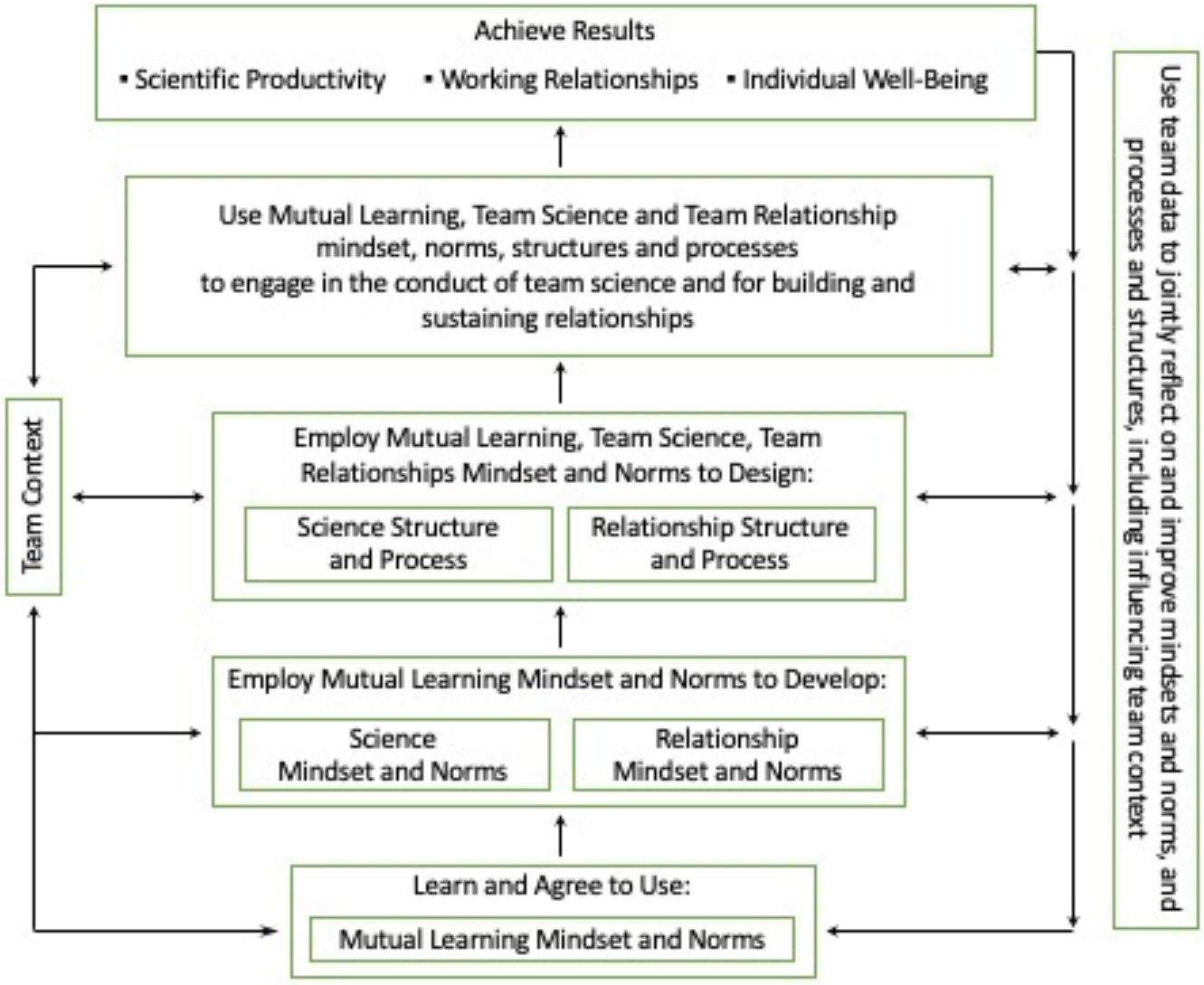
TEMS Model



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What Results does Your Team Want?

Scientific and
Relationship Results

What Results does Your Team Want?

Scientific and Relationship Results

- Advanced technology or measurement methods
- Make a technological or intellectual leap
- Return on research investment
- Open and honest with each other
- Establish trust
- Strong team dynamic
- Shared learning (such as each other's languages, etc…)

What Behaviors will Lead to Those Results?

Results

- Develop advanced measurement methods
- Make a technological leap (not step)
- Hit milestones on time
- Teams speaks openly and honest with each other
- Establish trust
- Strong team dynamic
- Shared learning (such as each other's languages, etc…)

What Behaviors will Lead to Those Results?

Behaviors

- Need to know where the science is today and be clear on the goal
- Leverage all the different ideas /disciplines /experts from the team members
- Set clear expectations, roles and responsibilities
- Effectively manage conflict
- Respect each other's time and effort

Results

- Develop advanced measurement methods
- Make a technological leap (not step)
- Hit milestones on time
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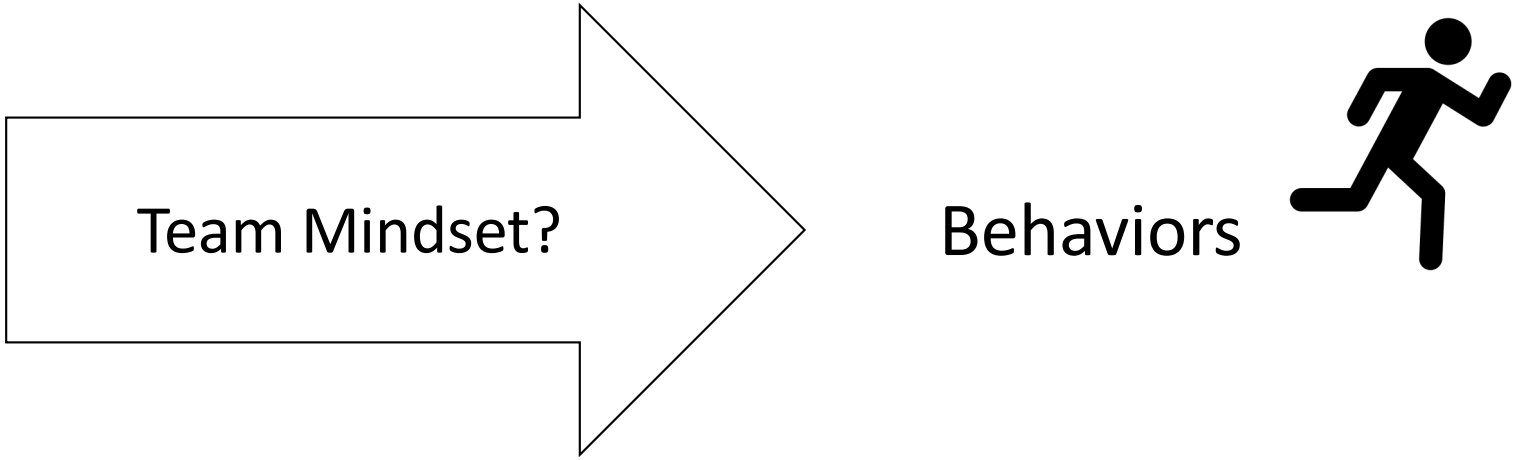
What Team Mindset Can Drive those Behaviors?



- Core: ML
- Science
- Team Relationship

- Core: ML
- Science
- Team Relationship

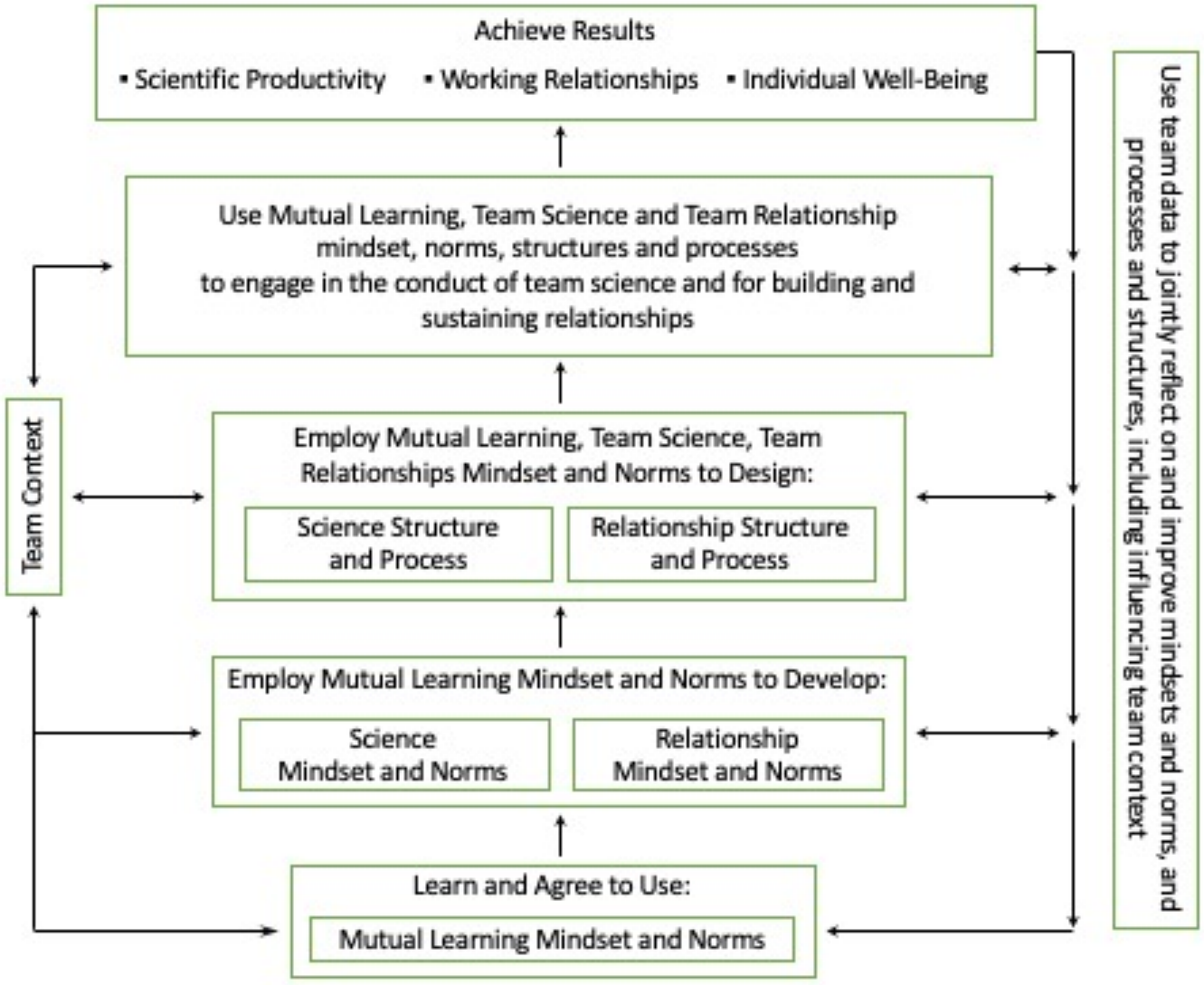
- Scientific Productivity and Impact
- Team Relationship
- Well-Being

Mindset Matters

	Mutual Learning	Unilateral Control
Values	• Transparency • Curiosity • Informed choice • Accountability • Compassion	• Win, don't lose • Be right • Minimize expressions of negative feelings • Act rational
Assumptions	• I have information; so do other people • Each of us see things others don't • People may disagree with me and still have pure motives • Differences are opportunities for learning • I may be contributing to the problem	• I understand the situation; those who disagree don't • I am right; those who disagree are wrong • I have pure motives; those who disagree have questionable motives • My feelings and behavior are justified • I am not contributing to the problem

Roger Schwarz and Associates

TEMS



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What is one mindset shift you can make today?

https://upload.wikimedia.org/wikipedia/commons/a/a5/Sch%C3%B6ne_Geschenke.jpg

Think About Ideas as Gifts

- Imagine: When someone shares an idea, they are sharing a gift
- What can you do with that gift?

Possible Reactions

Have you ever heard….

- *That's a bad idea*
- *How are you going to do that?*
- *Sure/that's interesting, but ….*
  - *I have a better idea; it will never work; the group won't like it; etc…*
  - *However…* Is a fancy but

What if we all used: “Thank-you, *and*….”

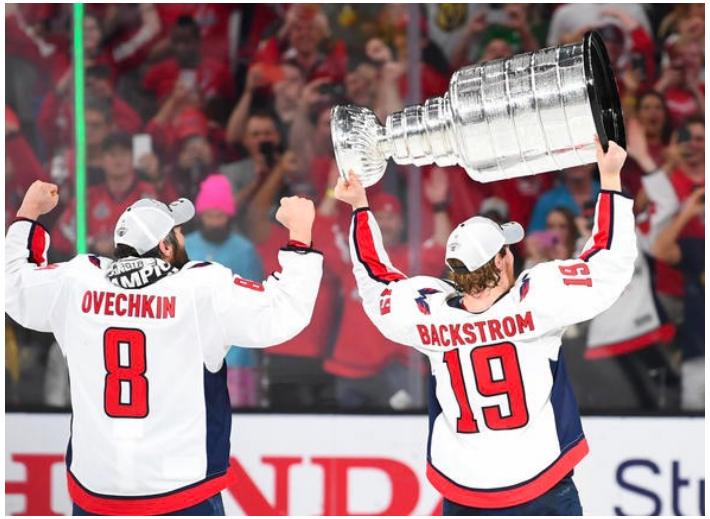
- It is at the foundation of creativity and innovation
  - *Ever seen or done improv???*
- Requires trust
- Provides a bridge from a *not so good,* to a *better,* to a *great* idea
- Helps sustain, maintain, and strengthen teams

*Ideas **do not require** action – they **require** an opportunity to be acted upon*

No Formula for Effective Leadership

- Self- and other-awareness
- Shared responsibility for success
- Accountability for issues and problems
- Mentoring others
- Managing up and across
- Creating a safe environment
- Speaking up, challenging ideas
- Difficult conversations
- Giving your best everyday
- Serving as a role model

What is the difference between hockey players and researchers?



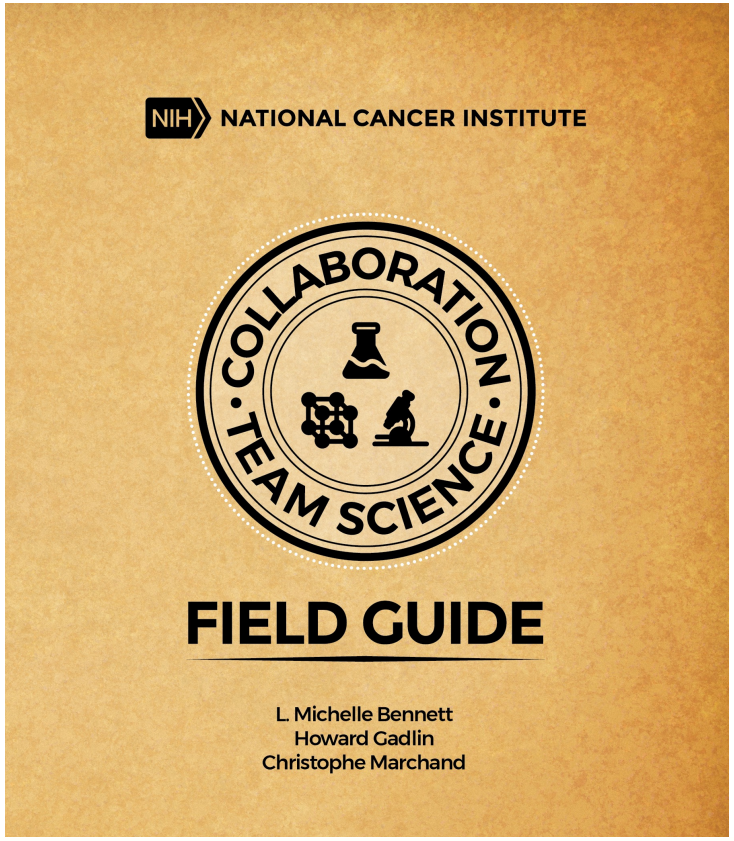
Hockey players practice

June 2018

Sharing Credit

- Christophe Marchand
- Howard Gadlin
- Samantha Levine-Finley

- Feedback:
  LMBennett@nih.gov



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Questions or Comments?

Using TEMS to Create a New Team or Develop an Existing Team

1. Training to establish individual and shared mutual learning mindsets and skillsets;
2. Team developmental facilitation and individual coaching to broaden and deepen mutual learning skillset and mindset, including self-reflection and redesign;
3. Team effectiveness consultation to design mindset, norms, structures and processes for team science and team relationships; and
4. Team effectiveness evaluation for feedback and comprehensive reflection and redesign.

	Mutual Learning	Unilateral Control
Mindset		
Values		
	Transparency	Win, don't lose
	Curiosity	Be right
	Informed choice	Minimize expressions of negative feelings
	Accountability	Act rational
	Compassion	
Assumptions		
	I have information; so do other people	I understand the situation; those who disagree don't
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	Differences are opportunities for learning	My feelings and behavior are justified
	I may be contributing to the problem	I am not contributing to the problem

Team Structures, Processes, and Context

Team Structure	▪ Clear mission and shared vision ▪ Clear hypotheses and/or goals ▪ Motivating work ▪ Appropriate membership (e.g., skills and preferences for working interdependently, expertise needed, diversity of perspectives) ▪ Clearly defined roles and responsibilities ▪ Effective team culture ▪ Team norms (mutual learning, science, and relationship) ▪ Workload that enhances rather than hinders the three team effectiveness results
Team Process	▪ Effective problem solving ▪ Appropriate decision making ▪ Productive conflict management ▪ Direct and accountable communication ▪ Clearly defined boundaries with other entities
Team Context	▪ Clear organizational mission ▪ Supportive culture ▪ Recognition, review, and reward for interdisciplinary research ▪ Relevant information, including feedback ▪ Resources ▪ Training and development ▪ Physical and virtual work environments